

## Chapter 2 Hardware Setup

### **To Get things ready for hardware setup !**

1. We recommend to install your CPU before any other components. For detailed installation instructions of processor, you can also refer to the pamphlet enclosed in your CPU package.
2. Installing a cooling fan with a good heatsink is a must for proper heat dissipation for your CPU. Get ready an appropriate fan with heatsink for proper installation. Improper fan and installation will damage your CPU.
3. In case CPU Vcore, CPU clock or Frequency Ratio is adjustable on board, please follow the instructions described in the User Manual for proper setup. Incorrect setting will cause damage to your CPU.

**The following topics are included in this chapter:**

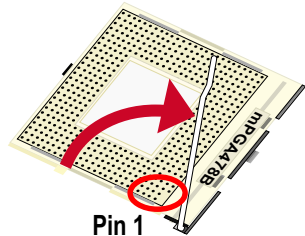
- 2-1 Pentium 4 CPU Installation**
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## 2-1 CPU Installation with Socket 478B

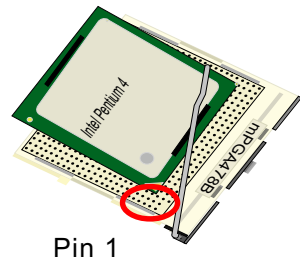
This series is built with CPU Socket 478B ( 478-pin) supporting the Intel Pentium 4 CPU:

- Follow the steps described in this section to install the 478-pin Pentium 4 CPU into the on board Socket 478.
- After installation of Pentium 4 CPU, you must also install the specific Pentium 4 CPU fan designed in tandem with this CPU. This CPU Fan installation is described in next section.

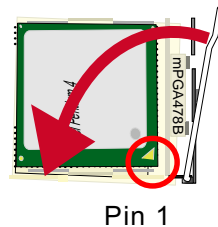
1. First pull sideways the lever of Socket 478, and then turn it up 90° so as to raise the upper layer of the socket from the lower platform.



2. Configure Pin 1 of CPU to Pin 1 of the Socket, just as the way shown in the diagram on the right. Adjust the position of CPU until you can feel all CPU pins get into the socket with ease.

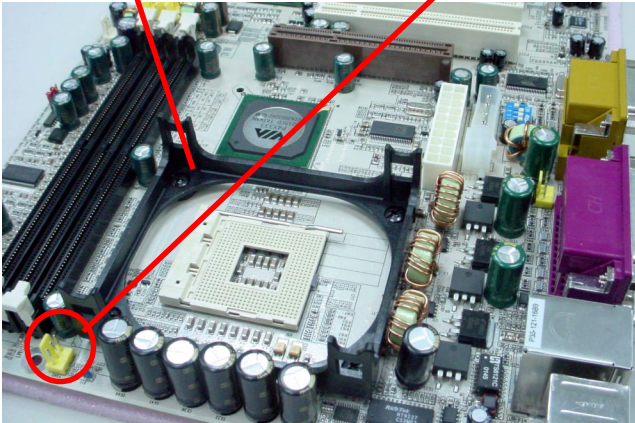


3. Make sure that all CPU pins have completely entered the socket and then lower down the lever to lock up CPU to socket.

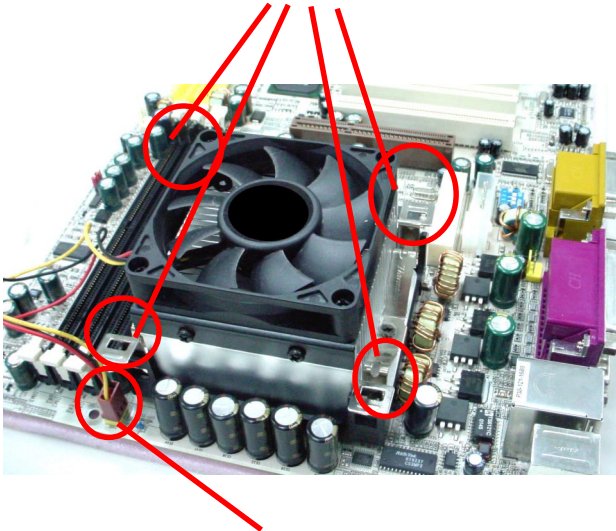


## 2-2 Pentium 4 CPU Fan Installation

Pentium 4 Fanbase      CPU Fan Connector



Press down 4 corners to lock fan to fanbase



Connect Fan Connector to CPU FAN connector

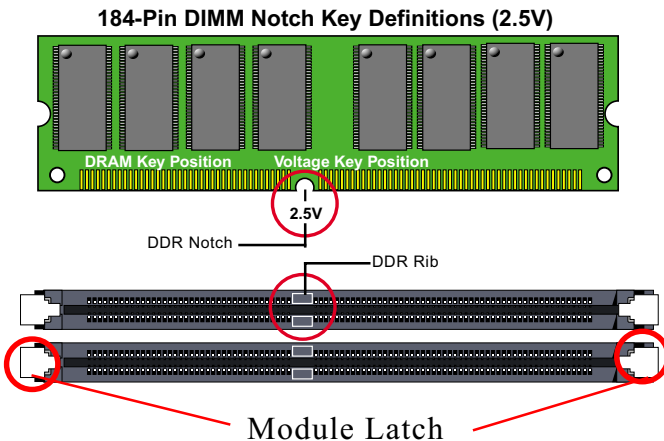
## 2-3 Memory Installation with Warning LED

How to tackle with the memory Modules:

- Make sure to unplug your power supply before adding or removing memory module. Failure to do so may cause severe damage to both your mainboard and the memory module.
- Pay attention to the orientation of the DIMM slots. Forcing a DIMM into a slot improperly will damage the memory module and slot itself.
- Make sure you have the right type of memory module for your mainboard.

### 2-3.1 To Install DDR SDRAM Module for this series

- This series supports up to 3GB unbuffered DDR 333/266/200 SDRAM, with 3 DDR DIMM slots on board. Do not insert other type of modules into these slots.
- DDR DIMM slot has 184-pins and one notch. Insert a DDR SDRAM vertically into the 184-pin slot with the notch-to-rib matching. Press the Module down in a gradual way until it surely reaches the bottom and clicks straight up the two latches on the left and right of the slot. If any one of the latches has not turned up completely, you should unplug the module and press it down a bit more firmly.



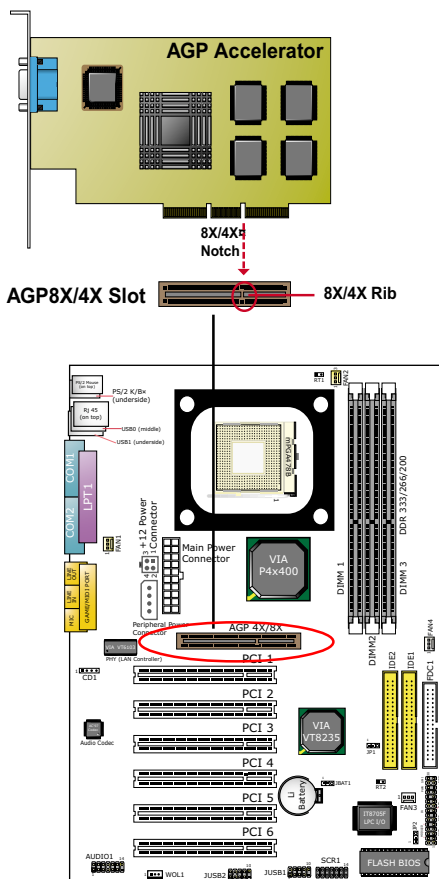
### 2-3.2 To Remove a DIMM

Press down the holding latches on both sides of slot to release the module from the DIMM slot.

## 2-4 AGP 4X/8X Slot Installation

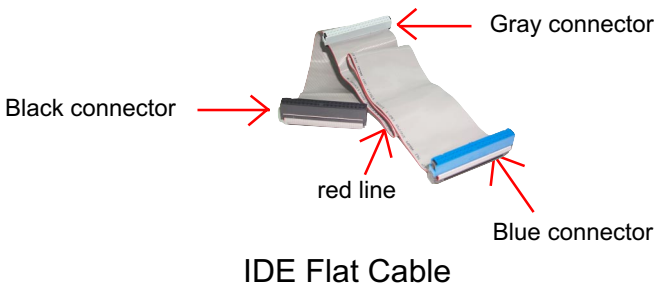
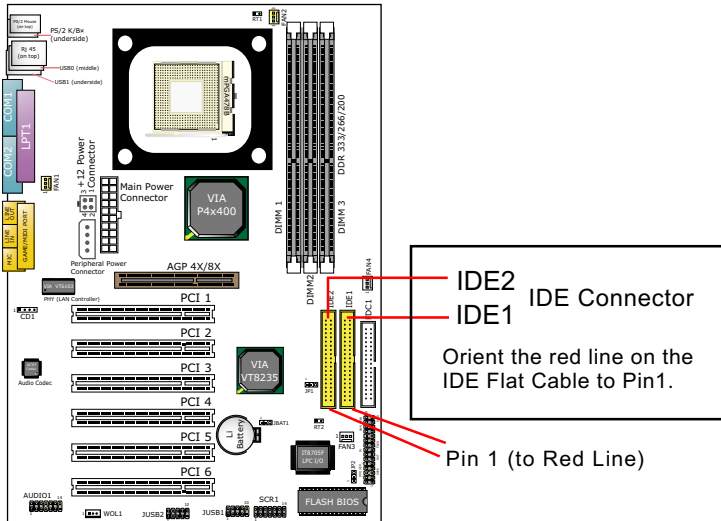
The AGP slot on board supports 1.5V AGP4X/8X card only. A Rib is specifically added to the 4X/8X AGP slot so as to match the AGP 4X/8X card. To insert a 3.3V AGP 2X card into the AGP 4X slot will damage the system chip and burn the 1.5V circuitry.

An AGP 4X card will support a data transfer rate up to 1GB/sec., while an AGP 8X card will do up to 2GB/sec.



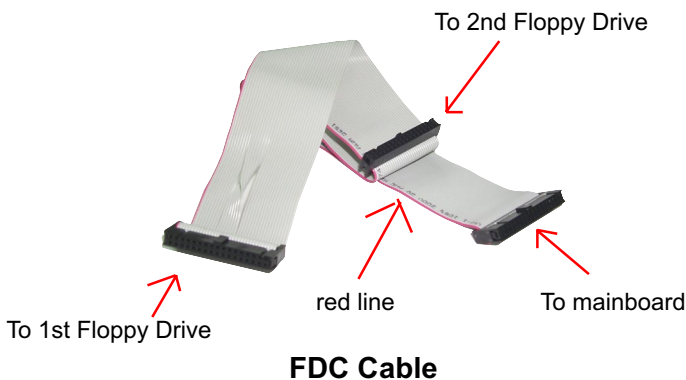
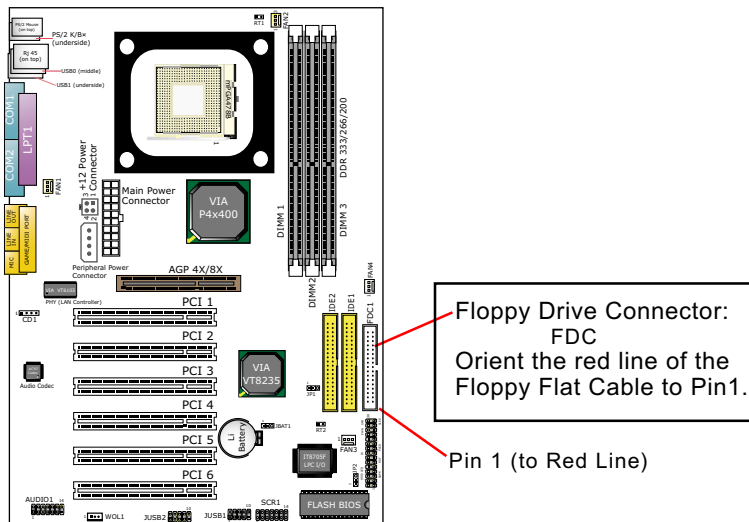
## 2-5 IDE Connector Installation

To install IDE Connector, you may connect the blue connector of IDE cable to the primary (IDE1) or secondary (IDE2) connector on board, 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 jumpers correctly. Please refer to your hard disk documentation for the jumper settings.

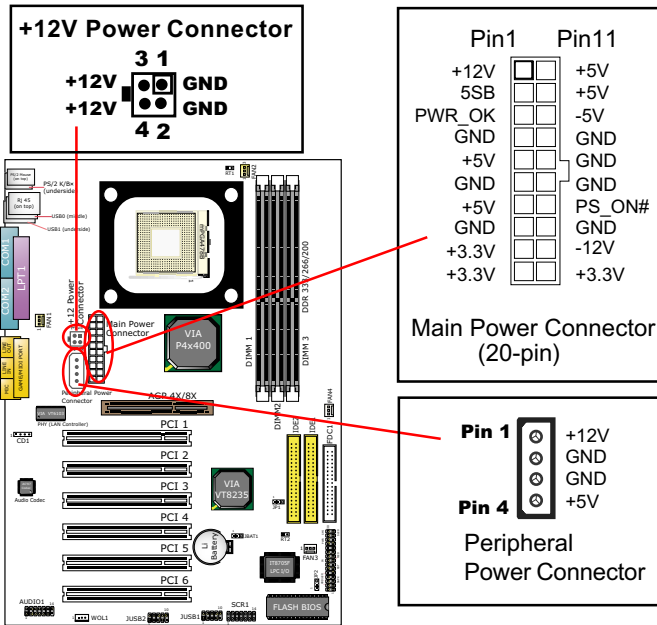


## 2-6 Floppy Drive Connector ( FDC ) Installation

To install FDC (Floppy Drive Connector), you should connect the end of FDC cable with single connector to the board , and connect the other end with two connectors to the floppy drives.



## 2-7 ATX V 2.03 Power Supply Installation



ATX V2.03 power supply is strongly recommended for mainboard running with 2GMHz or higher CPU.

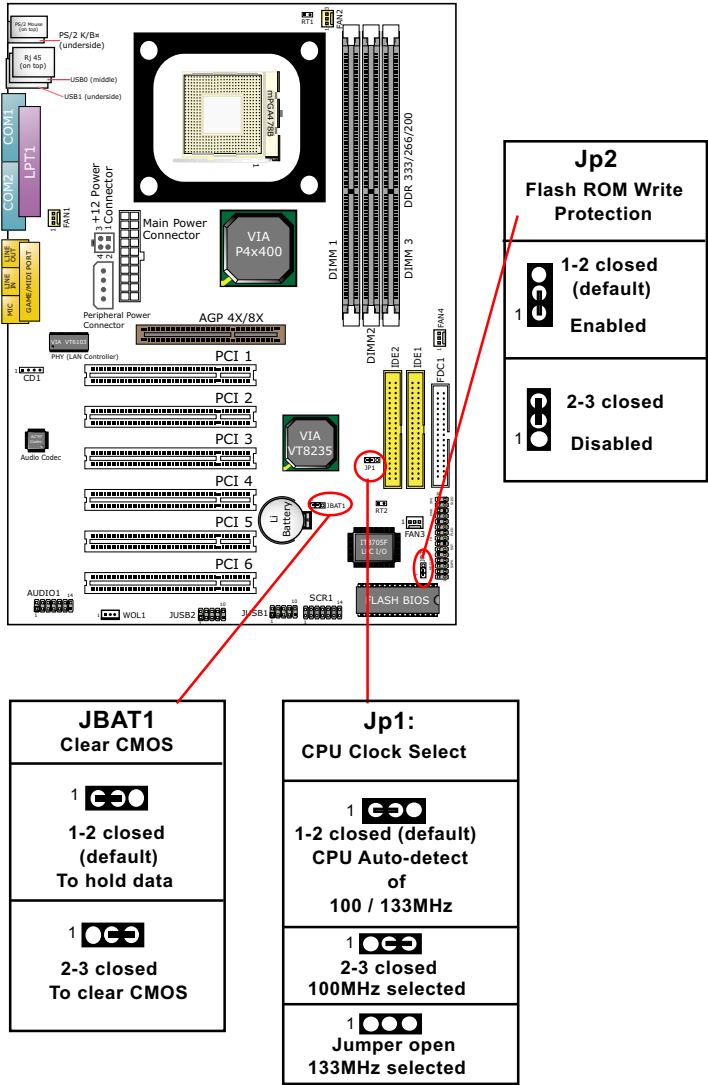
To set up Power Supply on this series:

1. Connect the on-board Main Power Connector (20-pin) to the Main Power Connector (20-pin) of an ATX Power Supply which can be either of the latest version 2.03 or of earlier ATX format.
2. If you use an ATX Power Supply Version 2.03 or later, you can now connect the on-board square-shaped +12V Connector to the square-shaped +12V Connector of your ATX Power Supply. In this case, it is not necessary for you to connect the on-board 4-pin Peripheral Power Connector to your Power Supply.
3. If you use an ATX power Supply of an older version than V2.03, you cannot find a square-shaped +12V Connector with your Power Supply; you must then connect the on-board 4-pin Peripheral Power Connector to the 4-pin Peripheral Power Connector of your Power Supply.



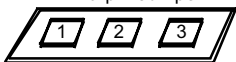
2-8 Jumper Settings

The following diagrams show the locations and settings of jumper blocks on the mainboard.

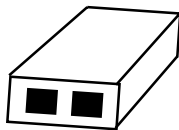


**How to tackle the Jumpers:**

A 3-pin Jumper



If a pin-header (of 2 or more pins) is designed in such a way that its pins can be closed or linked together to set up a specific function, this header is called a jumper in this manual.



A 2-pin Jumper cap to link two header-pins together.

- A Jumper is usually but not necessarily given a “JpX legend.
- In the Jumper setting diagram, all jumper pins covered with black marks stand for closed pins by jumper caps.

Jp X 1 3

**Jumper with  
Pin 2-3 closed**

1 3

**Jumper with  
all pins open**

1 3

**Jumper with  
Pin 1-2 closed**

- Do not remove the jumper cap when power is on. Always make sure the power is off before changing any jumper settings. Otherwise, mainboard could be damaged.

**2-8.1 Jp1: CPU Clock/Overclock Select**

Jp1 designed on board for CPU clock select and 100MHz CPU overclocking. With Jp1, user can choose the way for a 100MHz CPU to run an overclock on board.

1. If Jp1 is set to 1-2 closed, the auto-detect mode will recognize the CPU clock automatically and send the signal to system chips. No overclocking will be implemented in this case. That is, a 100MHz CPU will boot system with 100MHz CPU clock and provide 4X100 MHz system bus. A 133MHz CPU will boot system with 133MHz and provide a 4X133 MHz system bus.
2. If Jp1 is set to 2-3 closed, CPU is set at 100MHz, indicating that 133MHz overclock is not desired. The CPU will boot system with 100MHz even if a 133MHz CPU is used.
3. If Jp1 is set to 1-2-3 all open, CPU is set at 133MHz, indicating that 133MHz overclock is desired. The CPU will try to boot system with 133MHz even if a 100MHz CPU is used.

<b>Jp1:</b> CPU Clock Select	
1	1-2 closed (default) CPU Auto-detect of 100 / 133MHz
1	2-3 closed 100MHz selected
1	Jumper open 133MHz selected

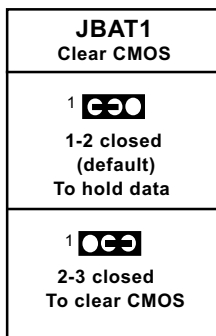
Note on CPU Overclocking:

1. If you have successfully booted system with or without CPU overclock, you still can do another CPU overclock in BIOS Setup. Please enter BIOS Setup, choose "Frequency/Voltage Control" menu, and take the "Use Linear" option of the "Use CPU Linear Frequency". Then configure the "CPU Clock" item to raise your CPU clock.
2. CPU overclocking should take all components on board into account. If you fail in BIOS overclocking, you will not be able to restart system. In such case, Power off system and clear CMOS by JBAT1 as stated below and then restart your system. And remember reconfigure whatever should be reconfigured.
3. If your system is already fixed in a cabinet or case, you may not like to take the trouble to clear CMOS. Then power on your system with the power button on the case and simultaneously press down the "Insert" key of the keyboard until you see the initial bootup screen appear. And remember you should also enter CMOS BIOS Setup and choose "Load Optimized Defaults" to restore default BIOS .

## 2-8.2 JBAT1: Clear CMOS



When you have problem with rebooting your system, you can clear CMOS data and restore it to default value. To clear CMOS with Jumper JBAT1, please follow the steps below:

1. Power off system;
2. Set JBAT1 to Pin 2-3 closed.
3. After 2 or 3 seconds, return the JBAT1 setting to Pin1-2 closed.
4. CMOS data are restored to default. Remember never clear CMOS when system power is on.



### 2-8.3 Jp2: Flash ROM Write Protection

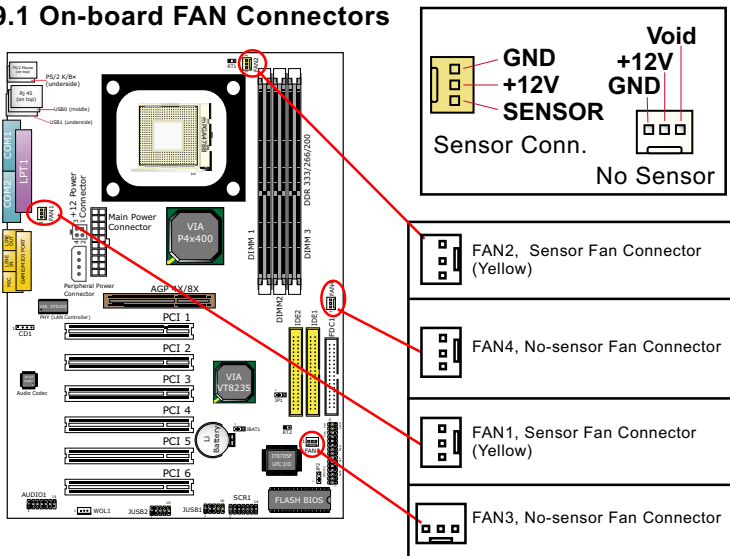
Jp2 is designed to support the “Flash ROM write Protection” function when you boot your system. Setting Jp2 1-2 closed will protect your Flash ROM from virus attack every time you boot your system.

<b>Jp2</b> Flash ROM Write Protection	
	1-2 closed (default) Enabled
	2-3 closed Disabled

## 2-9 Other Connectors Configuration

This section lists out all connectors configurations for users' reference.

### 2-9.1 On-board FAN Connectors

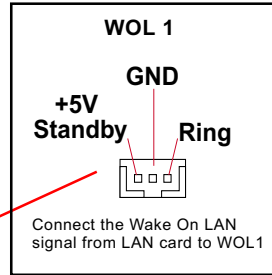
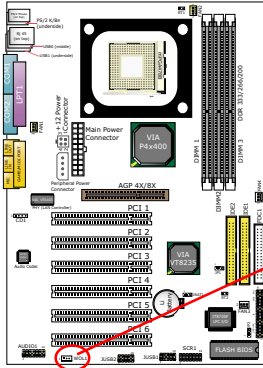


Both Sensor and No-sensor Fan Connectors support CPU/AGP/System/Case cooling fan with +12V mode. When connecting the wire to any Fan Connector, user should make sure that the red wire is for the positive current and should be connected to pin +12V, and the black wire is Ground and should be connected to pin GND. A Hardware Monitor chipset is on board, with which user can install a Hardware Monitor Utility and read the fan speed transmitted from the sensor fan. Otherwise, user can read the fan speed from the "Hardware Monitor Status" in CMOS BIOS.

A running fan will send out 2 electric pulses per rotation of its fan blade. A Sensor Fan Connector will count the electric pulses and send the information to the System Hardware Monitor which in turn will work out the fan rotation speed and display it with the monitoring program.

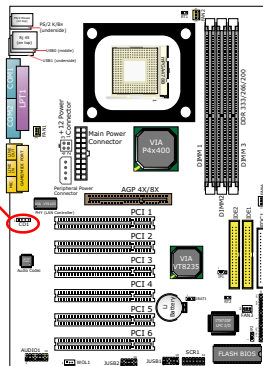
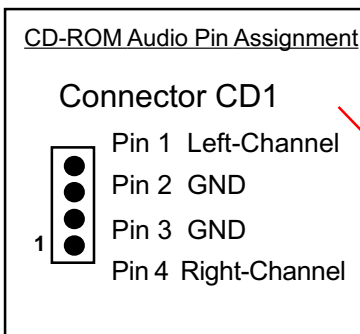
## 2-9.2 Connector WOL1: Wake On LAN

1. This connector connects to a LAN card with a Ring signal output. The connector powers up the system when it receives a wake-up packet or signal through the LAN card.
2. This feature requires that Resume On Ring feature is enabled in the BIOS setting "Power Management Setup" and that your system must be on ATX power supply with at least 720mA / +5V standby power.



## 2-9.3 CD-ROM Audio Connector (CD1)

CD-In1 is audio connector connecting CD-ROM audio to mainboard.

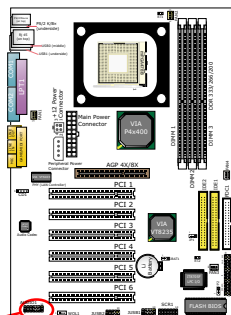
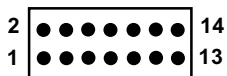


## 2-9.4 Audio 1: 6-channel Sound Output Connector (optional)

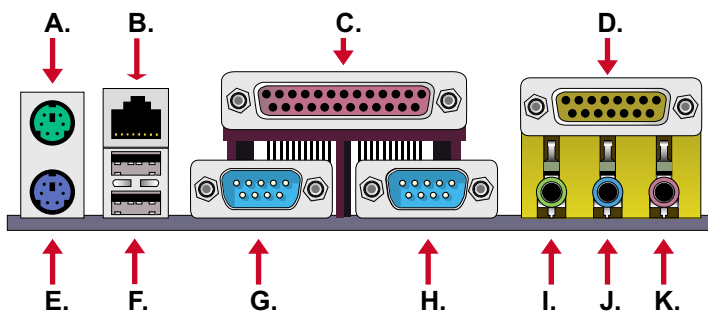
This series is designed with an optional 6-channel Audio-out connector "Audio1". If this option is chosen, it will provide 3 additional audio-out ports for the 6-channel sound.

### 6-channel Audio-out Pin Assignment

Pin 1 LFE-out	Pin 2 Gnd
Pin 3 Center-out	Pin 4 Gnd
Pin 5 Surround-out-R	Pin 6 Gnd
Pin 7 Surround-out-L	Pin 8 Gnd
Pin 9 Jack-detect	Pin10 (Void)
Pin11 SPDIFI	Pin12 Gnd
Pin13 SPDIFO	Pin14 Gnd



## 2-9.5 Chassis Panel Connectors

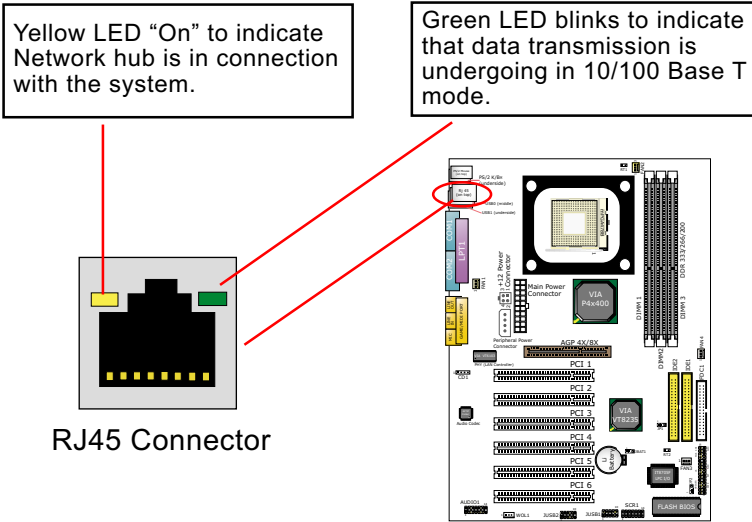


A : PS/2 MOUSE PORT  
 B : Rj45 (85ERV-L only)  
 C : LPT1 PORT  
 D : GAME/MIDI PORT  
 E : PS/2 KEYBOARD PORT  
 F : USB 1 PORT (Bottom)  
 F : USB 0 (Middle)  
 G : COM1 PORT

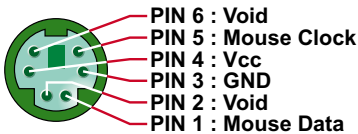
H : COM2 PORT  
 I : LINE Out /  
 Front SPEAKER OUT  
 J : LINE IN /  
 Rear Speaker In  
 K : MICROPHONE INPUT /  
 Center Subwoofer Out

### 2-9.6 RJ45: LAN Connector ( 85ERV-L only)

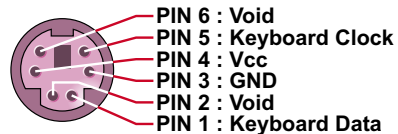
One RJ45 connector is on board for network connection.



### 2-9.7 PS/2 Mouse And PS/2 Keyboard



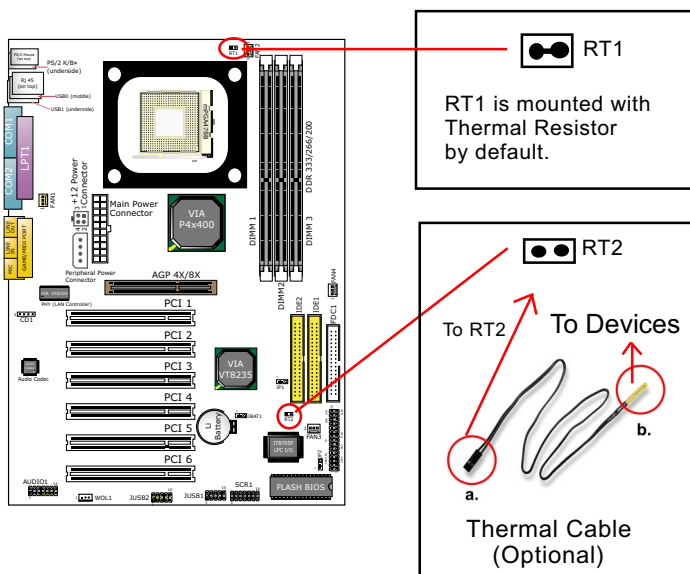
**PS/2 MOUSE**



**PS/2 KEYBOARD**



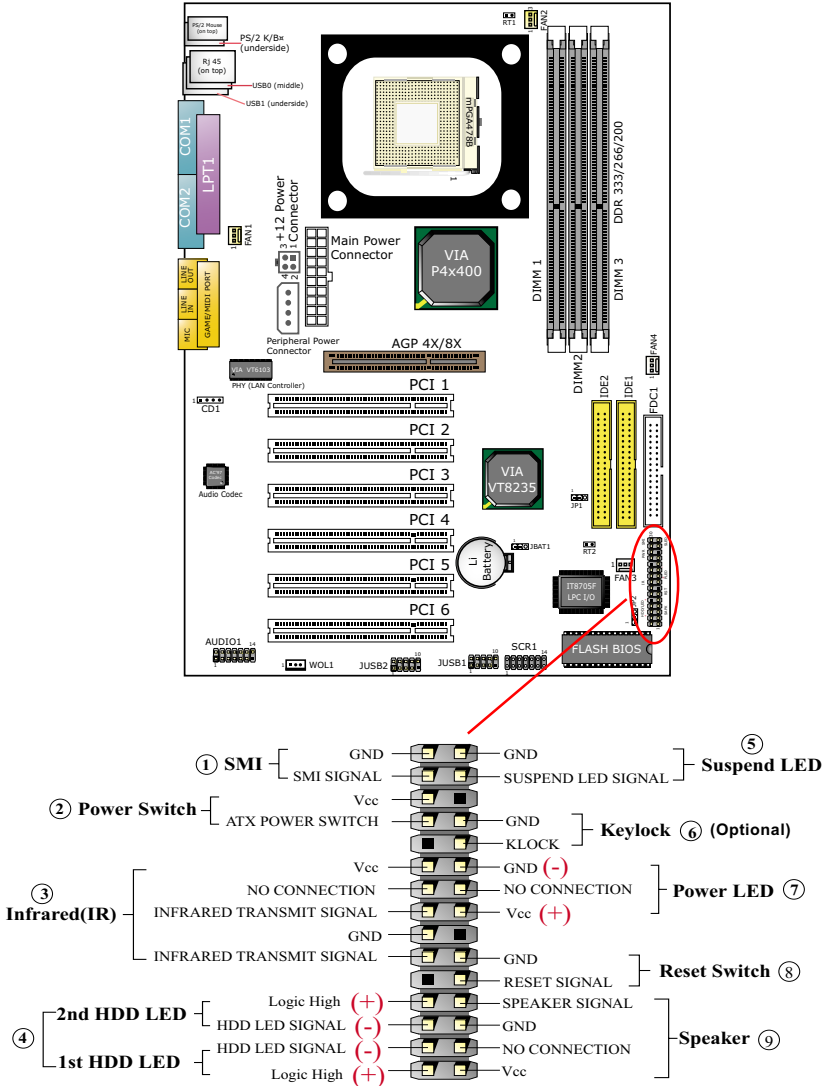
## 2-9.8 Thermal Sensor Connectors RT1 and RT2



1. Connector RT1: A thermal resistor is mounted by default to connector RT1 so as to detect the temperature of the CPU. What RT1 does is to transmit the thermal signal to BIOS or Hardware Monitor.
2. Connector RT2: A thermal cable is needed to connect RT2 to on-board devices such as HDD, Graphics card etc., so as to detect the temperature generated therein. Please connect the end (a) of the thermal cable to RT2, and tape another end (b) of thermal cable on to the device which you want to monitor. After you have finished the thermal cable installation, you will **see the detected temperature in BIOS setup or Hardware Monitor utility.**

## 2-9.9 Complex Pin-header

This complex Pin-header consists of the following connectors for various supports:



**(1) SMI Connector (Optional):**

Connection: Connected to the case-mounted Suspend Switch.

Function: Manually selecting system into the Suspend Mode or “Green Mode” by System management interrupt.

**(2) 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) IR Connector (Infrared Connector):**

Connection: Connected to external IR device (transceiver).

Function: Supporting wireless transmitting and receiving module on board.

**(4) 1st HDD LED Connector/2nd HDD LED Connector:**

Connection: Connected to HDD LED.

Function: To supply power to HDD LED.

**(5) Suspend LED Connector:**

Connection: Connected to Suspend Indicator.

Function: To supply power to “Suspend Indicator”.

**(6) keylock Connector (Optional):**

Connection: Connected to keyboard.

Function: To lock keyboard and disable keyboard function.

**(7) Power LED Connector:**

Connection: Connected to System Power LED.

Function: To supply power to “System Power LED”.

**(8) Reset Switch Connector:**

Connection: Connected to case-mounted “Reset Switch”.

Function: To supply power to “Reset Switch” and support system reboot function.

**(9) Speaker Connector:**

Connection: Connected to the case-mounted Speaker.

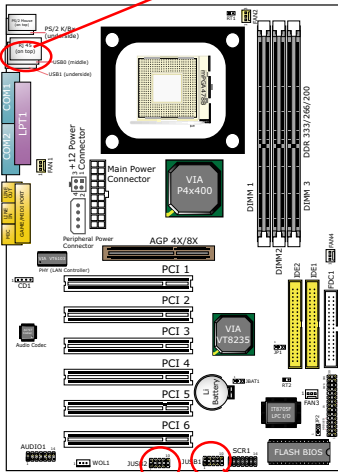
Function: To supply power to the case-mounted Speaker.

## 2-9.10 USB Ports and USB Pin Headers

This series provides two USB ports USB0 and USB1 on board supporting various USB devices. In addition, pin headers JUSB1 and JUSB2 are added on board to provide expansion of 4 more optional USB ports by using two additional USB Cables. User can order the optional USB cables from your mainboard dealer or vender.

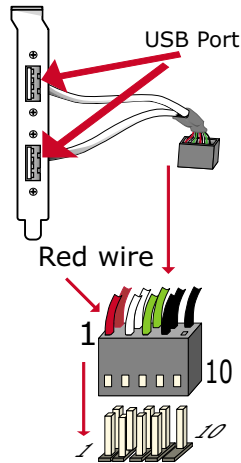
When plugging the USB cable to USB Header , user should make sure the red wire is connected to Pin 1.

USB Ports USB 0 & 1(underside)



Pin Header JUSB2 / JUSB1

USB Cable (Optional)



## 2-10 IRQ Description

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	Free	13
IRQ 6	Floppy Disk Controller	14
IRQ 7	Parallel Port (LPT1)	15
IRQ 8	Real Time Clock (RTC)	3
IRQ 9	Free	4
IRQ 10	Free	5
IRQ 11	Free	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 may require IRQs. System IRQs are available to cards installed in the ISA expansion bus first, 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, the **Control Panel** in *My Computer*, contains a **System** icon, which gives you a **Device Manager** tab. Double-Clicking on a specific hardware device gives you a **Resources** tab which shows the Interrupt number and address. Double-Clicking **Computers** to see all the interrupts and addresses for your system. Make sure that each ISA device should be assigned to one IRQ respectively. If ISA device share IRQ with any other device, your computer will easily get into trouble.