

# **CHAPTER 2**

---

## **HARDWARE SETUP**

### **ATTENTION !!!**

---

1. Please refer to your processor installation or other documentation attached with your CPU for more detailed installing instruction.
2. Installing a heat sink and cooling fan is necessary for proper heat dissipation from your CPU. Incorrect installation may result in overheating and damage of your CPU.
3. Before changing the setting of CPU Vcore from BIOS program, user SHOULD make sure of correct specification both of CPU CLOCK and RATIO. Incorrect setting may cause damage to your CPU.

---

### **THIS CHAPTER CONTAINS THE FOLLOWING TOPICS :**

---

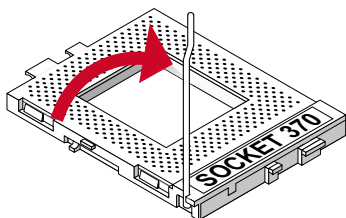
- 2-1 CPU INSTALLATION**
- 2-2 MEMORY INSTALLATION**
- 2-3 HDD/FDD INSTALLATION**
- 2-4 FOR CPU FREQUENCY AND VOLTAGE**
- 2-5 FOR DEVICE ON BOARD**
- 2-6 CONNECTORS CONFIGURATION**

## 2- 1 CPU INSTALLATION

### ***WARNING !!!***

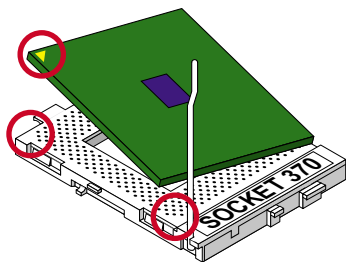
*Never run you processor without the heat sink properly and firmly attached.*

**PERMANENT DAMAGE WILL RESULT!**



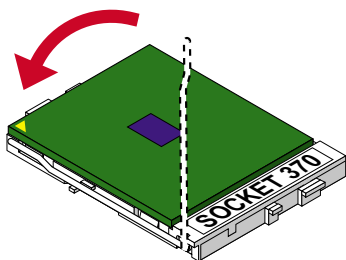
**1**

- Pull out the lever from the socket, and then raise the lever up to a 90-degree angle.



**2**

- Take notice of the red circles as shown below. While inserting the CPU into the socket, you can find out there is a definite pin orientation for CPU and socket.



**3**

- Make sure that the CPU is placed into the socket tightly. Then lower down the lever to complete the CPU installation.

## 2- 2 MEMORY INSTALLATION

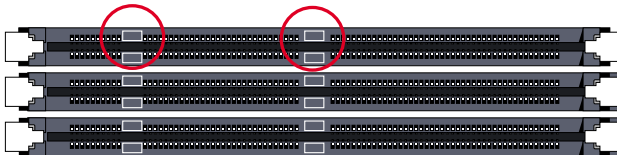
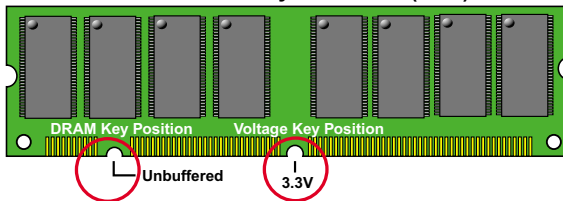
### **WARNING !!!**

- Make sure that you unplug your power supply when adding or removing memory modules or other system components, failure to do so may cause severe damage to both your mainboard and expansion cards.
- Be careful when inserting or removing DIMM, forcing a DIMM in or out of a socket can be damaged the memory module or the socket. Some of DIMMs contain EDO or FTP DRAM that accept only 5V power. These DIMM types are incompatible with the mainboard, the M/B only supports 3.3V true SDRAM DIMMs.

### Installing DIMM

- Make sure you have the correct memory module type for your mainboard.
- Insert the module(s) as shown below, DIMMs have 168-pins and two notches that will be matched by the onboard DIMM socket. Memory modules are installed by inserting them straight into the slot until they “click” in the right place. They only fit in one direction, so do not force them in by a wrong direction.

168-Pin DIMM Notch Key Definitions(3.3V)

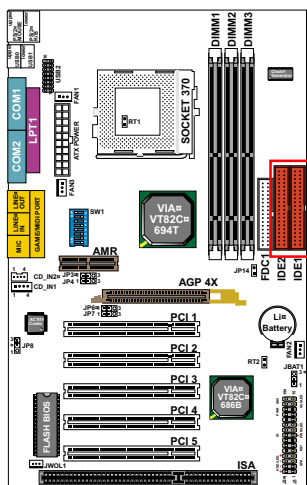


### Removing DIMM

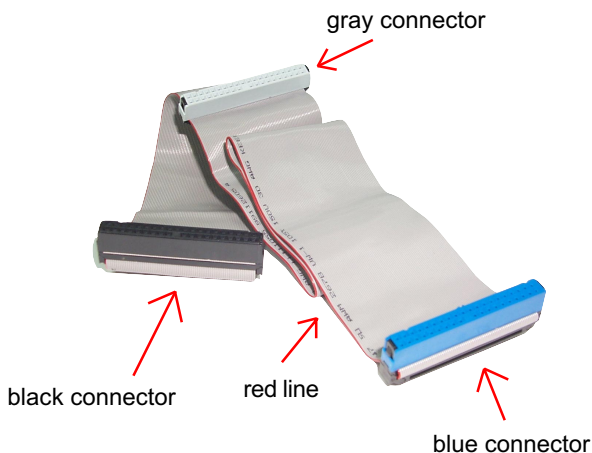
- Press down the holding clips on both sides of a DIMM socket and the module will be released from it.

## 2- 3 HDD/FDD INSTALLATION

- To install HDD (Hard Disk Drive), you may connect the cable's blue connector to the mainboard's primary (IDE1) or secondary IDE connector, and then connect the gray connector to your slave device and the black connector to your master device. If you install two hard disks, you must configure the second drive to Slave mode by setting its jumper accordingly. Please refer to your hard disk documentation for the jumper settings.

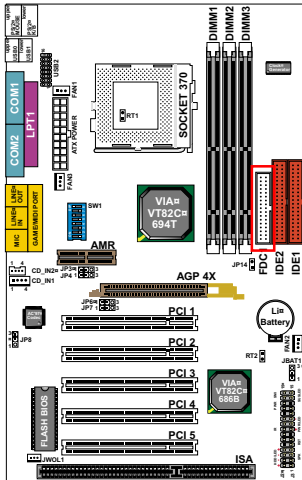


**Hard Disk Drive Connector:**  
Orient the red line on the IDE ribbon cable to Pin1.

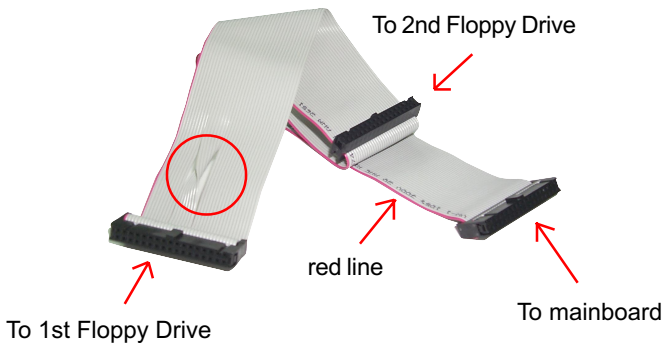


**IDE Cable**

- To install FDD (Floppy Disk Drive), connect the end with single connector to the mainboard, and connect other end with two connectors to the floppy drives.



**Floppy Disk Drive Connector:**  
Orient the red line on the floppy ribbon cable to Pin1.



## FDD Cable




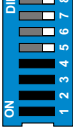
2-4 CPU BUS RATIO SELECT (BY SW1 DIP1~DIP4)

- Normally, the Bus Ratio (Frequency Multiplier) of your processor is locked by processor's Vendor and setting of the CPU Bus Ratio will have no effect.
- The Bus Ratio Setting is available on unlocked processors only.

SW1 DIP1 ~ DIP4 SETTING																																									
3.0x	ON	<table><tr><td>ON</td><td>ON</td><td>ON</td><td>ON</td><td>■</td><td>■</td></tr><tr><td></td><td></td><td>OFF</td><td></td><td>■</td><td>■</td></tr><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr></table>	ON	ON	ON	ON	■	■			OFF		■	■	1	2	3	4	5	6	3.5x	ON	<table><tr><td>ON</td><td></td><td></td><td>ON</td><td>■</td><td>■</td></tr><tr><td></td><td></td><td>OFF</td><td>OFF</td><td>■</td><td>■</td></tr><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr></table>	ON			ON	■	■			OFF	OFF	■	■	1	2	3	4	5	6
	ON	ON	ON	ON	■	■																																			
			OFF		■	■																																			
1	2	3	4	5	6																																				
ON			ON	■	■																																				
		OFF	OFF	■	■																																				
1	2	3	4	5	6																																				
4.0x	ON	<table><tr><td>ON</td><td>ON</td><td>ON</td><td>ON</td><td>■</td><td>■</td></tr><tr><td>OFF</td><td></td><td></td><td></td><td>■</td><td>■</td></tr><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr></table>	ON	ON	ON	ON	■	■	OFF				■	■	1	2	3	4	5	6	4.5x	ON	<table><tr><td></td><td>ON</td><td></td><td>ON</td><td>■</td><td>■</td></tr><tr><td></td><td>OFF</td><td></td><td>OFF</td><td>■</td><td>■</td></tr><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr></table>		ON		ON	■	■		OFF		OFF	■	■	1	2	3	4	5	6
	ON	ON	ON	ON	■	■																																			
	OFF				■	■																																			
1	2	3	4	5	6																																				
	ON		ON	■	■																																				
	OFF		OFF	■	■																																				
1	2	3	4	5	6																																				
5.0x	ON	<table><tr><td></td><td></td><td></td><td>ON</td><td>■</td><td>■</td></tr><tr><td>OFF</td><td>OFF</td><td></td><td></td><td>■</td><td>■</td></tr><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr></table>				ON	■	■	OFF	OFF			■	■	1	2	3	4	5	6	5.5x	ON	<table><tr><td></td><td></td><td></td><td></td><td>ON</td><td>■</td></tr><tr><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>■</td><td>■</td></tr><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr></table>					ON	■	OFF	OFF	OFF	OFF	■	■	1	2	3	4	5	6
				ON	■	■																																			
	OFF	OFF			■	■																																			
1	2	3	4	5	6																																				
				ON	■																																				
OFF	OFF	OFF	OFF	■	■																																				
1	2	3	4	5	6																																				
6.0x	ON	<table><tr><td>ON</td><td>ON</td><td>ON</td><td>ON</td><td>■</td><td>■</td></tr><tr><td></td><td></td><td></td><td>OFF</td><td>■</td><td>■</td></tr><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr></table>	ON	ON	ON	ON	■	■				OFF	■	■	1	2	3	4	5	6	6.5x	ON	<table><tr><td>ON</td><td>ON</td><td></td><td></td><td>■</td><td>■</td></tr><tr><td></td><td></td><td></td><td>OFF</td><td>■</td><td>■</td></tr><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr></table>	ON	ON			■	■				OFF	■	■	1	2	3	4	5	6
	ON	ON	ON	ON	■	■																																			
				OFF	■	■																																			
1	2	3	4	5	6																																				
ON	ON			■	■																																				
			OFF	■	■																																				
1	2	3	4	5	6																																				
7.0x	ON	<table><tr><td>ON</td><td></td><td>ON</td><td>ON</td><td>■</td><td>■</td></tr><tr><td></td><td>OFF</td><td></td><td>OFF</td><td>■</td><td>■</td></tr><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr></table>	ON		ON	ON	■	■		OFF		OFF	■	■	1	2	3	4	5	6	7.5x	ON	<table><tr><td>ON</td><td></td><td></td><td></td><td>■</td><td>■</td></tr><tr><td></td><td>OFF</td><td></td><td>OFF</td><td>■</td><td>■</td></tr><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr></table>	ON				■	■		OFF		OFF	■	■	1	2	3	4	5	6
	ON		ON	ON	■	■																																			
		OFF		OFF	■	■																																			
1	2	3	4	5	6																																				
ON				■	■																																				
	OFF		OFF	■	■																																				
1	2	3	4	5	6																																				
8.0x	ON	<table><tr><td></td><td></td><td>ON</td><td>ON</td><td>■</td><td>■</td></tr><tr><td>OFF</td><td></td><td></td><td>OFF</td><td>■</td><td>■</td></tr><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr></table>			ON	ON	■	■	OFF			OFF	■	■	1	2	3	4	5	6																					
			ON	ON	■	■																																			
	OFF			OFF	■	■																																			
1	2	3	4	5	6																																				

## 2-4-1 FSB FREQUENCY SELECT (BY SW1 DIP5~DIP8)

- Over clocking is not recommended, your system may work unstable.
- SW1 DIP5~8 settings for FSB (Front Side Bus) Frequency Select is a redundancy device designed for professional CPU overclocking only. Since this mainboard is designed with CPU clock auto-detection function, you are recommended to use the SW1 DIP5~8 default setting for a stable system performance. In case of CPU overclocking to higher frequency, these exists high possibility of failure due to the high complexity of components adopted on board. On the other hand, selecting a lower frequency setting for a CPU with higher frequency (e.g. select 100MHz setting for a 133MHz CPU) will also cause system failure.

SW1 DIP5 ~ DIP8	
66/100/133MHz Auto Select (default)	
66MHz	
100MHz	
133MHz	

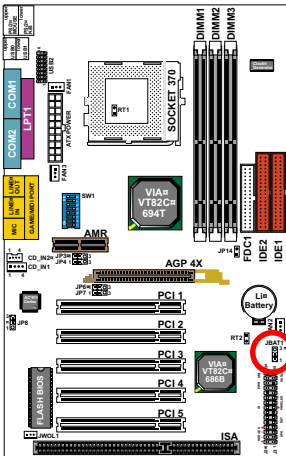
2- 5 JUMPER SETTING FOR DEVICES ON BOARD:

- The following diagrams show the location for jumper blocks on the mainboard.

**CAUTION**

- Do not remove the jumper when power is on. Always make sure the power is off before changing any jumpers. Otherwise, mainboard could be damaged.
- All jumper pins covered with block marks are closed pins.

2-5-1 JUMPER JBAT1 FOR CLEARING CMOS DATA:



Jumper JBAT1 For Clearing CMOS Data

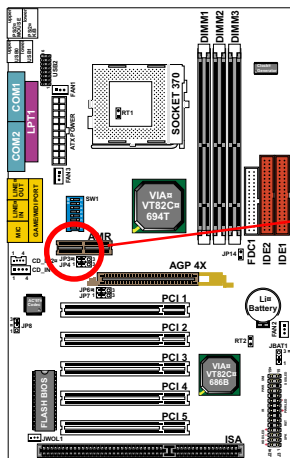
Clear CMOS Data	JBAT1	
Retain Data (default)	JBAT1	

A battery should be used to supply the power for the CMOS RAM to retain mainboard configuration.





**NOTE :** You can clear CMOS by setting pin 2-3 closed when the system is POWER OFF. Then,return to pin 1-2 closed position (default). You may damage the mainboard if clearing the CMOS with POWER ON . Unplugging the power cord from power supply before clearing CMOS



## 2-5-2 USB2 HEADER SELECT-1 (BY JP3/JP4)

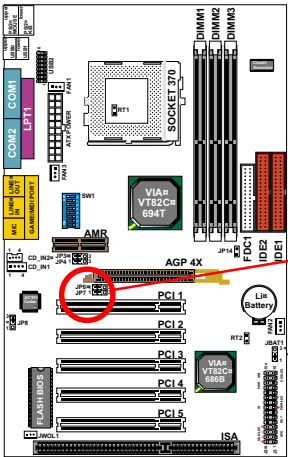


USB Header Select-1 (by JP3/JP4)





<b>Redirect USB port 3 to USB 2 header (default)</b>	JP3  JP4 
<b>Redirect USB 2 header to AMR (not connected)</b>	JP3  JP4 

USB2 Header Select1 by JP3/4 is for future use when there is a need to connect USB2 Header to AMR. Currently, USB2 to AMR is not connected. Please keep use default setting to enable USB2 Header.

2-5-3 USB 1 SELECT-2 (BY JP6/JP7)

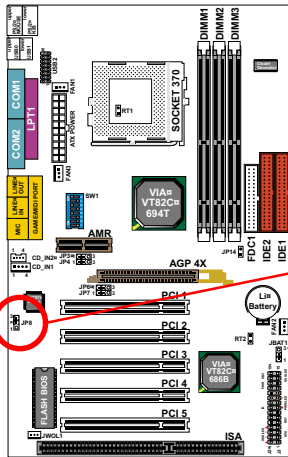


USB 1 Select-2 (by JP6/JP7)



Redirect USB 1 to USB connector (default)	JP6  JP7 
Redirect USB 1 to AGP (not connected)	JP6  JP7 

JP6/7 are for future use when there is a need to connect USB1 to AGP. Currently, USB1 to AGP is not connected. Please keep use default setting to enable USB1.

2-5-4 POWER LOST RESUME (BY JP8)

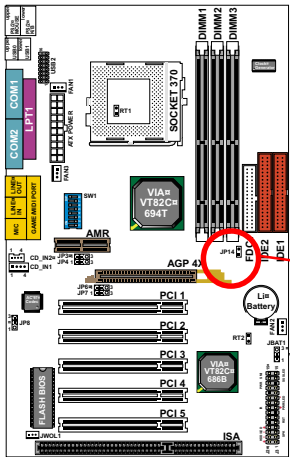


Power Lost Resume (by JP8)

Normal (default)	JP8 
Enabled	JP8 

This jumper allows you to use the switch of ATX power supply to control ON/ OFF switch directly instead of using the power switch on the motherboard.

2-5-5 FACTORY TEST (BY JP14)



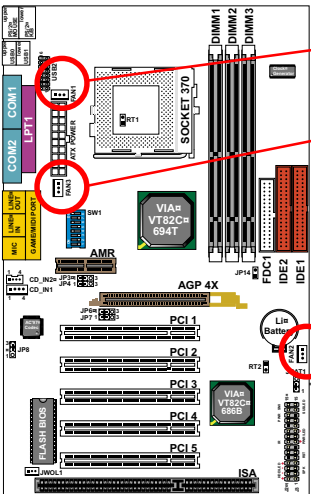
Factory Test (by JP14)

Only for factory test.	JP14
------------------------	------

2-6 CONNECTORS CONFIGURATIONS

- This section lists out all connectors configurations for users' reference:

2-6-1 ONBOARD FAN CONNECTOR (FAN1/FAN2)

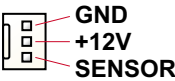


Onboard FAN Connector (FAN1)

Onboard FAN Connector (FAN3)

Onboard FAN Connector (FAN2)

CPU FAN	FAN1	
SYSTEM FAN	FAN2	
CHASSIS FAN	FAN3	



These connectors support CPU/System cooling fan with +12V. When connecting wire to FAN connectors, users should pay attention that the red wire is for the positive current and should be connected to pin +12V, and the black wire is Ground and should be connected to pin GND. If your mainboard has Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of this function.

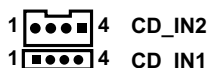
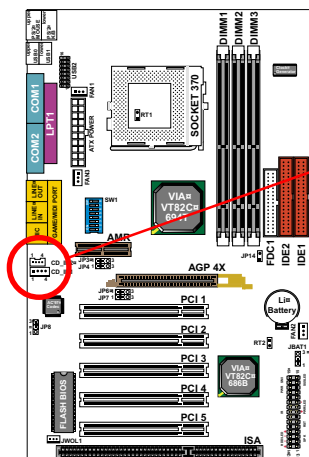
For fans with speed sensors, the rotation of the fan blades will send out 2 electric pulses, by which system Hardware Monitor will work out the fan rotation speed.

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

**NOTE 2 :** CPU FAN supports the FAN control.

This will automatically control the CPU FAN speed according to the actual CPU temperature.

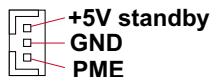
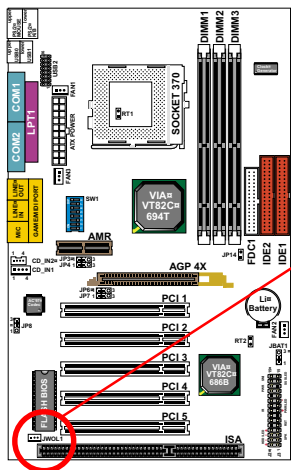
## 2-6-2 CD-ROM AUDIO CONNECTOR (CD\_IN1/CD\_IN2)



CD-ROM Audio Connector (CD\_IN1/  
CD\_IN2)

PIN NO.	CD_IN1	CD_IN2
PIN 1	Left Channel	Left Channel
PIN 2	GND	GND
PIN 3	GND	Right Channel
PIN 4	Right Channel	GND

## 2-6-3 WAKE ON LAN (JWOL1)



Wake On Lan (JWOL1)

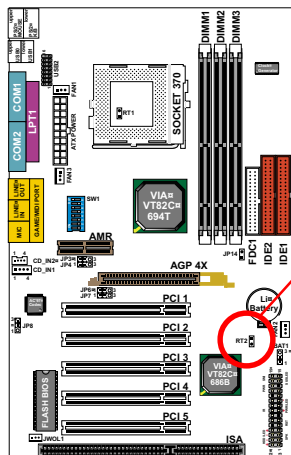
Connect the Wake On LAN  
signal from LAN card  
to WOL1

JWOL1 

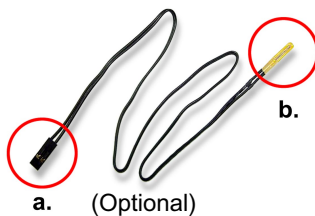
This connector connects to a LAN card with a Wake On LAN output. The connector powers up the system when a wake-up packet or signal is received through the LAN card.

This feature requires that Wake On LAN feature is enabled in the BIOS setting called "Power Management Setup" on the BIOS setup and that your system must have an ATX power supply with at least **720mA / +5V** standby power.

## 2-6-4 THERMAL SENSOR CONNECTOR (RT2)



Thermal Sensor Connector (RT2)

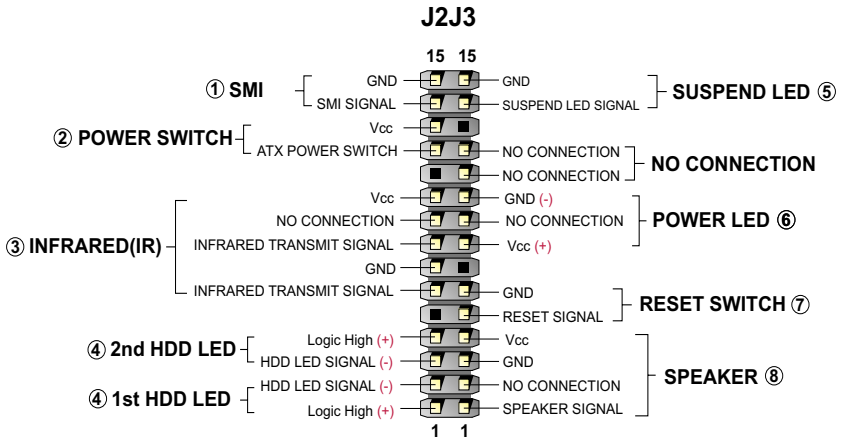


(Optional)

We provide a thermal cable in the mainboard package. This thermal cable is to monitor device which will generate a lot of heat, such as HDD, graphics card etc.. Please connect one end of the thermal cable (A) to mainboard RT2 header, and tape the other end of thermal cable (B) on to the device which you want to monitor. After you finish the thermal cable installation, you will see the detected temperature in BIOS setup or Hardware monitor utility.

## 2-6-5 COMPLEX HEADER J2&J3

- This complex Header consists of 9 connectors providing various supports:



### 1. J2 SMI Connector (System Management Interrupt):

**CONNECTION:** This 2-pin connector is connected to the case-mounted Suspend Switch or to the “Turbo Switch”.

**FUNCTION:** Manually placing the system into a Suspend mode or “Green” mode.

### 2. J2 Power Switch Connector:

**CONNECTION:** Connected to a momentary button or switch.

**FUNCTION:** Manually switching the system between “On” and “Soft Off”. Pressing the momentary button for more than 4 seconds will also turn the system off.

### 3. J2 IR Connector (Infrared Connector):

**CONNECTION:** Connected to Connector IR on board.

**FUNCTION:** Supporting wireless transmitting and receiving module on board.

### 4. J2 1st HDD LED/J2 2nd HDD LED:

**CONNECTION:** Connected to HDD LED.

**FUNCTION:** To supply power to HDD LED.

## 5. J3 Suspend LED Connector:

**CONNECTION:** Connected to Suspend indicator.**FUNCTION:** To supply power to "Suspend indicator".

## 6. J3 Power LED Connector:

**CONNECTION:** Connected to System Power LED.**FUNCTION:** To supply power to "System Power LED".

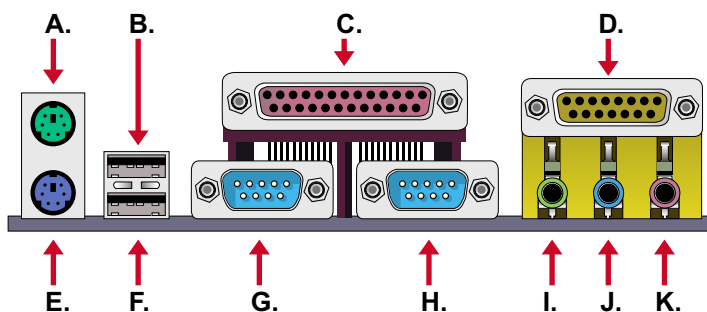
## 7. J3 Reset Switch Connector:

**CONNECTION:** Connected to the case-mounted "Reset Switch".**FUNCTION:** To supply power to "Reset Switch" and support system reboot function.

## 8. J3 Speaker Connector:

**CONNECTION:** Connected to the case-mounted Speaker.**FUNCTION:** To supply power to the case-mounted Speaker.

## 2-6-6 CHASSIS PANEL CONNECTOR

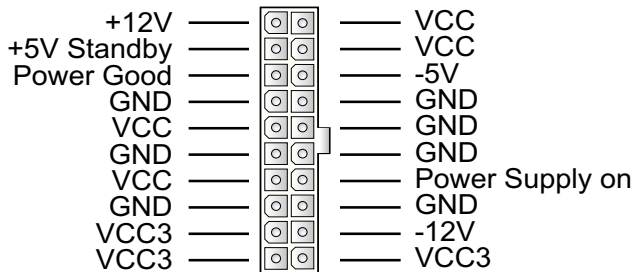


- A : PS/2 MOUSE PORT  
 B : USB 0 PORT  
 C : LPT1 PORT  
 D : GAME/MIDI PORT  
 E : PS/2 KEYBOARD PORT  
 F : USB 1 PORT  
 G : COM1 PORT  
 H : COM2 PORT  
 I : LINE / SPEAKER OUT  
 J : LINE IN  
 K : MICROPHONE INPUT

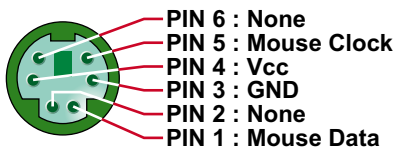


## 2-6-7 ATX POWER SUPPLY CONNECTOR

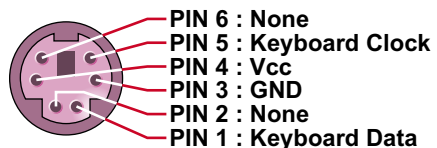
- This connector is connected to an ATX power supply by a plug from the power supply. The plug can only be inserted in a specific orientation because of the different hole sizes. Find the proper orientation and push down the plug firmly to make sure that all pins are aligned.
- Your power supply should support at least 10mA on the 5V standby voltage. There may be difficulty to turn on the system power if the power supply does not support the load.
- **For Wake On LAN function, the power supply should support at least 720mA current.**



## 2-6-8 PS/2 MOUSE AND PS/2 KEYBOARD



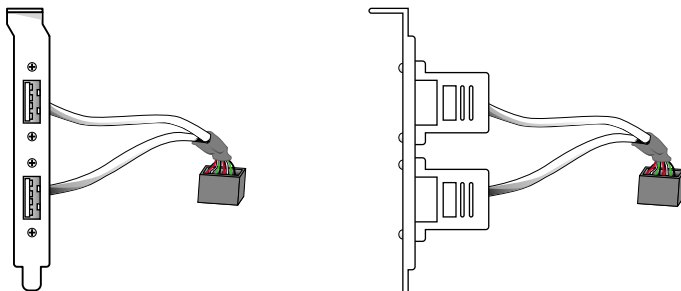
**PS/2 MOUSE**



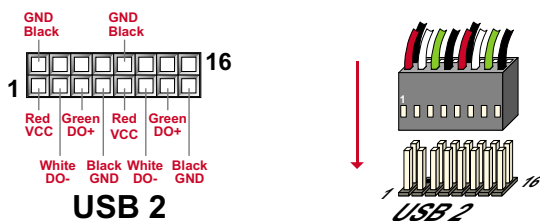
**PS/2 KEYBOARD**

## 2-6-9 SECOND USB HEADER (USB2)

- This header is for the additional USB cable to provide you two additional USB ports. Users can order the additional USB cable from your mainboard dealers or venders.



**Additional USB Cable (Optional)**



**USB2 HEADER**

- When plugging the USB cable to USB2 header, users must make sure the red wire is connected to the first pin.

## 2-6-10 IRQs DESCRIPTION FOR VARIOUS DEVICES

IRQ	Function Description	Priority
IRQ 0	System Timer	1
IRQ 1	Keyboard Controller	2
IRQ 2	Programmable Interrupt	N/A
IRQ 3	Serial Port (COM 2)	11
IRQ 4	Serial Port (COM 1)	12
IRQ 5		13
IRQ 6	Floppy Disk Controller	14
IRQ 7	Parallel Port (LPT1)	15
IRQ 8	Real Time Clock (RTC)	3
IRQ 9		4
IRQ 10		5
IRQ 11		6
IRQ 12	PS/2 Mouse Port	7
IRQ 13	Coprocessor	8
IRQ 14	Primary IDE Channel	9
IRQ 15	Secondary IDE Channel	10

- Both ISA and PCI expansion cards require IRQs. System IRQs are available to cards installed in the ISA expansion bus first and then any remaining IRQs are available to PCI cards. Currently, there are two types of ISA cards.
- The original ISA expansion card design, now referred to as “Legacy” ISA card, requires you to configure the card’s jumpers manually and then install it in any available slot on the ISA bus. To see a map of your used and free IRQs in Windows 98, please click the *My Computer* → *Control Panel* → *system*, in which you can see the *Device Manager* tab. Double click on a specific hardware device to display the *Resources* tab which shows the Interrupt number and address. Double-Clicking the first option *Computers* of the *Device Manager* screen to see all the interrupts and addresses for your system. Make sure that ISA devices should not share IRQ with other devices; otherwise your computer will get into trouble when those two devices are used at the same time.

**MEMO**

---