

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:

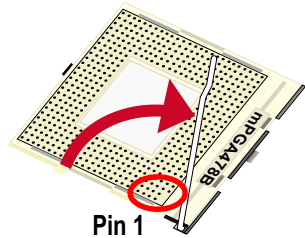
- 2-1 Pentium 4 CPU Installation**
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- 2-3 Memory Installation with Warning LED**
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2-1 CPU Installation with Socket 478B

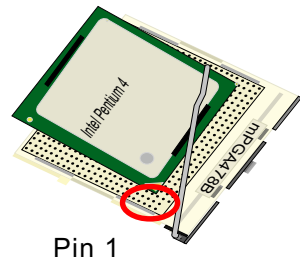
This series is built with CPU Socket 478B (478-pin) supporting the Intel Pentium 4 CPU:

- 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.

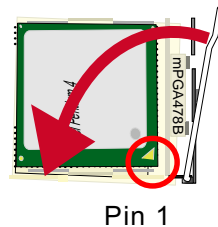
1. First pull sideways the lever of Socket 478, and then turn it up 90° so as to raise the upper layer of the socket from the lower platform.



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.

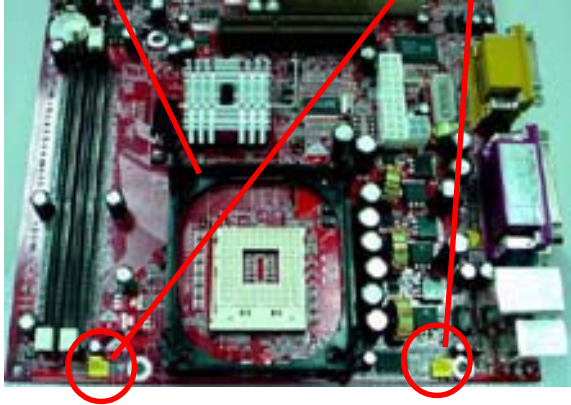


3. Make sure that all CPU pins have completely entered the socket and then lower down the lever to lock up CPU to socket.

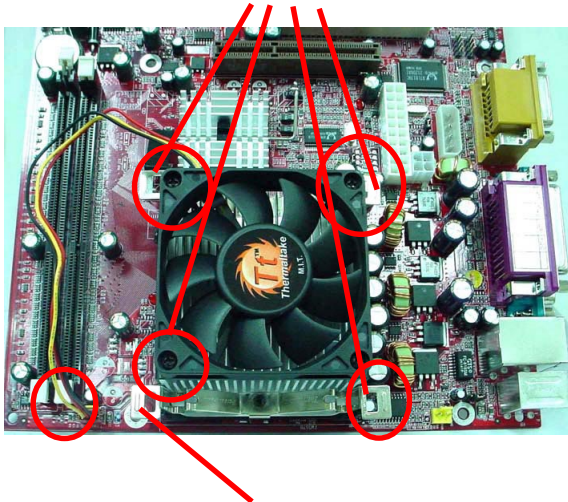


2-2 Pentium 4 CPU Fan Installation

Pentium 4 Fanbase CPU Fan Connector



Press down 4 corners to lock fan to fanbase



Connect Fan Connector to CPU FAN connector

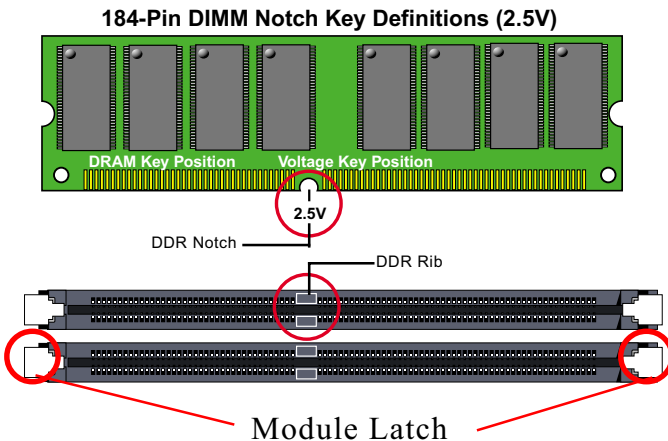
2-3 Memory Installation with Warning LED

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 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.



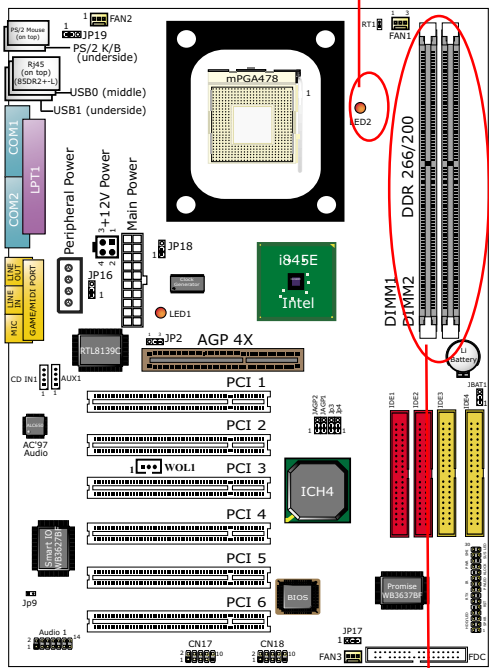
2-3.2 To Remove a DIMM

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

2-3.3 Warning LED2: DIMM Slot Powered On:

An indicator LED2 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 LED2 lighting up. This indicator LED2 is to warn users that, whenever DIMM slot is powered on, no memory module should be removed from or added into it.

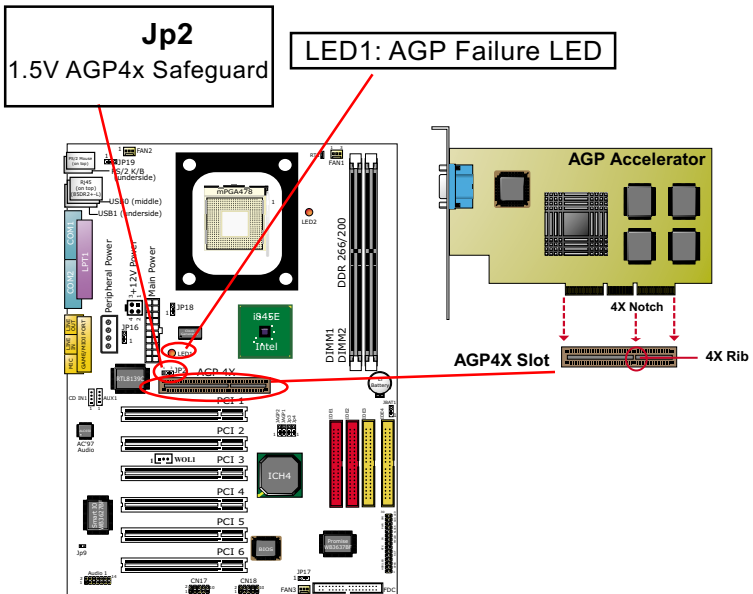
LED2 DIMM Powered On Indicator



DDR DIMM Slots (184-pin)

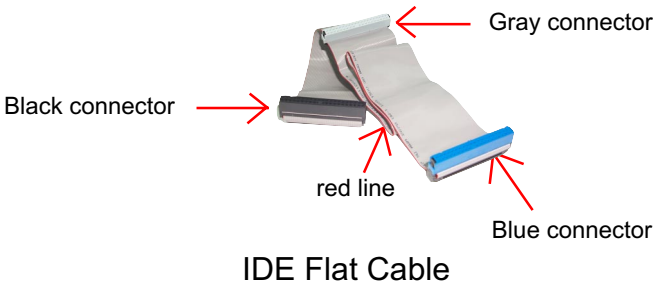
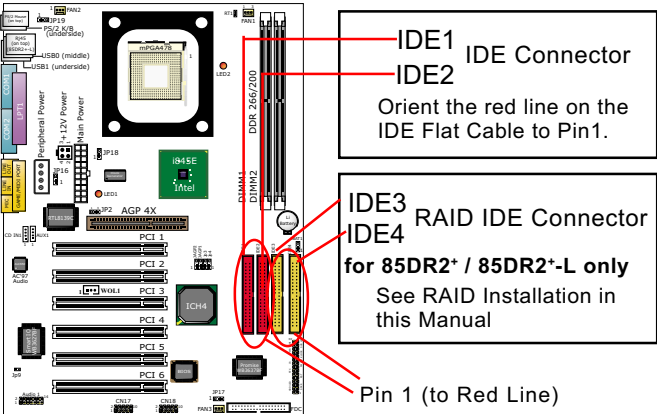
2-4 AGP 4X Installed with Jumper and LED Safeguard

1. The AGP slot on board supports 1.5V AGP4X 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 and 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 proper installation is done.



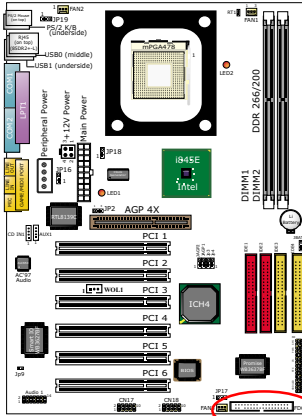
2-5 IDE Connector Installation

To install IDE Connector, you may connect the blue connector of IDE cable to the primary (IDE3) or secondary(IDE4) 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

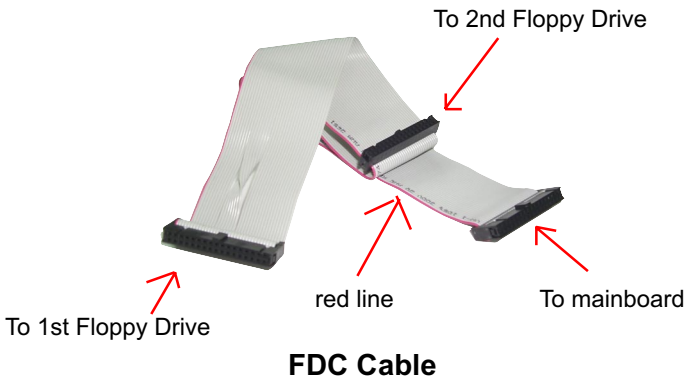
To install FDC (Floppy Drive Connector), you should connect the end of FDC cable with single connector to the board , and connect the other end with two connectors to the floppy drives.



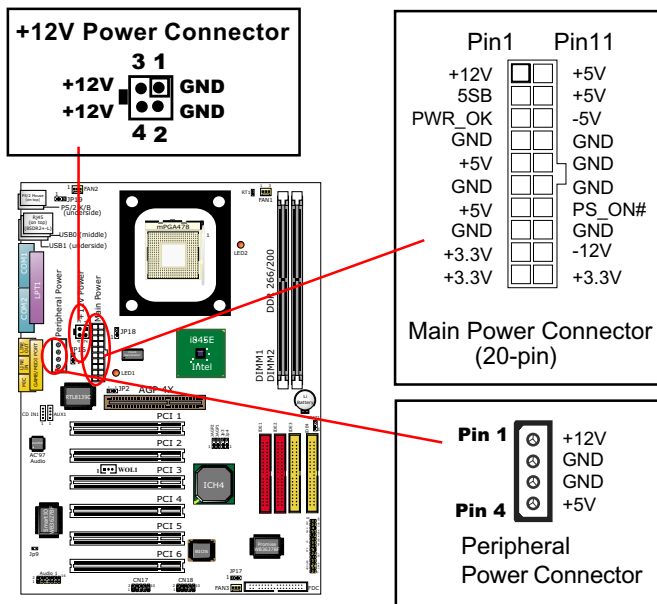
Floppy Drive Connector:

Orient the red line of the Floppy Flat Cable to Pin1.

Pin 1 (to Red Line)



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.

2-8 Jumper Settings

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

Jp18
CPU Clock Select

1-2 closed (default)
CPU Auto-detect

2-3 closed
133MHz Select

Jp19:
K/B / Power Button Select

1-2 closed (default)
Power on by Power Button

2-3 closed
Power on by keyboard

Jp2: 1.5V AGP4X Safeguard

1-2 closed (Default)
1-2 closed for 1.5V AGP 4X only; (Warning: 3.3V AGP 2X card can not boot system.)

2-3 closed for PCI VGA card or 1.5V AGP 4X;
(Warning: 3.3V AGP2X card will cause circuit burn.)

Jp16
(85DR2-L / 85DR2*-L)
LAN Controller Select

1-2 closed (default)
LAN Enabled

2-3 closed
LAN Disabled

JAGP1 & JAGP2:
AGP Voltage Select

Voltage	JAGP2	JAGP1
1.5V (default)	1-2 closed 1	1-2 closed 1
1.6V	2-3 closed 1	1-2 closed 1
1.7V	1-2 closed 1	2-3 closed 1

Jp3 & Jp4:
DIMM Voltage Select

Voltage	Jp3	Jp4
2.5V (default)	1-2 closed 1	1-2 closed 1
2.6V	2-3 closed 1	1-2 closed 1
2.7V	1-2 closed 1	2-3 closed 1

Jp17:
(85DR2* / 85DR2*-L only)
RAID Controller Select

2-3 closed
RAID Controller Disabled

1-2 closed (default)
RAID Controller Enabled

JBAT1
Clear CMOS

1-2 closed (default)
To hold data

2-3 closed
To clear CMOS







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 JAGP1 & JAGP2: AGP Voltage Select



The default voltage 1.5V at AGP slot is for normal operation of the supported AGP 4X. In some case, when you try to do CPU overclocking, you then may also need to raise the transfer rate of the AGP interface. JAGP1 & JAGP2 are designed on board to provide settings for selecting a higher AGP voltage so as to raise the speed of the AGP interface.

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

JAGP1 & JAGP2: AGP Voltage Select		
Voltage	JAGP2	JAGP1
1.5V (default)	1-2 closed 	1-2 closed 
1.6V	2-3 closed 	1-2 closed 
1.7V	1-2 closed 	2-3 closed 

2-8.2 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 	(Default) 1-2 closed for 1.5V AGP 4X only; (Warning: 3.3V AGP 2X card can not boot system.)
1 	2-3 closed for PCI VGA card or 1.5V AGP 4X; (Warning: 3.3V AGP2X card will cause circuit burn.)

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.

2-8.3 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 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.

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

2-8.4 Jp3 & Jp4: DIMM Voltage Select:

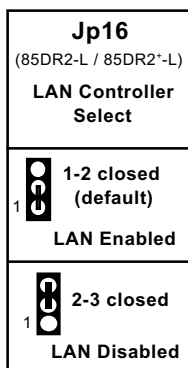
The default voltage 2.5V at DIMM slots is for normal operation of the supported DDR SDRAM. In some case, when you try to do CPU overclocking, you may also need to raise the transfer rate of the memory interface. Jp3 & Jp4 are designed on board to provide settings for selecting a higher DIMM voltage so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

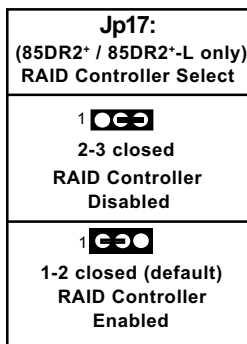
2-8.5 Jp16: LAN Controller Select (85DR2-L and 85DR2+-L)

Jp16 is designed to enable / disable the onboard LAN Controller. If your mainboard has got the LAN controller onboard, you should first enable the LAN controller by setting Jp16 to 1-2 closed before you can install the driver for the LAN controller.



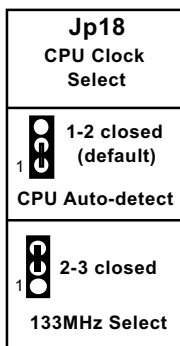
2-8.6 Jp17: RAID Controller Select (85DR2+ and 85DR2+-L)

Jp17 is designed to enable / disabled the onboard RAID Controller. If your mainboard has got a RAID Controller onboard, you should first enable the RAID controller by setting Jp17 to 1-2 closed before you can install the driver for RAID controller.



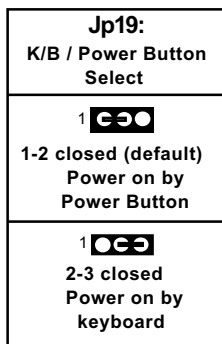
2-8.7 Jp18: CPU Clock Select

This series of Mainboards is shipped to users with a Jp18 CPU Clock Select design, with which user can select the CPU clock for the Pentium 4 processor selected on board. Yet users are not recommended to take Jp18 as a tool for overclocking. It is safer and more advisable for users to select the default (CPU auto-select) clock on board.



2-8.8 Jp19: K/B / Power Button Power On

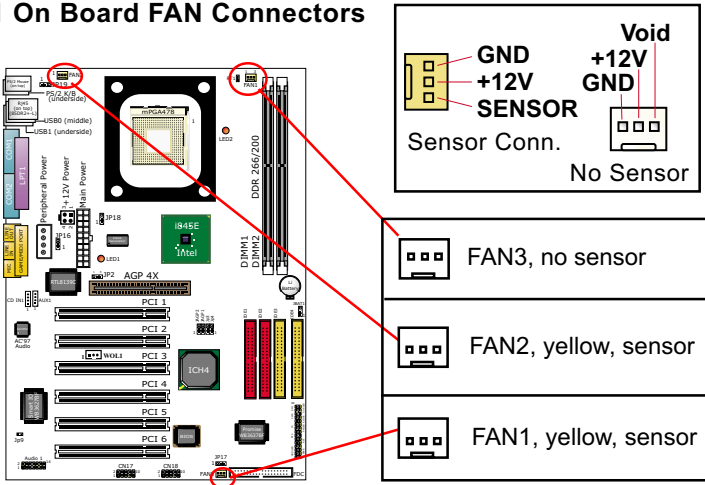
Jp19 is a design for user to select the Power On mode. Setting Jp19 to 1-2 closed will allow user to power on system by the Power Button. Setting Jp19 to 2-3 closed will allow user to enter BIOS setup and configure the Keyboard Power On function. In such case, user is allowed to choose the Keyboard Power On Mode: By Password or Hot-key.



2-9 Other Connectors Configuration

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

2-9.1 On Board FAN Connectors



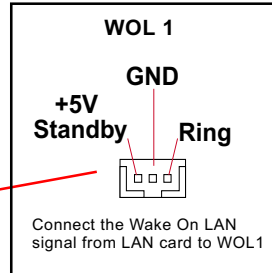
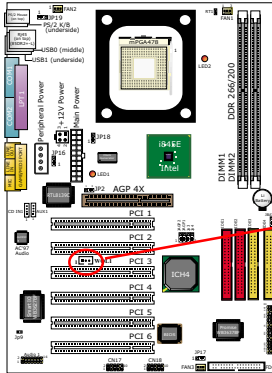
These fan connectors support CPU/AGP/Case cooling fan with +12V mode. When connecting the wire to FAN connectors, users should make sure that the red wire is for the positive current and should be connected to pin +12V, and the black wire is Ground and should be connected to pin GND. There is a Hardware Monitor chipset on board, with which user can install a Hardware Monitor Utility and read the fan speed transmitted from the sensor fan. Or, user read the fan speed from the "Hardware Monitor Status" of CMOS BIOS.

For fans plugged to a fan connector 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 : 2 "Yellow" fan connectors are used on this mainboard to mark that they support fan speed sensor function.

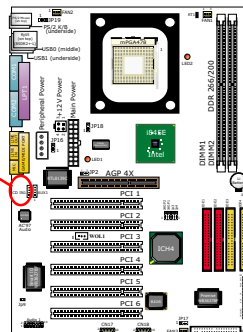
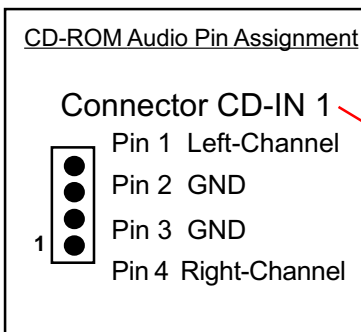
2-9.2 Connector WOL1: Wake On LAN

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.



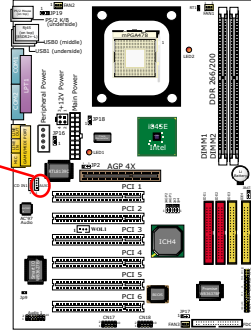
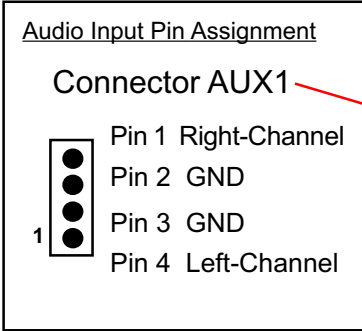
2-9.3 CD-ROM Audio Connector (CD_IN1)

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

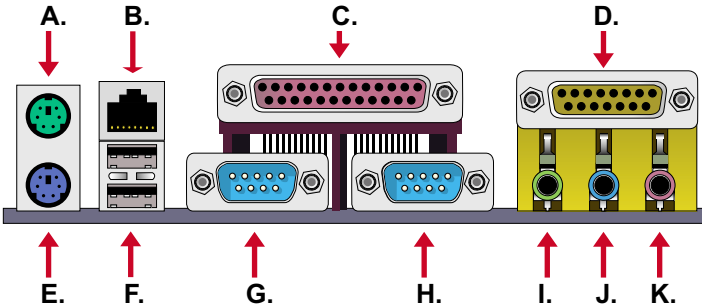


2-9.4 AUX1: Audio Input Connector

This connector connects to the Video Tuner Card and acts as Audio Input connector.



2-9.5 Chassis Panel Connectors



A : PS/2 MOUSE PORT
B : RJ45 (85DR2-L / 85DR2+-L)
C : LPT1 PORT
D : GAME/MIDI PORT
E : PS/2 KEYBOARD PORT
F : USB 1 PORT (Bottom)
F : USB 0 (Middle)
G : COM1 PORT

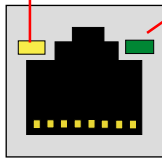
H : COM2 PORT
I : LINE Out / Front SPEAKER OUT
J : LINE IN / Rear Speaker In
K : MICROPHONE INPUT / Center Subwoofer Out

2-9.6 Rj45: LAN Connector (85DR2-L and 85DR2+-L only)

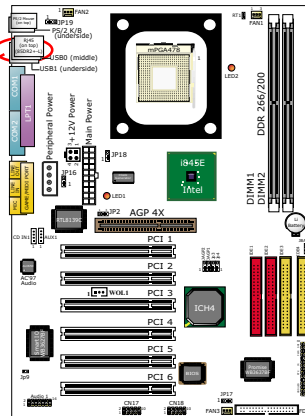
One Rj45 connector is on board for network connection and also provide support for Wake On LAN function.

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

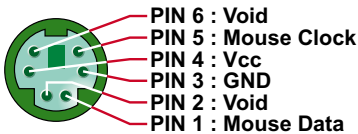
Green LED blinks to indicate that data transmission is undergoing in 10/100 Base T mode.



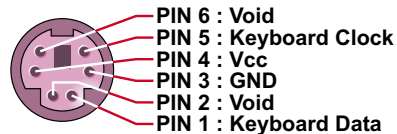
Rj45 Connector



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

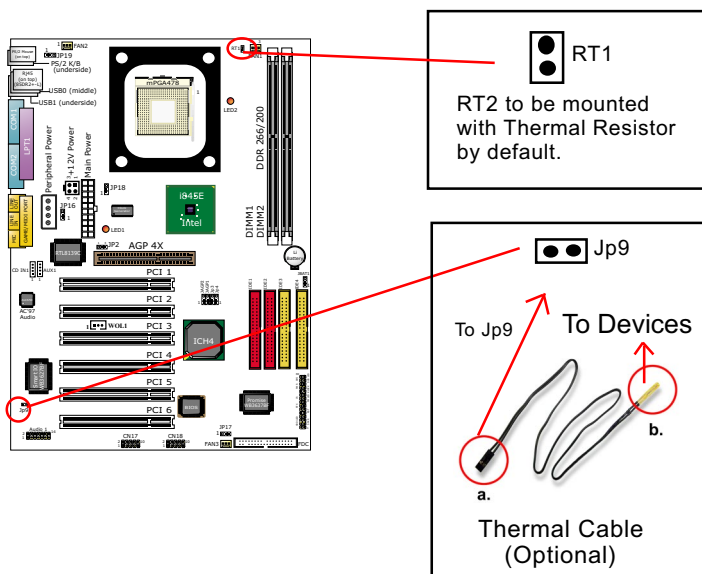


PS/2 MOUSE



PS/2 KEYBOARD

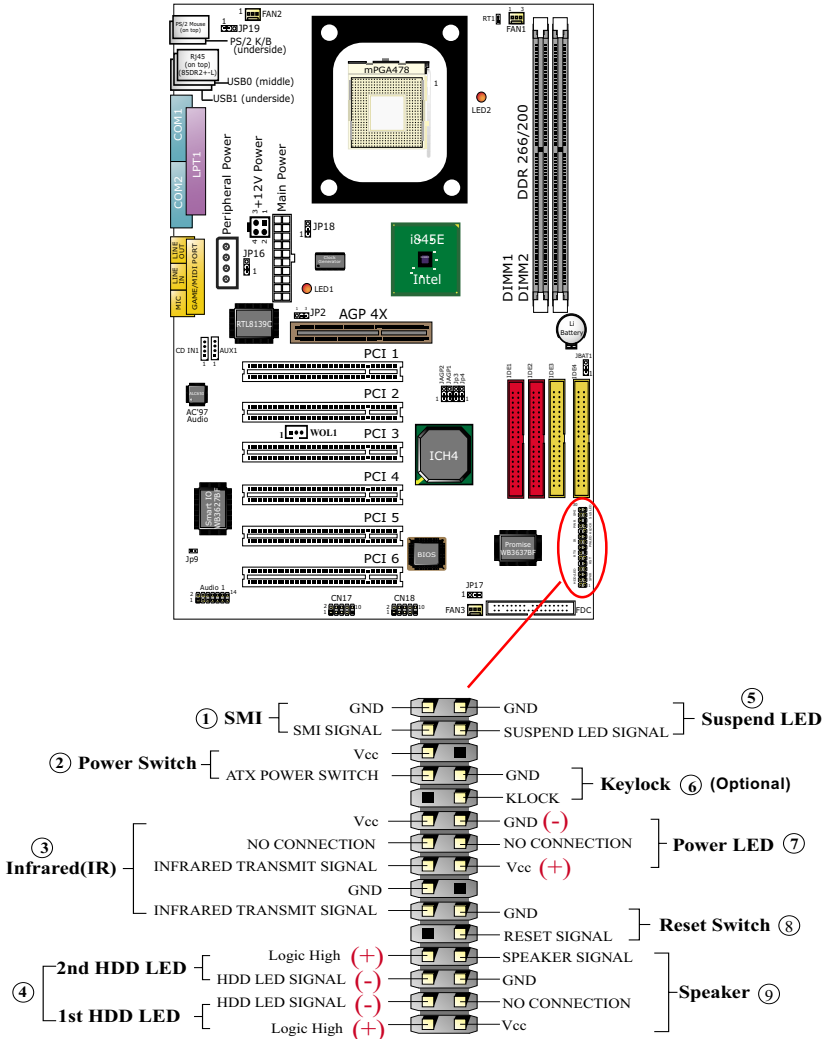
2-9.8 Thermal Sensor Connectors RT1 and Jp9



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 Jp9: A thermal cable is needed to connect Jp9 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 Jp9, 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 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:

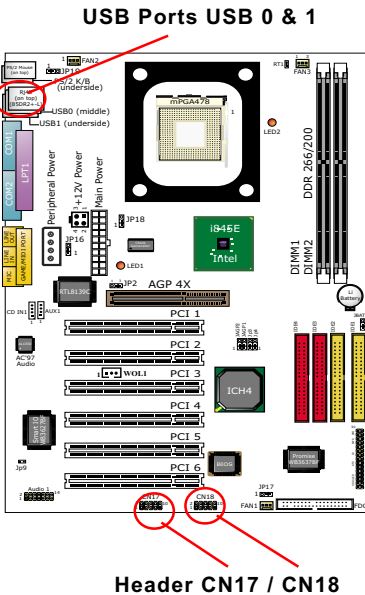
Connection: Connected to the case-mounted Speaker.

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

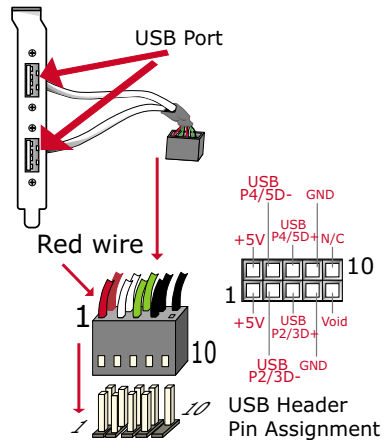
2-9.10 USB Ports and USB Headers

This mainboard provides two USB ports USB0 and USB1 on board supporting various USB devices. In addition, Headers CN17 and CN18 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 CN17 or CN18, user must make sure the red wire is connected to Pin 1.



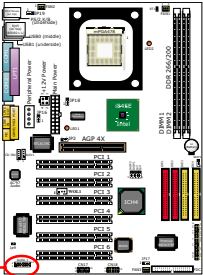
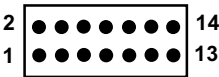
USB Cable (Optional)



2-9.11 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 |

2-10 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.