

# **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**

**2-2 Pentium 4 CPU Fan Installation**

**2-3 Memory Installation**

**2-4 HDD/FDD Installation**

**2-5 AGP (Accelerated Graphic Port) Installation**

**2-6 ATX 2.03 Power Supply Installation**

**2-7 Jumper Settings**

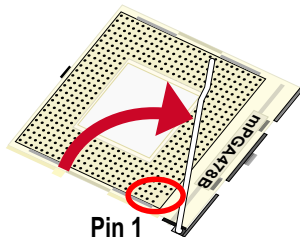
**2-8 Other Connectors Configurations**

## 2-1 CPU Installation with Socket 478

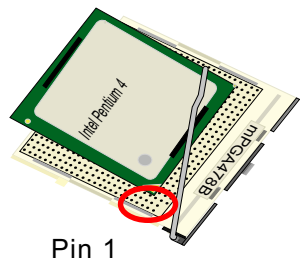
This mainboard is built with CPU Socket 478 ( 47-pin) supporting the Intel Pentium 4 CPU:

- 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.

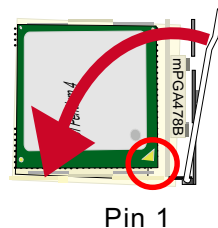
1. First pull sideways the lever of Socket 478, and then turn it up 90° so as to raise the upper layer of the socket from the lower platform.



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



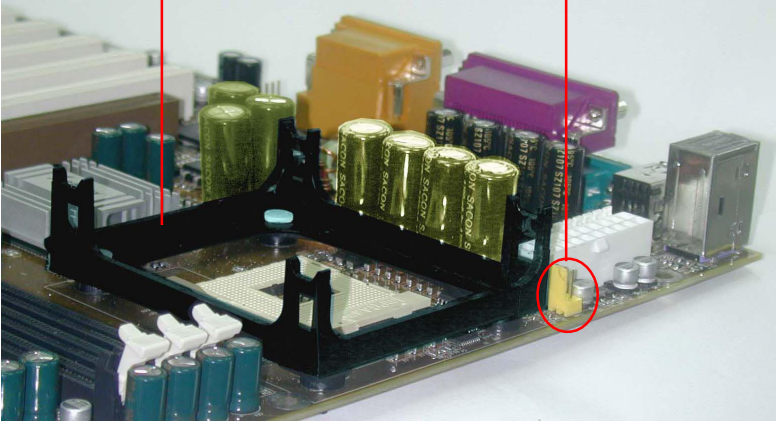
3. Make sure that all CPU pins have completely entered the socket and then lower down the lever to lock up CPU to socket.



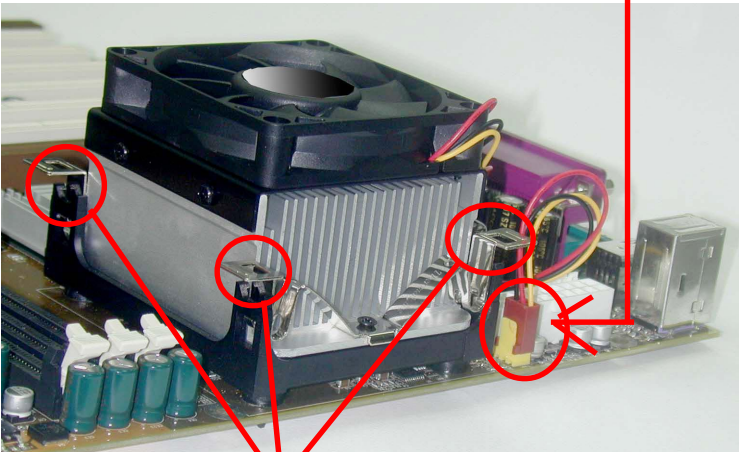
## 2-2 Pentium 4 CPU Fan Installation:

Pentium 4 Fanbase

CPU Fan Connector



Connect to CPU FAN Connector



Press down 4 latches to lock fan to fanbase

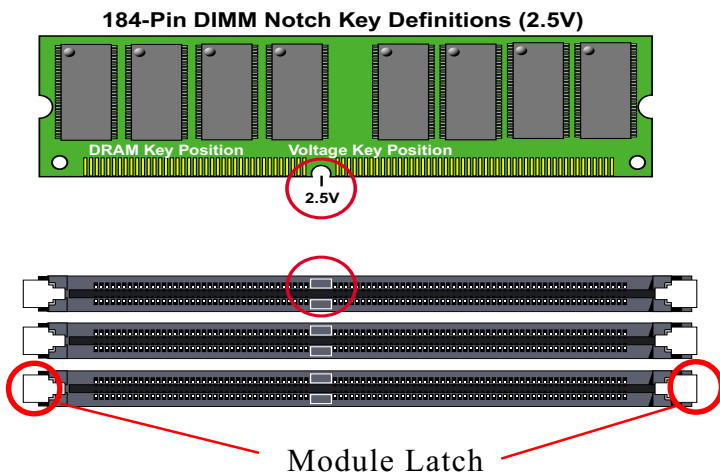
## 2-3 Memory Installation

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 main board and the memory module.
- Pay attention to the orientation of the DIMM slots. Forcing a DIMM in a slot improperly will damage the memory module and the 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 Mainboard :

- This mainboard only supports up to 3GB registered DDR SDRAM or 1.5GB unbuffered DDR 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 matching the one in the slot. 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 the slot a bit more firmly.



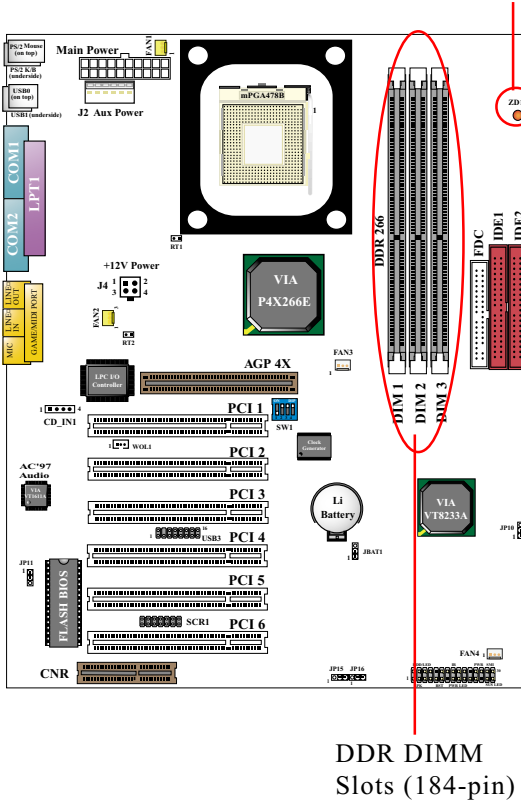
### 2-3.2 To Remove a DIMM:

Press down the holding latches on both sides of slot and the module will be released.

### 2-3.3 Indicator ZD1 for DIMM On Power:

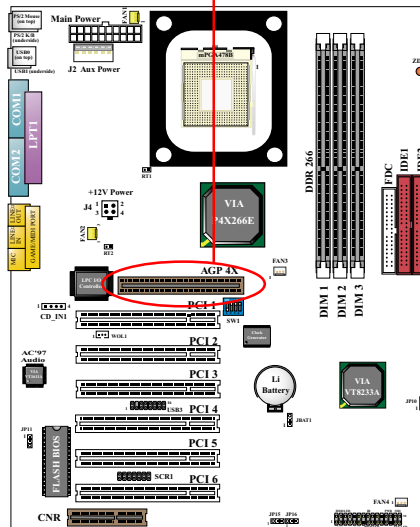
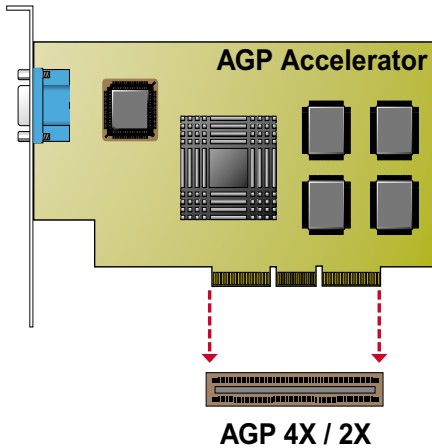
An indicator ZD1 is designed on board. Whenever system is started or is in STR status (Suspend to RAM), all the DIMM slots on board will also get powered on with the set voltage, resulting in ZD1 lighting up. This ZD1 indicator is to warn users that, whenever DIMM slot is powered, no memory module should be removed from or added to it.

ZD1 DIMM-On-Power Indicator



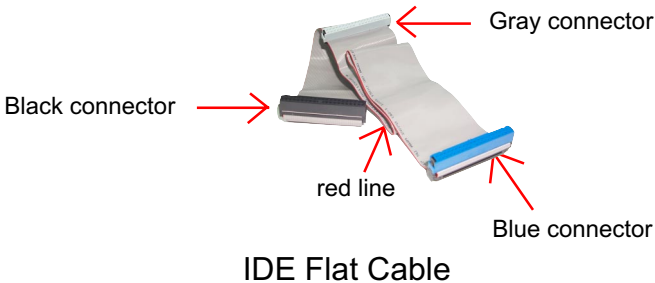
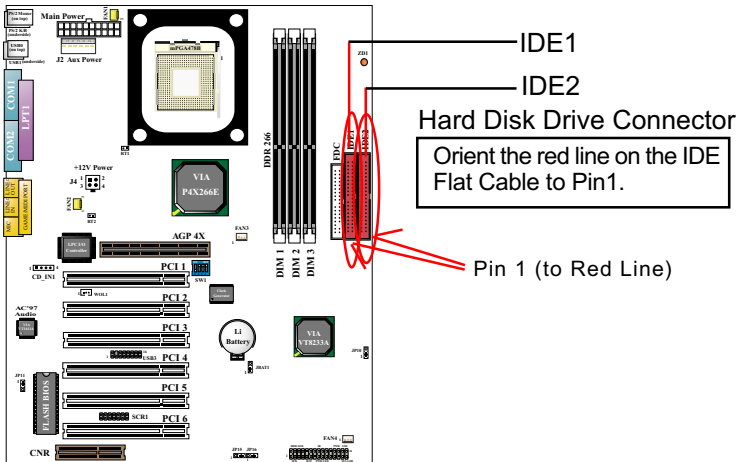
## 2-4 AGP (Accelerated Graphics Port) Card Installation :

The AGP slot on board supports 4X / 2X AGP card configuration. User can install either a 4X or 2X AGP card for CRT display.

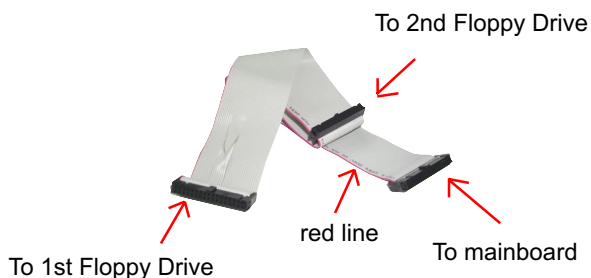
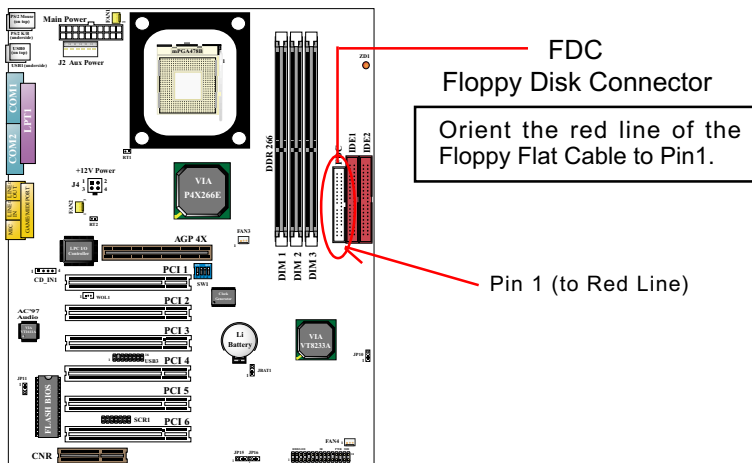


## 2-5 HDD/FDD Installation

To install HDD (Hard Disk Drive), you may connect the 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.



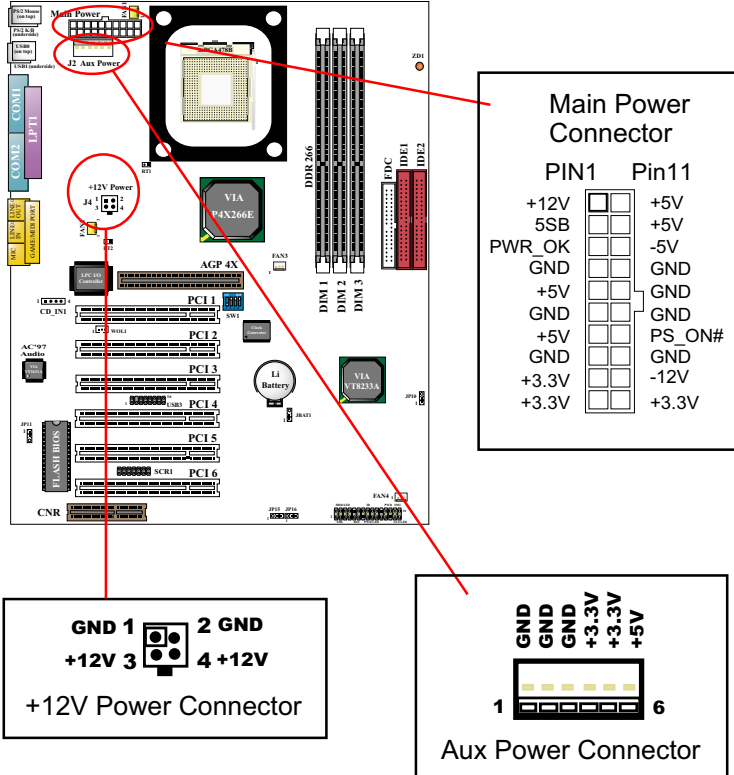
To install FDD (Floppy Disk Drive), you should connect the end of cable with single connector to the board , and connect the other end with two plugs to the floppy drives.



## FDD FLAT Cable



## 2-6 ATX V 2.03 Power Supply Installation



Intel Pentium 4 requires ATX V2.03 Power Supply. To set up ATX2.03 Power Supply on this mainboard, 3 ATX power connectors should all be connected to the ATX V2.03 Power Supply:

1. Main Power Connector
2. Aux Power Connector
3. +12V Power Connector

2-7 Jumper and Switch Settings

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

SW1

On  
Off

System Clock Select

1234

Off On On On (Default)

CPU clock (MHz)	S1	S2	S3	S4
100 (default)	off	on	on	on
103	off	on	off	on
107	on	off	off	on
110	off	off	off	on
133	on	off	on	on

JBAT1

2-3 closed

To clear CMOS

1-2 closed (default)

To return to normal status

Jp16

Suspend To RAM

1-2 Disabled

2-3 Enabled (default)

Jp11

Flash ROM Write Protection

1-2 Enabled (default)

2-3 Disabled

\* Jp15

2-3 closed (Default)

\*Jp15 is for engineering upgrade only; user is not allowed to change this default setting.

Jp10

CPU Clock Select

1-2 CPU Auto-detect (default)

2-3 133 MHz

1-2-3 open 100 MHz

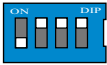
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**How to tackle with Jumpers:**

- Do not remove the jumper when power is on. Always make sure the power is off before changing any jumper settings. Otherwise, mainboard could be damaged.
- In the Jumper setting diagram, all jumper pins covered with black marks stand for closed pins by jumper caps.

### 2-7.1 Switch 1 CPU Clock Select

This mainboard is shipped to users with a 4-DIP Switch 1, by which user can select a CPU clock to match with the Pentium 4 processor selected on board. So users are not recommended to take Switch 1 as a tool for overclocking. It is safer and more advisable for users to select the CPU clock as close as possible to the one marked on the selected CPU. On the other hand, if a 133MHz CPU is used on this mainboard, the SW 1 setting for it must be "on off on on " so as to get the 133MHz CPU clock or 533MHz system clock.

<div style="display: flex; align-items: center; justify-content: center;"> <div style="text-align: center;"> <b>SW1</b>  On Off </div> <div style="text-align: center;">  </div> <div style="text-align: center;"> System Clock Select </div> </div> <div style="text-align: center; margin-top: 10px;"> <b>1 2 3 4</b>  Off On On On (Default) </div>				
CPU clock (MHz)	S1	S2	S3	S4
100 (default)	off	on	on	on
103	off	on	off	on
107	on	off	off	on
110	off	off	off	on
133	on	off	on	on

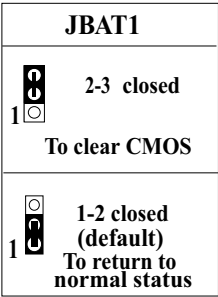
### Advice from our Engineering Team :

CPU Overclocking should always take all other components on board into account. No matter what Host clock your CPU has , any attempt to set your CPU to higher clock than the host will get no guaranty of success. Instead, you are taking the risk of breaking the stability of your CPU as well as the mainboard.

2-7.2 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.





2-7.3 Jp10 CPU Clock Select:

- Jp10 is designed on board for user to select a CPU clock which should match with the SW1 System Clock Select setting. If you leave Jp10 at default value 1-2 closed, CPU on board will auto detect its own CPU clock. If you set Jp10 all open, SW1 should be not over 110 MHz. If you set Jp10 at 2-3 closed, SW1 can be set to 133 MHz or lower value.
- However, overclocking should take other components on board into account and it always risks the stability of your system. There is no guarantee of success.

Jp10 CPU Clock Select	SW1 Setting
 1-2 closed (default) for CPU Auto-detect	Default/103/107/110/133
 2-3 closed for 133 MHz Select (If booting fails, reset to default and clear CMOS)	133 MHz (If booting fails, clear CMOS to restore default)
 1,2,3 all open for 100 MHz Select	Default/103/107/110



### 2-7.4 Jp16 Suspend to RAM (STR)

- Jp16 is designed to support the S3 mode (Suspend to RAM) of ACP (Advanced Configuration and Power interface) which is usually integrated in such operating systems as Win 98se, Win 2000 or Win XP.
- To enable the STR function, you must first set up Jp16, and then enter "BIOS Setup", then "Power management Setup" to choose the item "ACPI Suspend Type". In this item, choose S3(STR) mode to enable Suspend to RAM function.
- With STR enabled, you power off your system with Standby mode, and you can reboot your system directly to the screen of power-off without going through the reboot procedures.

Jp16 Suspend To RAM		
1		Disabled
	1-2 closed	
1		Enabled (default)
	2-3 closed	

### 2-7.5 Jp11 Flash ROM Write Protection Select

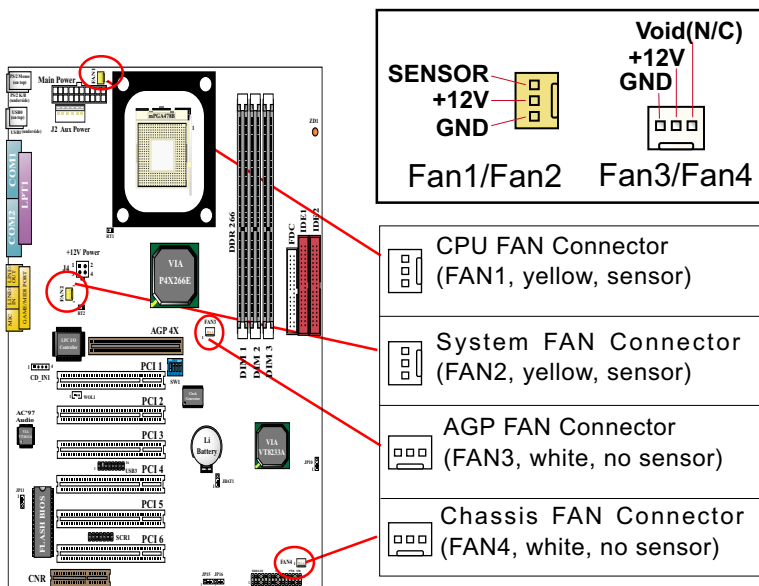
Jp11 is designed to support the "Flash ROM write Protection" function when you boot your system. Setting Jp11 1-2 closed will protect your Flash ROM from virus attack every time you boot your system.

Jp11 Flash ROM Write Protection		
1		Enabled (default)
	1-2 closed	
1		Disabled
	2-3 closed	

## 2-8 Other Connectors Configuration

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

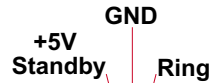
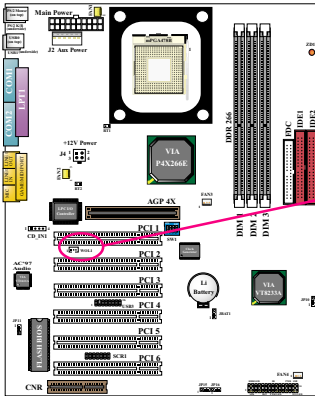
### 2-8.1 On Board FAN Connectors



- These fan connectors support CPU/System/AGP/Chassis cooling fan with +12V. When connecting the wire to FAN connectors, users 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. Sensor Fan supports Hardware Monitor chipset on board to implement the hardware monitoring function.
- For fans with speed sensors, each rotation of the fan blades will send out 2 electric pulses, by which System Hardware Monitor will work out the fan rotation speed by counting the pulses.

## 2-8.2 WOL1 Wake On LAN

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

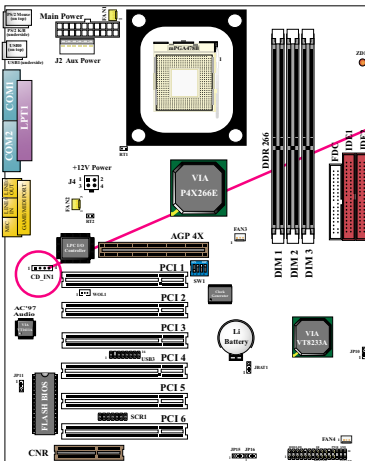


Wake On LAN:

Connect the Wake On LAN signal from LAN card to WOL1



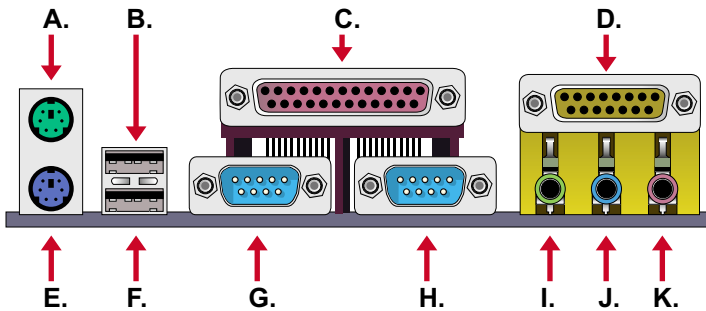
## 2-8.3 CD-ROM Audio Connector CD\_IN1



CD-ROM Audio  
Pin Assignment

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

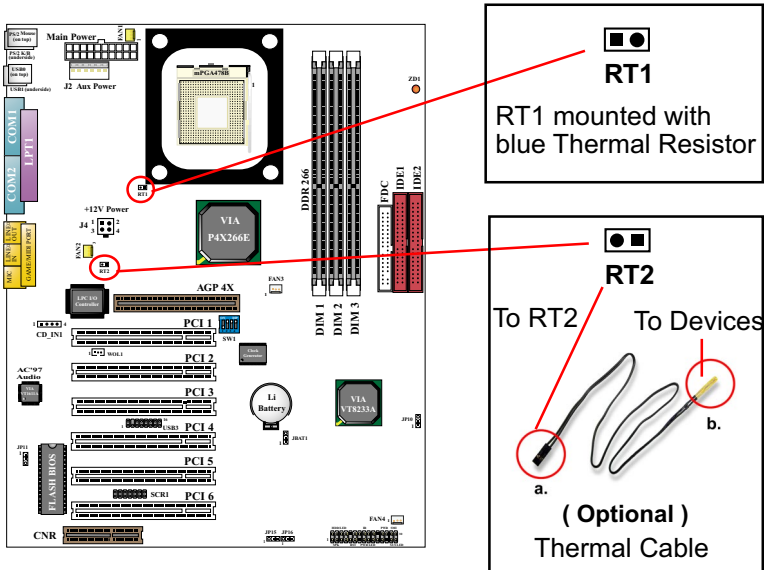
## 2-8.4 Chassis Panel Connector



- 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



## 2-8.5 Thermal Sensor Connector RT1, RT2



1. Connector RT1: A blue thermal resistor is already soldered to connector RT1 so as to sense the temperature round the mainboard. 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 mainboard RT2 header, 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.**



**(1) SMI Connector (System Management Interrupt):**

Connection: Connected to the case-mounted Suspend Switch.

Function: Manually selecting system into the Suspend Mode or “Green Mode”.

**(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 Connector IR on board.

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) Power LED Connector:**

Connection: Connected to System Power LED.

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

**(7) Reset Switch Connector:**

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

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

**(8) Speaker Connector:**

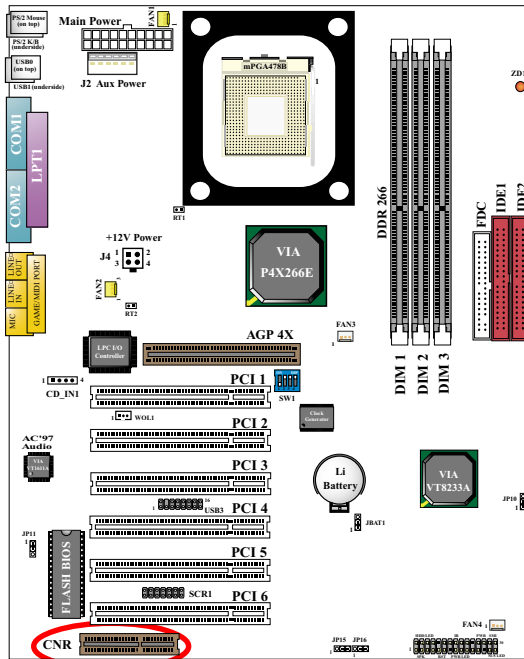
Connection: Connected to the case-mounted Speaker.

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

## 2-8.7 Communication And Networking Riser Slot (CNR)

This slot on this mainboard allows you to use modem or audio riser card only.

1. If modem CNR card is installed, it must be set as “primary” mode.
2. LAN CNR is not supported on this mainboard.
3. If audio CNR card is installed and the on chip AC'97 is enabled at the same time, the Audio CNR must be set as “secondary”.
4. CNR card is not to be included in the package of this series.

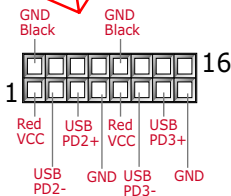
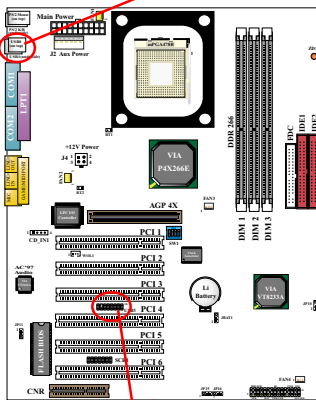


CNR slot

### 2-8.8 USB Ports and USB Header (Header USB 3)

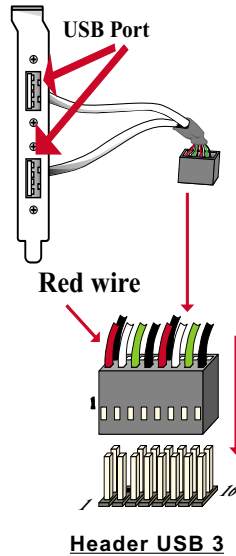
- This mainboard provides two USB ports USB0 and USB1 on board supporting various USB devices. In addition, 1 USB header is added on board to provide two additional USB ports by using one additional USB Cable. This additional USB cable is available from your mainboard dealer or vender.
- When plugging the USB cable into Header USB 3, user must make sure the red wire is connected to Pin 1.

USB Ports USB 0 & 1

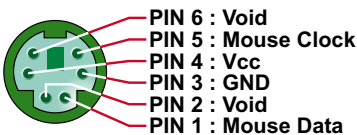


USB 3 Pin Assignment

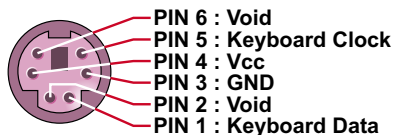
Optional USB Cable



### 2-8.9 PS/2 Mouse And PS/2 Keyboard



PS/2 MOUSE



PS/2 KEYBOARD

## 2-9 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.