

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:

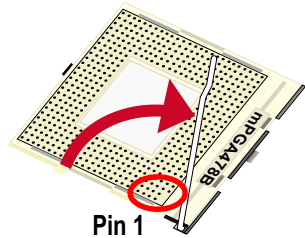
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2-1 CPU Installation with Socket 478B

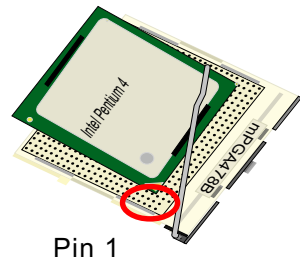
This mainboard is built with CPU Socket 478B (478-pin) supporting the Intel Pentium 4 CPU:

- 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.

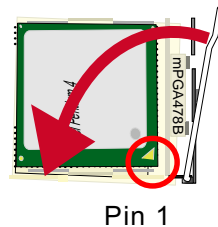
1. First pull sideways the lever of Socket 478, and then turn it up 90° so as to raise the upper layer of the socket from the lower platform.



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.

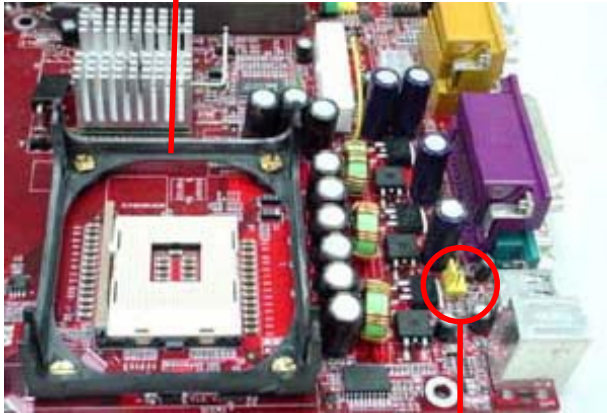


3. Make sure that all CPU pins have completely entered the socket and then lower down the lever to lock up CPU to socket.

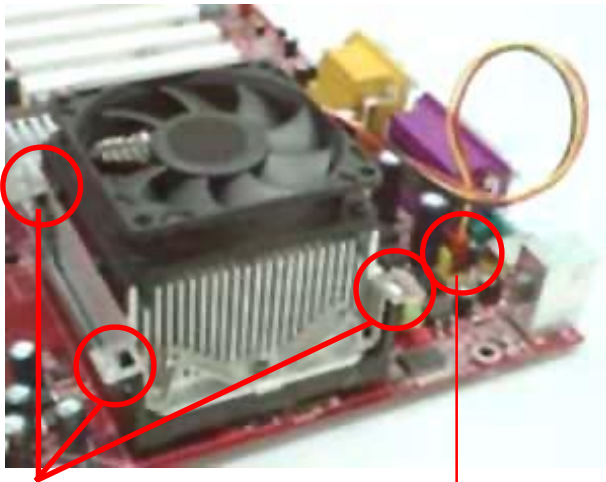


2-2 Pentium 4 CPU Fan Installation

Pentium 4 Fanbase



Pentium 4 Fan Connector



Press down 4 latches to lock fan to Fan Base

Connect Fan Cable to CPU Fan Connector

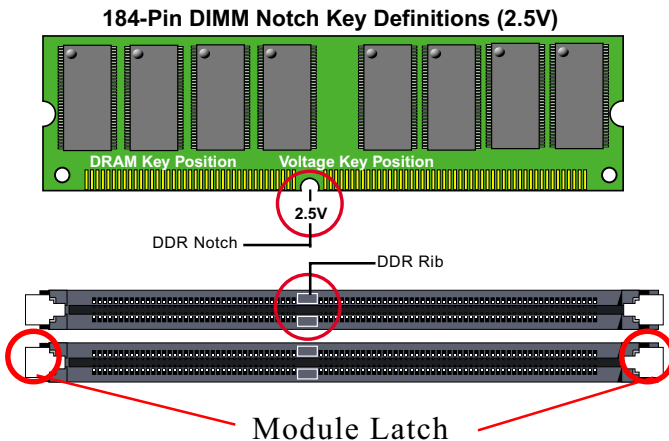
2-3 Memory Installation

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 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 Mainboard

- This Mainboard only supports up to 2GB unbuffered DDR 266/200 SDRAM, with 2 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.

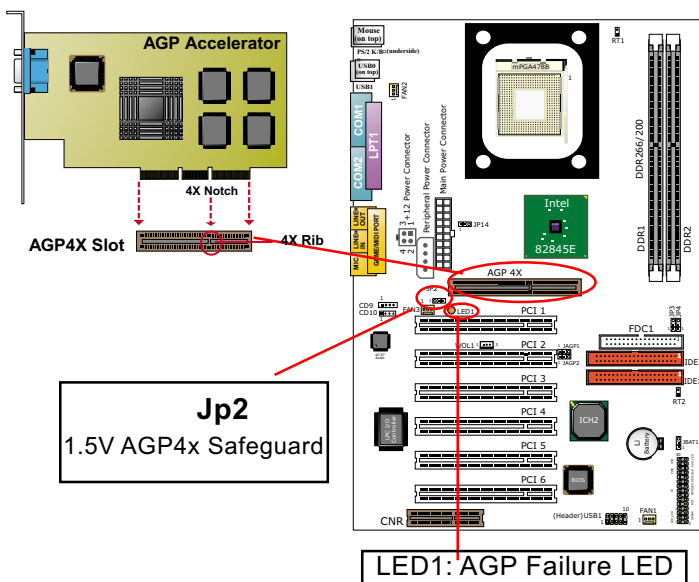


2-3.2 To Remove a DIMM

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

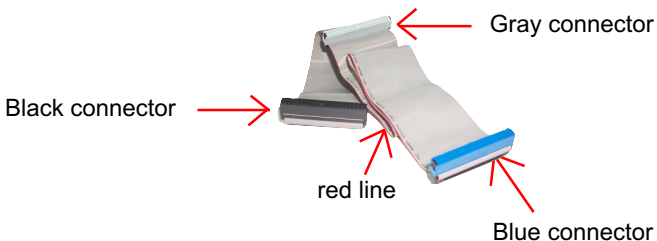
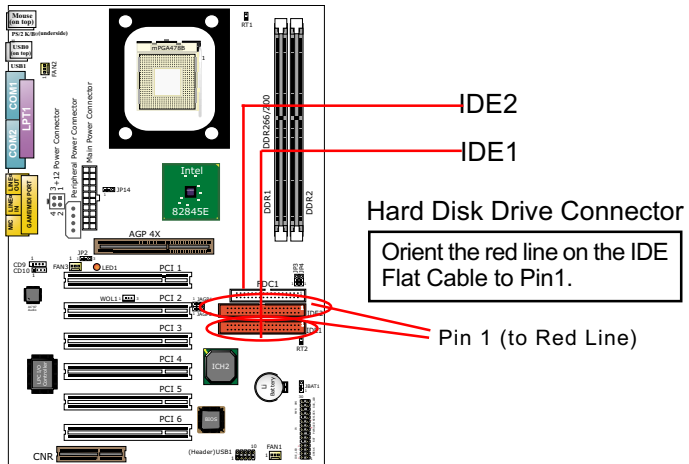
2-4 AGP 4X Installed with Jumper and LED Safeguard

1. The AGP slot on board supports 1.5V AGP 4X card only. A Rib is specifically added to the 4X AGP slot so as to match the AGP 4X card. To insert a 3.3V AGP 2X card into the AGP 4X slot will damage the system chip as well as burn the 1.5V circuitry.
Jp2 is designed on board to check the voltage of the AGP card inserted in the AGP slot. When Jp2 is set to 1-2 closed, safeguard is enabled to allow only 1.5V AGP4X card to boot system. If a 3.3V AGP2X card is mistakenly inserted to AGP slot, it will not boot system.
2. In case you have to use a PCI VGA card for the display, you must first set Jp2 to 2-3 closed to disable the safeguard. If a 3.3V AGP2X card is mistakenly inserted to AGP slot under no safeguard, the 3.3V power will burn the 1.5V circuitry. So, take care never to apply 3.3V AGP card to this mainboard. (See Jumper Setting Section for detailed jumper setting description).
3. LED1 is a Warning LED. Whenever an AGP card is not inserted to the AGP slot, or if the card is not a correct one, LED1 will keep lighting up until a proper installation is done.



2-5 IDE Connector Installation

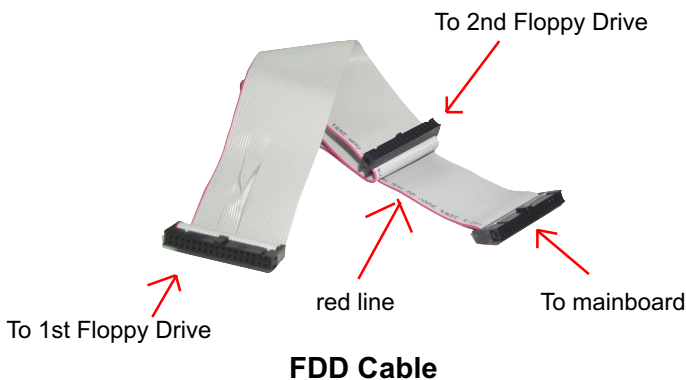
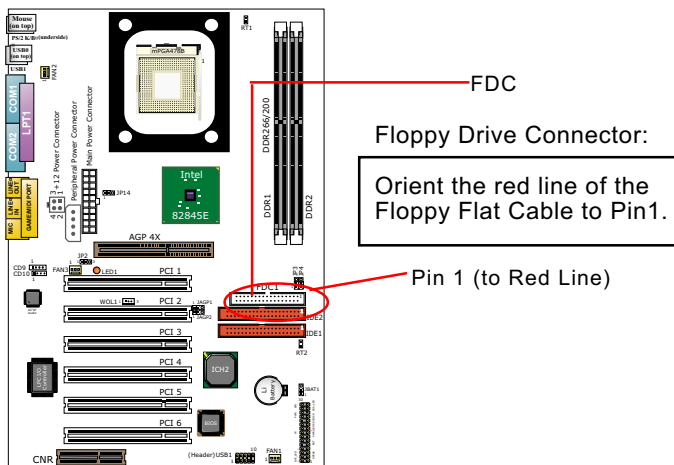
To install IDE Connector, you may connect the blue connector of IDE cable to the primary (IDE1) or secondary (IDE2) connector on board, and then connect the gray connector to your slave device and the black connector to your master device. If you install two hard disks, you must configure the second drive to Slave mode by setting its jumpers correctly. Please refer to your hard disk documentation for the jumper settings.



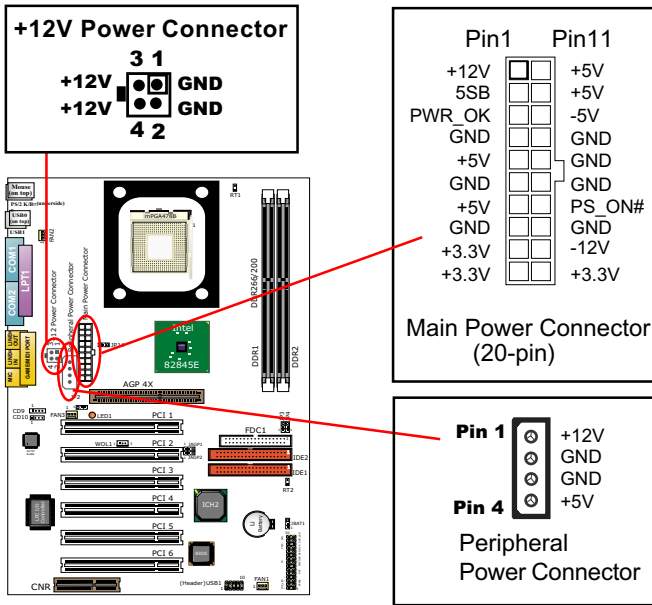
IDE Flat Cable

2-6 Floppy Drive Connector (FDC) Installation

To install FDC (Floppy Drive Connector), you should connect the end of FDD 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 mainboard:



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.

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, main-board could be damaged.
- In the Jumper setting diagram, all jumper pins covered with black marks stand for closed pins by jumper caps.

2-8.1 Jp14: CPU Front Side Bus Select



This Mainboards is shipped to users with a Jp14 FSB (Front Side Bus) Frequency Select design, with which user can select the FSB Frequency to match with the Pentium 4 processor selected on board. Yet users are not recommended to take Jp14 as a tool for overclocking. It is safer and more advisable for users to select the default (CPU auto-select) clock on board.

Jp14: Front Side Bus Select	
	1-2 closed (default) for CPU Auto-select 533/400MHz
	2-3 closed 533MHz select

2-8.2 JBAT1 Clear CMOS

When you have problem with rebooting you system, you can clear CMOS data and restore it to default value. To clear CMOS with Jumper Jp10, 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.

JBAT1 Clear CMOS	
	1-2 closed (default) To hold data
	2-3 closed To clear CMOS

2-8.3 Jp3 & Jp4 DIMM Voltage Select:



The default voltage 2.5V at DIMM sockets is for normal operation of the supported DDR SDRAM. In some case, when you try to do CPU overclocking, you then may also need to raise the transfer rate of the memory interface. Jp3 & Jp4 are designed on board to provide settings for selecting a higher DIMM voltage so as to raise the speed of the memory interface.

Warning: In selecting a higher voltage than the default , you are risking the stability of your system.

Jp3 & Jp4 DIMM Voltage Select		
DIMM Voltage	Jp1	Jp2
2.5V (default)	1-2 closed 	1-2 closed 
2.6V	2-3 closed 	1-2 closed 
2.7V	1-2 closed 	2-3 closed 

2-8.4 Jp2: 1.5V AGP4X Safeguard

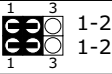
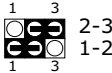
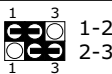
1. Jp2 is designed on board to check the voltage of the AGP card inserted in the AGP slot. When Jp2 is set to 1-2 closed, safeguard is enabled to allow only 1.5V AGP4X card to boot system. If a 3.3V AGP2X card is mistakenly inserted to AGP slot, it will not boot system.

Jp2: 1.5V AGP4X Safeguard	
	1-2 closed (default) allowing only 1.5V AGP 4X to pass ;
	2-3 closed allowing PCI VGA to pass ;

2. In case you have to use a PCI VGA card for the display, you must first set Jp2 to 2-3 closed to disable the safeguard. If a 3.3V AGP2X card is mistakenly inserted to AGP slot under no safeguard, the 3.3V power will burn the 1.5V circuitry. So, take care never to apply 3.3V AGP card to this mainboard.

2-8.5 JAGP1 & JAGP2: AGP Voltage Select

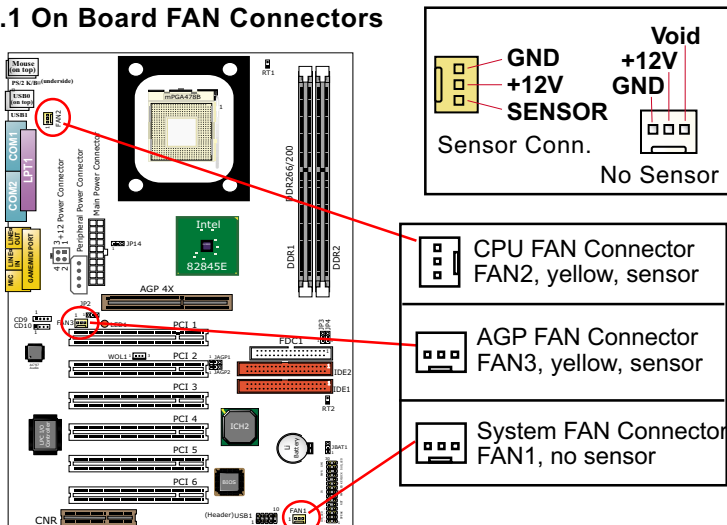
JAGP1 & JAGP2 is a design for selecting a higher AGP voltage than the default 1.5V . Just as adjusting the DIMM voltage to cope with CPU overclocking, a higher AGP voltage will also raise the chance of CPU overclocking. However, it is important to bear in mind that CPU overclocking will risk the stability of your PC system.

JAGP1 & JAGP2: AGP Voltage Select		
1.5V (default)	JAGP1 JAGP2	
1.6V	JAGP1 JAGP2	
1.7V	JAGP1 JAGP2	

2-9 Other Connectors Configuration

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

2-9.1 On Board FAN Connectors



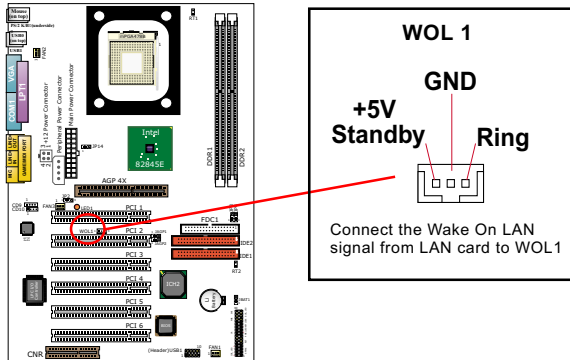
These fan connectors support CPU/AGP/System cooling fan with +12V mode. When connecting the wire to FAN connectors, users should make sure that the red wire is for the positive current and should be connected to pin +12V, and the black wire is Ground and should be connected to pin GND. If your mainboard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

For fans with speed sensors, each rotation of the fan blades will send out 2 electric pulses. By counting the pulses, System Hardware Monitor will work out the fan rotation speed and show it by the monitoring program.

NOTE : 3 “Yellow” fan connectors are used on this mainboard to mark that they support fan speed sensor function.

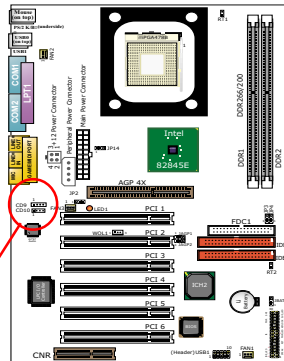
2-9.2 Connector WOL1: Wake On LAN

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 Connectors (CD_In1/CD_In2)

Both CD-In1 and CD-In2 are audio connectors connecting CD-ROM audio to mainboard. Take notice that Connector CD-In2 is of narrower pin pitch.



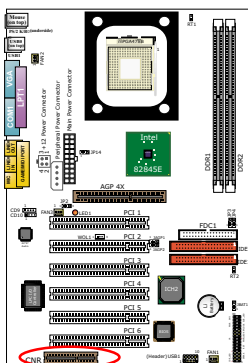
CD-ROM Audio Pin Assignment

	Pin 1	Pin 2	Pin 3	Pin 4
1  CD 9	Left Channel	GND	GND	Right Channel
1  CD 10	GND	Left Channel	GND	Right Channel

2-9.4 Slot CNR: Communication And Networking Riser Slot

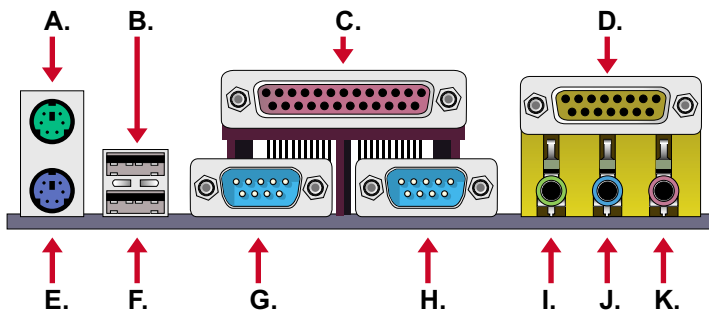
This slot allows you to use network, modem or audio riser cards.

1. If modem CNR is installed, the modem CNR must be set as primary.
2. The audio CNR must be set as secondary if on-chip AC '97 is enabled at the same time.
3. CNR devices are not provided with this mainboard.



Slot CNR

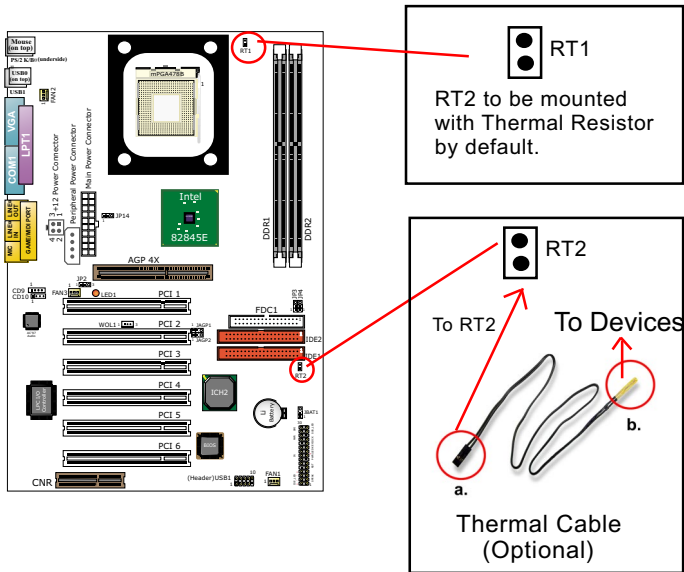
2-9.5 Chassis Panel Connectors



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

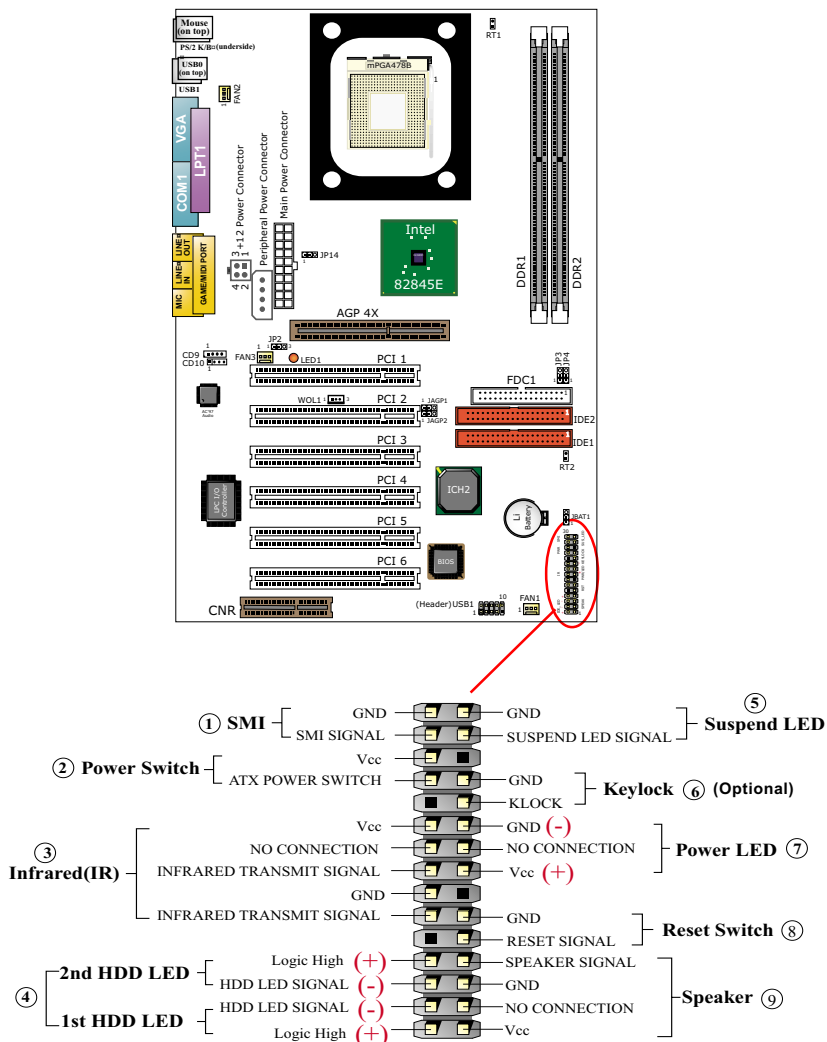
2-9.6 Thermal Sensor Connectors RT1 and RT2



1. Connector RT1: A thermal resistor is to be 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.**

2-9.7 Complex Header

This complex 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 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) 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:

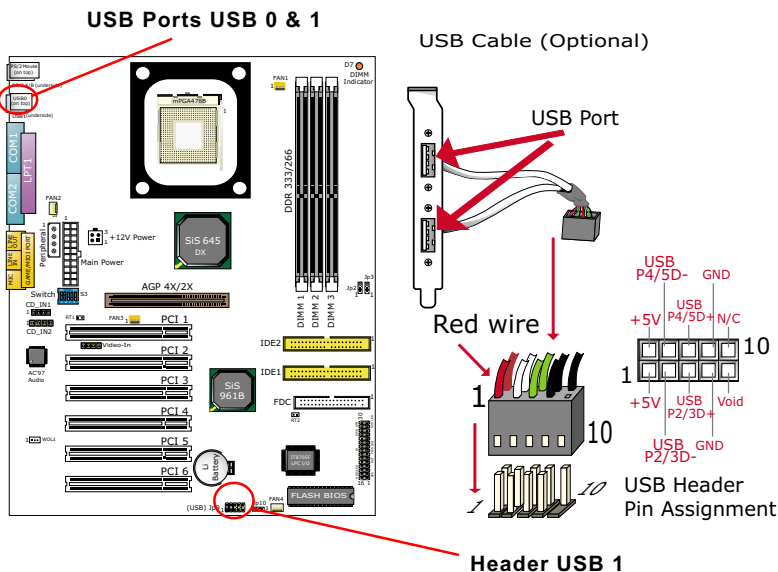
Connection: Connected to the case-mounted Speaker.

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

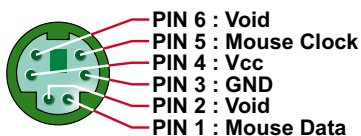
2-9.8 USB Ports and USB Header (Header USB 1)

This mainboard provides two USB ports USB0 and USB1 on board supporting various USB devices. In addition, Header USB1 is added on board to provide expansion of 2 more optional USB ports by using one additional USB Cable. User can order the optional USB cable from your mainboard dealer or vender.

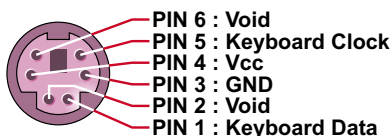
When plugging the USB cable to USB Header USB1, user must make sure the red wire is connected to Pin 1.



2-9.9 PS/2 Mouse And PS/2 Keyboard



PS/2 MOUSE



PS/2 KEYBOARD

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.