

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 AGP (Accelerated Graphic Port) Installation

2-5 HDD/FDD Installation

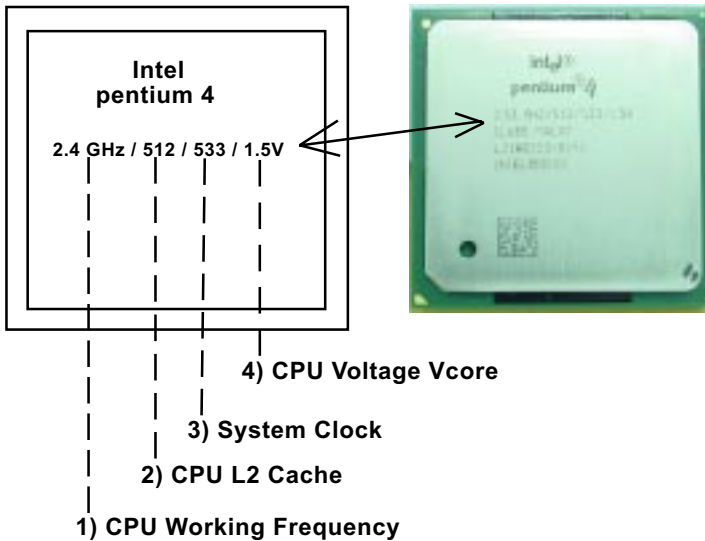
2-6 ATX 2.03 Power Supply Installation

2-7 Jumper and Switch Settings

2-8 Other Connectors Configuration

2-1 CPU Installation with Socket 478B

2-1.1 To Identify a Pentium 4 CPU



On the heatsink side of a Pentium 4 CPU, there printed is a line of figures to identify its specifications. The line consists of 4 parts:

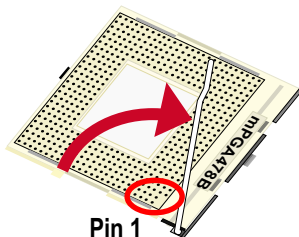
- 1) CPU Working Frequency: This part depicts the working frequency of the CPU. For example:
2.4 GHz depicts that this CPU is locked to 2.4 GHz working frequency (multiplier 18 x 133MHz CPU clock);
2A GHz depicts that this CPU is an A version, locked to 2.0 GHz working frequency (multiplier 20 x 100MHz CPU clock);
- 2) CPU L2 Cache: This part depicts the L2 Cache size. For Example:
512 stands for 512 MB L2 Cache; 256 stands for 256 MB L2 Cache;
- 3) System Clock: This part depicts the System Clock (Front Side Bus) to be provided by the CPU. For example:
533 stands for a 533MHz system bus provided by this 133MHz CPU times 4;
400 stands for a 400 system clock provided by a 100 MHz CPU x 4;
(Note: P4 CPU is a quadpumped CPU. The system bus is provided by the CPU clock x 4. Therefore, user can figure out the P4 CPU clock from the System Clock divided by 4.)
- 4) CPU Voltage Vcore: This part depicts the CPU Voltage. For example:
1.5V stands for a CPU of 1.5Vcore.

2-1.2 CPU Installation with Socket 478B

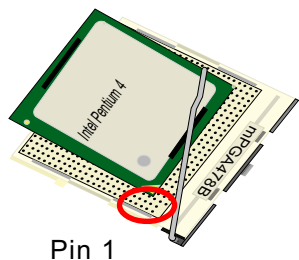
This mainboard is built with CPU Socket 478B (478-pin) supporting the Intel Pentium 4 CPU:

- Follow the steps described in this section to install the 478-pin Pentium 4 CPU into the on board Socket 478B.
- 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.

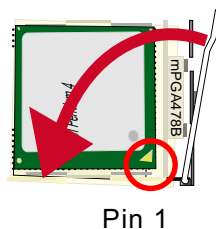
1. First pull sideways the lever of Socket 478B, and then turn it up 90° so as to raise the upper layer of the socket from the lower platform.



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.



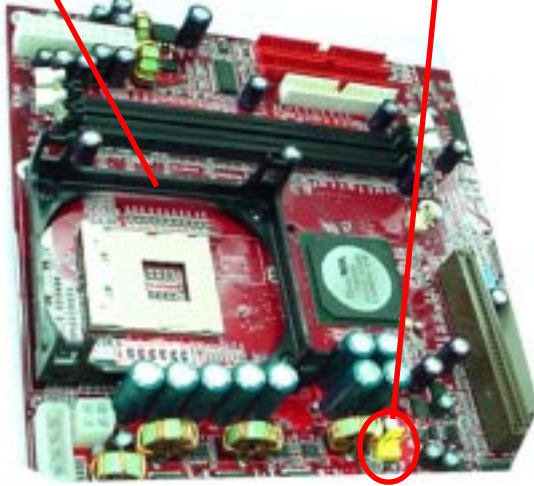
3. Make sure that all CPU pins have completely entered the socket and then lower down the lever to lock up CPU to socket.



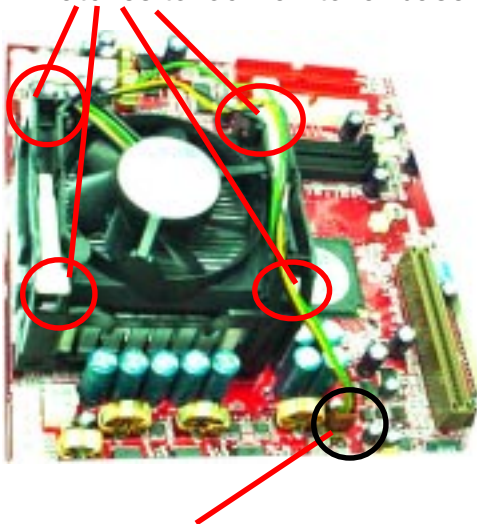
2-2 Pentium 4 CPU Fan Installation:

Pentium 4 Fanbase

CPU Fan Connector



Press down 4 latches to lock fan to fanbase



Connect Fan Connector to CPU FAN connector

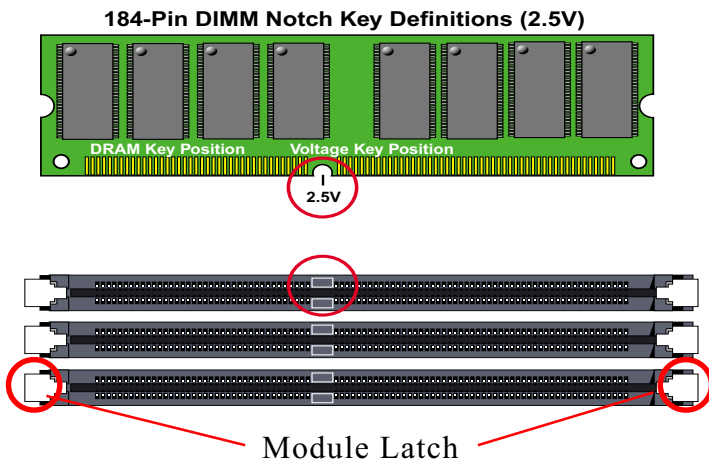
2-3 Memory Installation

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 main board and the memory module.
- Pay attention to the orientation of the DIMM slots. Forcing a DIMM in a socket improperly will damage the memory module and socket.
- 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 SDRAM, with 2 DDR DIMM sockets on board. Do not insert other type of modules into these sockets.
- DDR DIMM socket has 184-pins and one notch. Insert a DDR SDRAM vertically into the 184-pin socket with the notch matching the one in the socket. 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 socket. If any one of the latches has not turned up completely, you should unplug the module and press it down the socket a bit more firmly.

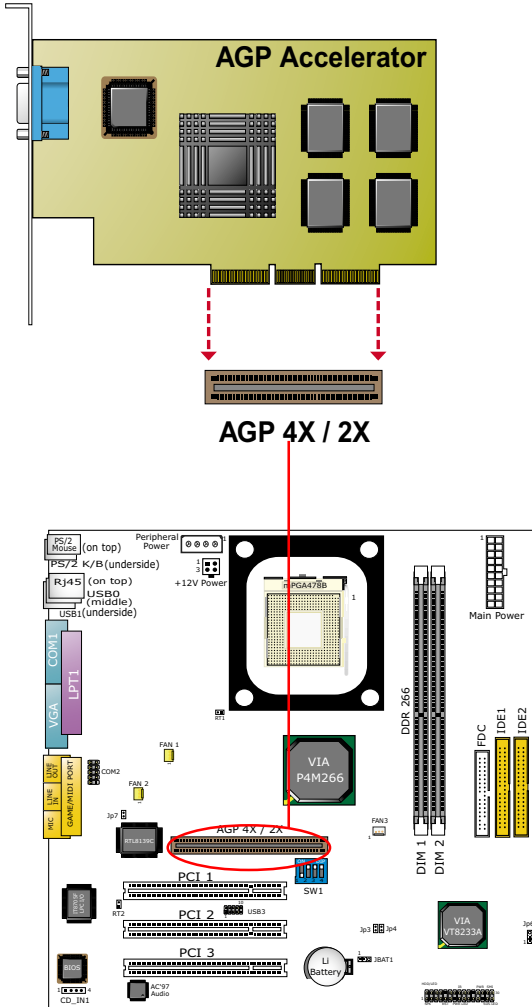


2-3.2 To Remove a DIMM:

Press down the holding latches on both sides of socket and the module will be released from the DIMM socket.

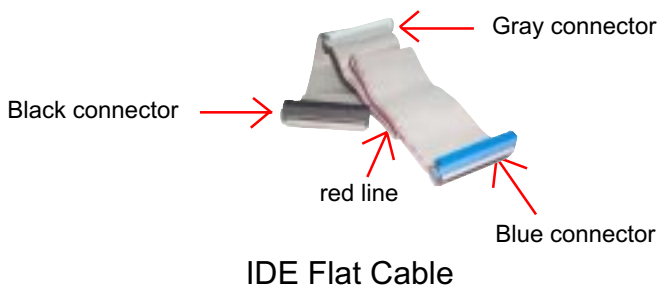
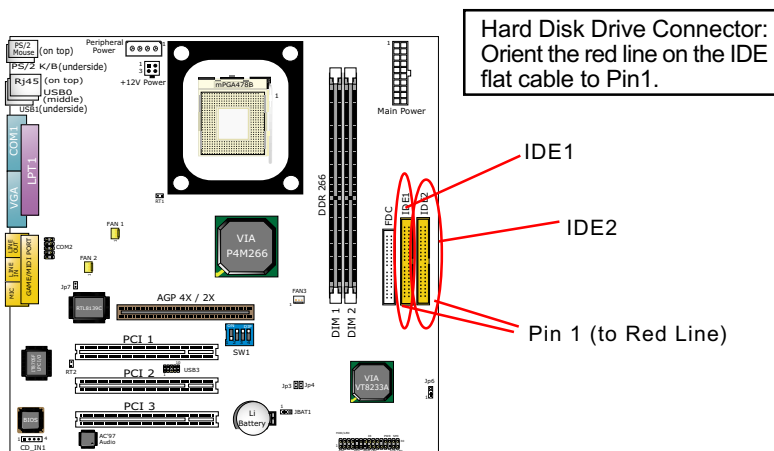
2-4 AGP (Accelerated Graphics Port) Card Installation :

The AGP 4X slot on board supports 4X / 2X AGP card configuration. User can install either a 4X or 2X AGP card with its only card driver.

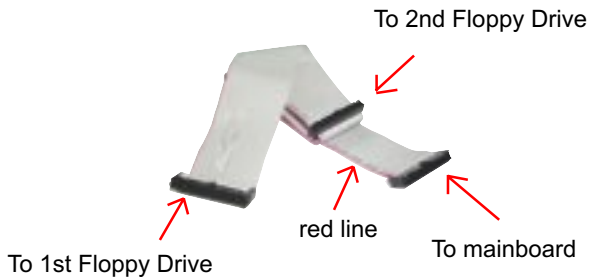
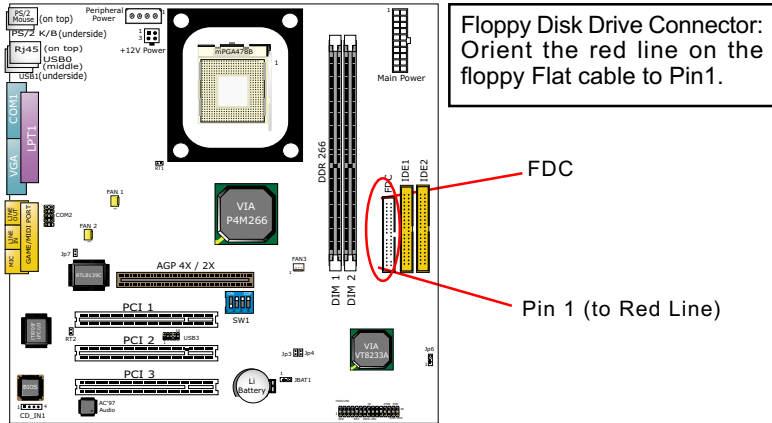


2-5 HDD/FDD Installation

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.

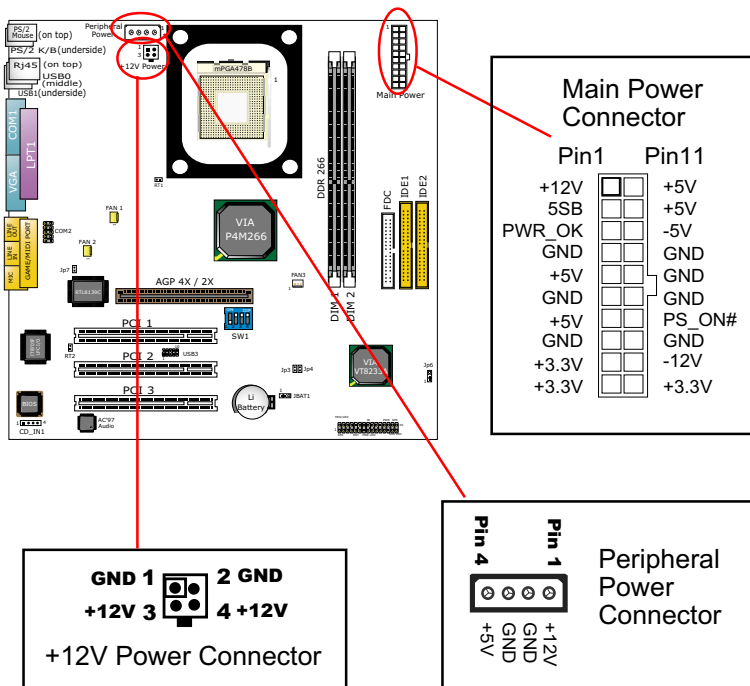


To install FDD (Floppy Disk Drive), you should connect the end of cable with single connector to the board , and connect the other end with two plugs to the floppy drives.



FDD FLAT Cable

2-6 ATX V 2.03 Power Supply Installation




Intel Pentium 4 requires power support of ATX V2.03.

To set up ATX2.03 Power Supply on this mainboard, Please take the following steps:

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 a version earlier 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.

2-7 Jumper and Switch Settings

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

SW1 On  **System Clock Adjustment**


Off 1 2 3 4

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

For 85MIV-L only


Jp7:
Built-in LAN Select



Open: enabled (default)




Closed: Disabled

***Jp3  *Jp4**


Factory Use Jumpers
Default: Closed

Jp3 and Jp4 are for factory use only. No change of setting should be made by users.

JBAT1:
Clear CMOS




1-2 closed:
Normal Status
(default)




2-3 closed:
Clear CMOS


Jp6:
CPU Clock Select



1-2 closed (default)
CPU Auto-detect
of
100 / 133MHz




Jumper open
100MHz selected




2-3 closed
133MHz selected


SW1:
Overclock setting
to Boot System



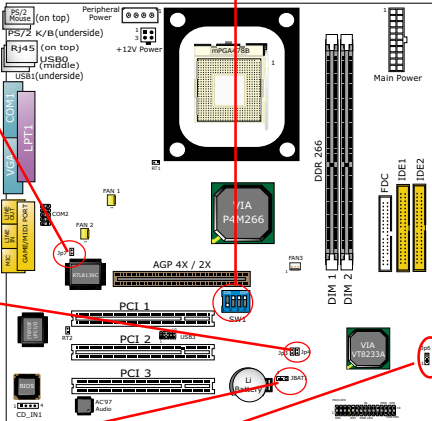
100/103/107/111SW1
setting for 100MHz
CPU to boot system;
133MHz SW1 setting
for 133MHz CPU to
boot system;



100/103/107/111
to boot system

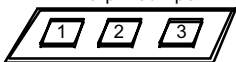


133MHz SW1
setting to boot
system

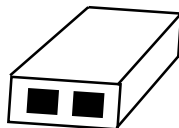


How to tackle the Jumpers:

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, the jumper pins covered with black marks stand for closed pins with jumper cap.

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 any jumper cap when power is on. Always make sure the power is off before changing any jumper settings. Otherwise, the mainboard will be damaged.

2-7.1 Jp6 and SW1: CPU Clock/Overclock Select

Jp6 and SW1 are designed for CPU clock select and 100MHz CPU overclocking. With Jp6, user can choose the way for a 100MHz CPU to run an overclock on board. SW1 is designed to match and meet the setting of Jp6. Before setting Jp1 and SW1, user should read the CPU Identification and find out the default CPU clock on the CPU.

1. If Jp6 is set to 1-2 closed, the auto-detect mode will recognize the CPU clock automatically and send the signal to system chips. If a 100MHz CPU is used, SW1 should be set to default or 103/107/111 mode. If a 133MHz CPU is used, SW1 should be set to 133MHz mode to boot system.
2. If Jp6 is set to 1-2-3 all open, CPU is set to 100MHz, indicating that 133MHz overclock is not desired. Set SW1 to 100/103/107/111 mode to boot system.
3. If Jp6 is set to 2-3 closed, CPU is set to 133MHz, indicating that 133MHz overclock is desired. Set SW1 to 133MHz mode to boot system. If overclocking fails, system will not boot. Then you must clear CMOS and reset Jp6 and SW1 to default settings for booting system.

Jp6: CPU Clock Select	SW1: Overclock setting to Boot System
 <p>1-2 closed (default) CPU Auto-detect of 100 / 133MHz</p>	<p>100/103/107/111SW1 setting for 100MHz CPU to boot system; 133MHz SW1 setting for 133MHz CPU to boot system;</p>
 <p>Jumper open 100MHz selected</p>	<p>100/103/107/111 to boot system</p>
 <p>2-3 closed 133MHz selected</p>	<p>133MHz SW1 setting to boot system</p>

 <p>SW1</p>		Overclock Select			
On	Off	1	2	3	4
		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	

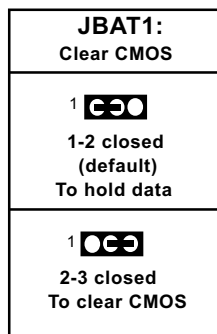
Further Notes on CPU Overclocking:

1. If you have successfully booted system, with or without CPU overclock, you still can try 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 and then restart your system. And remember to 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 PC case and simultaneously press down the "Insert" key on the keyboard until you see the initial bootup screen appear. And remember you should also enter CMOS BIOS Setup instantly and choose "Load Optimized Defaults" to restore default BIOS .

2-7.2 JBAT1: Clear CMOS

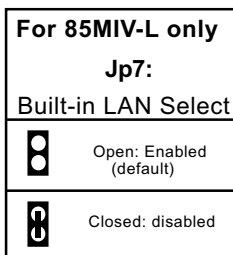
When you have problem with rebooting your system, you can clear CMOS data and restore it to default value. To clear CMOS with Jumper JBAT1, please follow the steps below:

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 Jp7: Built-in LAN Select (for 85MIV-L only)

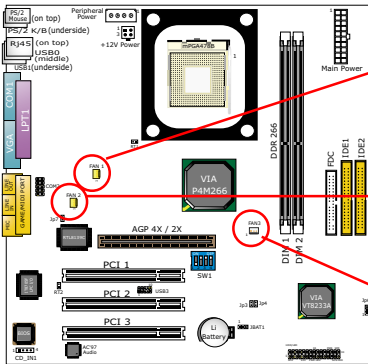
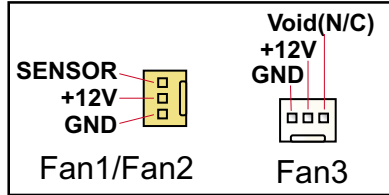
Jp7 is designed to enable the built-in LAN Controller function. With Jp7 open, the built-in LAN Controller is enabled, and you can use the on-board Rj45 channel, while you can also add another PCI LAN card for one more LAN channel. With Jp7 closed, the on-board Rj45 channel is disabled.






2-8 Other Connectors Configuration

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

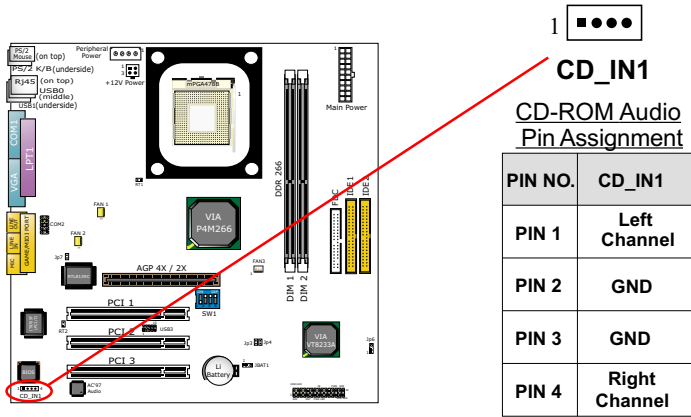
2-8.1 On Board FAN Connectors



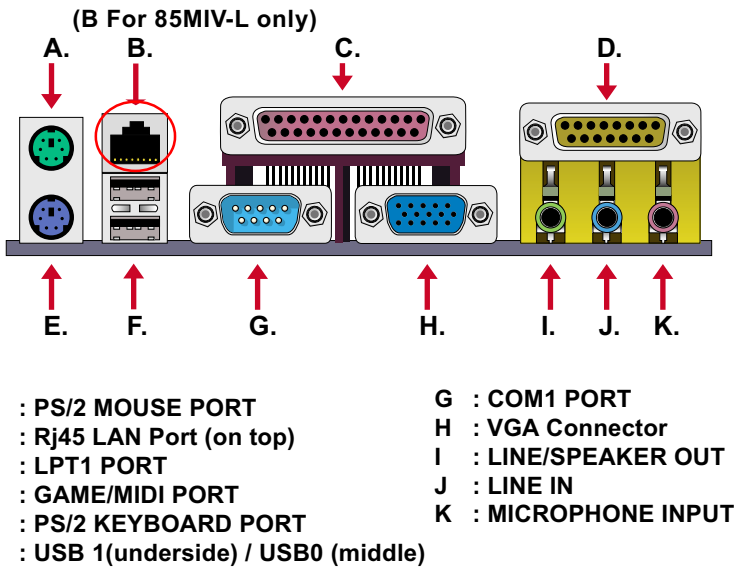
	CPU FAN Connector (FAN1, yellow, sensor)
	AGP FAN Connector (FAN2, yellow, sensor)
	System FAN Connector (FAN3, white, no sensor)

- These fan connectors support CPU / AGP/System 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.

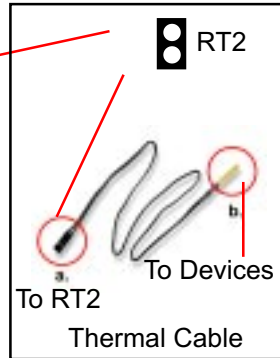
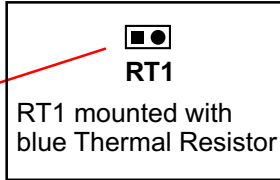
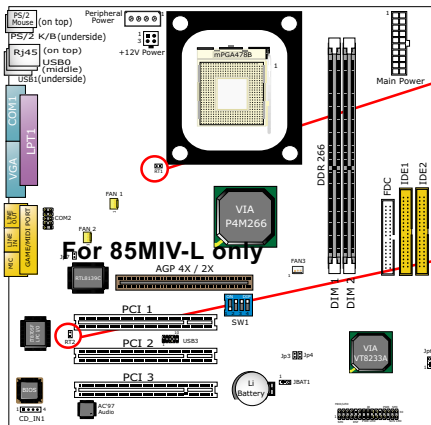
2-8.2 CD-ROM Audio Connector CD_IN1



2-8.3 Chassis Panel Connector



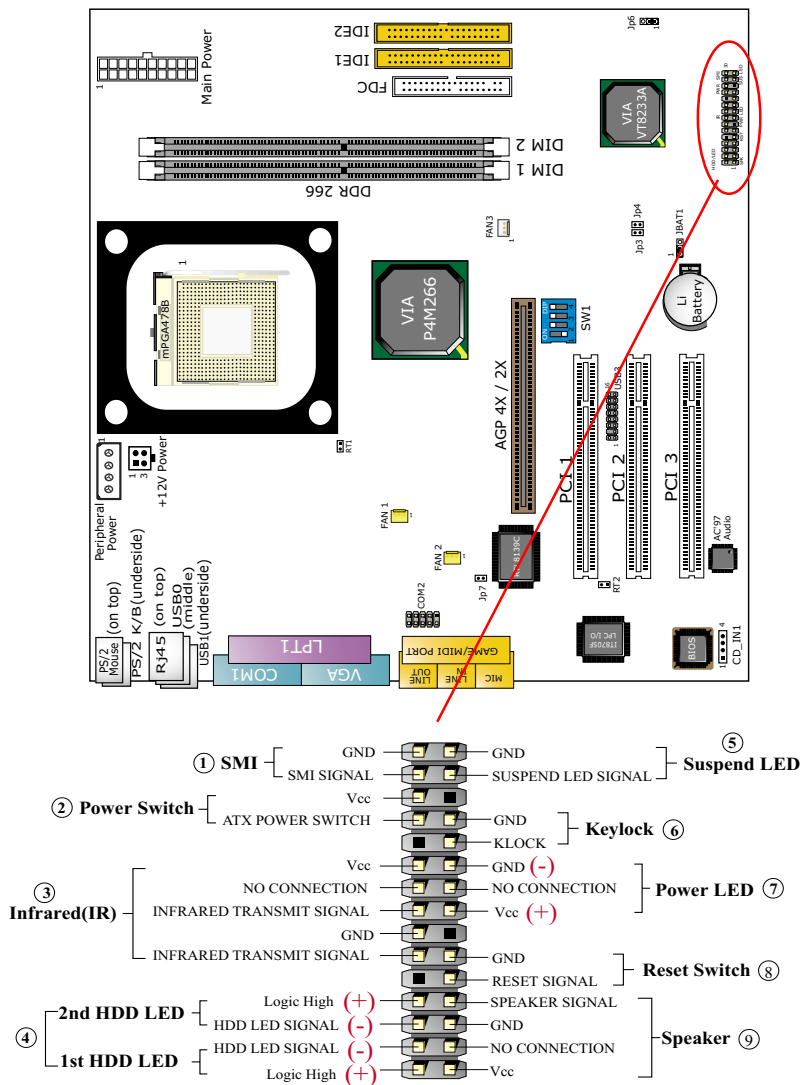
2-8.4 Thermal Sensor Connector RT1, RT2



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.**

2-8.5 Complex Header

This complex Header consists of 9 connectors providing various supports:



(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.

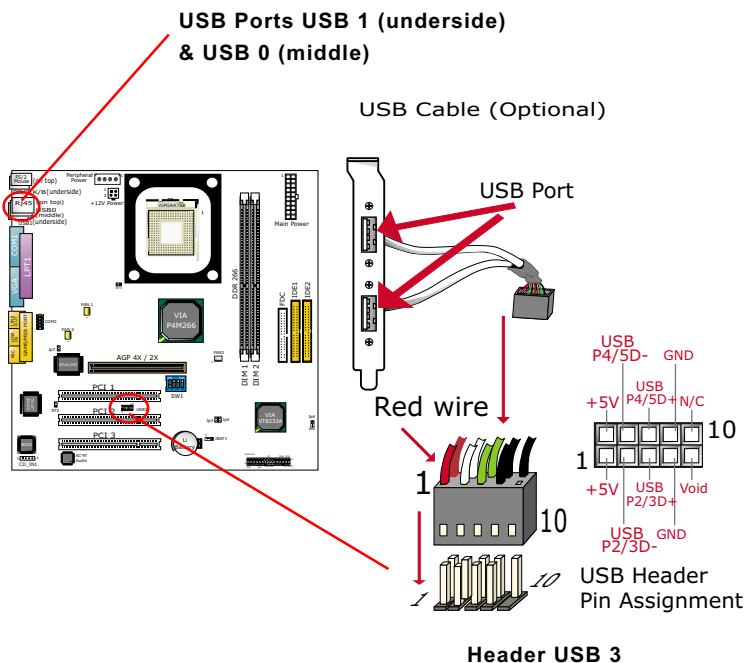
(8) Speaker Connector:

Connection: Connected to the case-mounted Speaker.

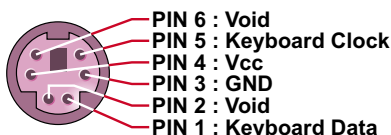
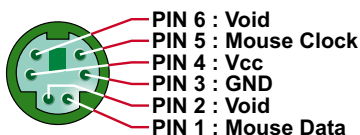
Function: To supply power to the case-mounted Speaker.

2-8.6 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.

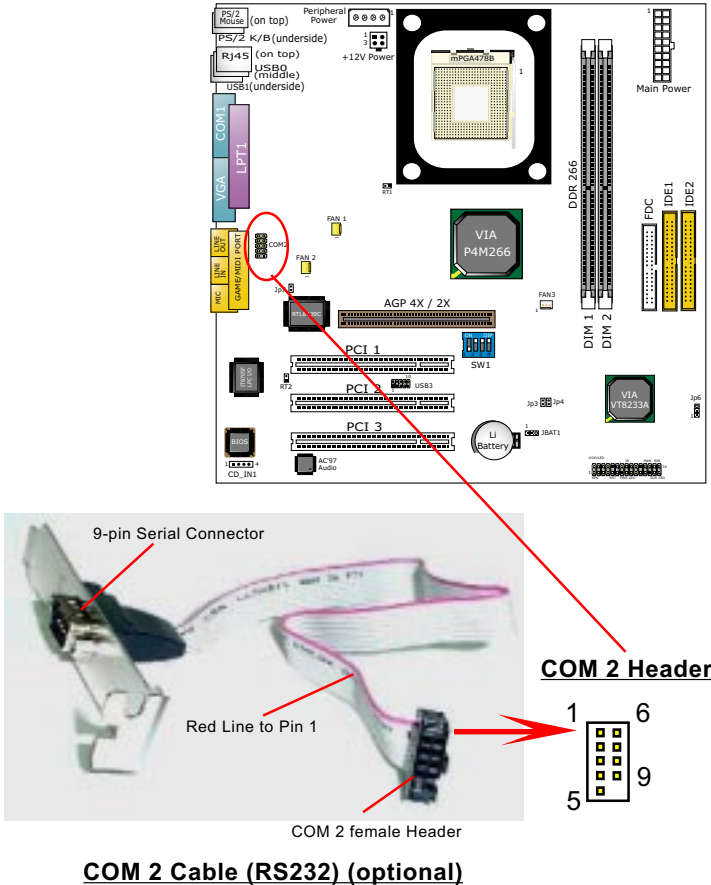


2-8.7 PS/2 Mouse And PS/2 Keyboard



2-8.8 COM 2 Header for one Serial Port

COM 2 Header is built on board , which requires a serial COM 2 cable to provide a 9-pin serial connector for a serial device. One RS232 COM 2 Cable is enclosed in this mainboard package. When you insert COM 2 cable to COM 2 header, take notice that the red line of the cable must connect to Pin 1 of COM 2 header.

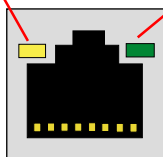


2-8.9 Rj45 Connector (for 85MIV-L only)

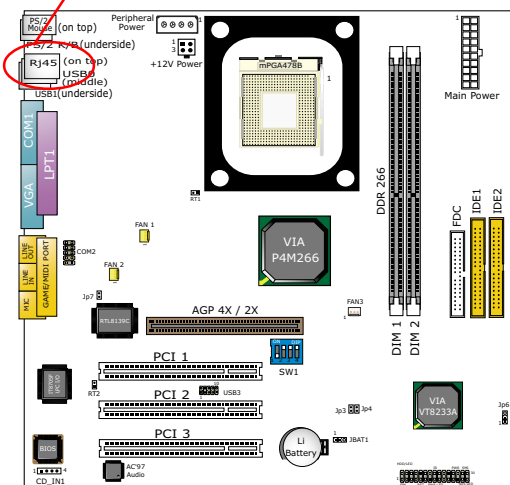
One Rj45 connector is on board for LAN connection which also support Wake On LAN function.

Yellow LED “On” to indicate Network hub is in connection with the system.

Green LED blinks to indicate that data transmission is undergoing in 10/100 Base T mode.



Rj45 Connector



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.