# *Chapter 2 Hardware Setup*

ATTENTION !!!

1. Please refer to your processor installation or other documentation attached to your CPU for detailed installing instruction.
2. Installing a heat sink and cooling fan is necessary for proper heat dissipation from your CPU. Incorrect installation may result in overheating and damage of your CPU.
3. Before changing the setting of CPU Vcore from BIOS program, user SHOULD make sure of correct specification both of CPU CLOCK and RATIO. Incorrect setting may cause damage to your CPU.

## This chapter contains the following topics :

2-1 CPU Installation
2-2 Memory Installation
2-3 AGP 4X (Accelerated Graphics Port) Installation
2-4 HDD/FDD Installation
2-5 Switch Setting For CPU Frequency And Voltage
2-6 Jumper Settings
2-7 Connectors Configuration

2-1 CPU Installation

> • *Make sure that +5V DCV and +3.3 DCV capabilities of your power supply are suitable for the processor.*
> • *Any attempt to operate the AMD Athlon or Duron processor without a suitable cooling Fan will damage processor and other component.*
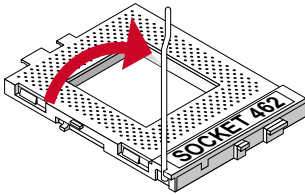
1 Pull out the lever from the socket, and then raise the lever up to a 90-degree angle.
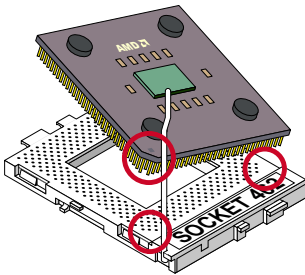
2 Take notice of the red circles as shown below. While inserting the CPU into the socket, you can find out there is a definite pin orientation for CPU and socket.
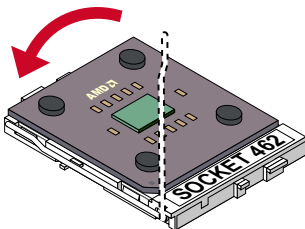
3 Make sure that the CPU is placed into the socket tightly. Then lower down the lever to complete the CPU installation.

2-2 Memory Installation

> • *Make sure to unplug your power supply before adding or removing memory modules or other system components. Failure to do so may cause severe damage to both your mainboard and expansion cards.*
> • *Be careful when inserting or removing DIMM. Forcing a DIMM in or out of a slot improperly may damage the memory module or the slot. Some DIMMs which contain EDO or FTP DRAM are incompliant with the mainboard. The M/B supports 2.5V true DDR SDRAM DIMMs only.*

Installing DIMM

• Make sure you have the correct memory module type for your mainboard.
• Insert the module(s) as shown below, DIMMs have 184-pins and one notch that will be matched by the onboard DIMM slot. Memory modules are installed by inserting them straight into the slot until they "click" in the right place. They only fit in one direction, so do not force them in by a wrong direction.

184-Pin DIMM Notch Key Definitions(2.5V)

DRAM Key Position   Voltage Key Position

2.5V
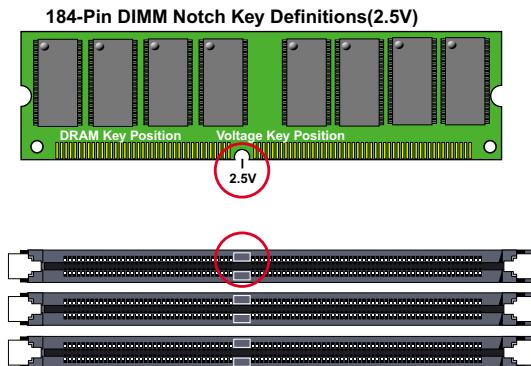
Removing DIMM

• Press down the holding clips on both sides of a DIMM slot and the module will be released from it.
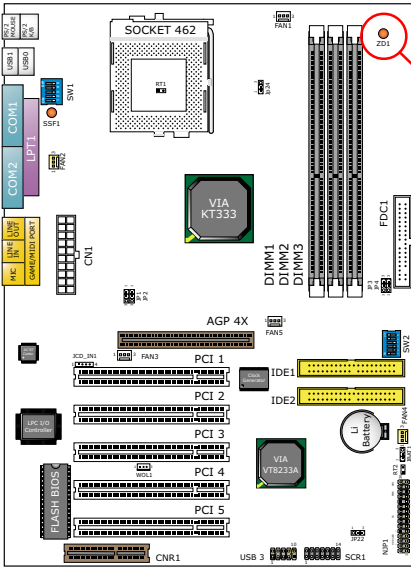
NOTICE:
When LED "ZD1" is on, meaning that 2.5V is operating and flowing into DIMM slots, please do not add or remove memory modules .

2-3 AGP 4X (Accelerated Graphics Port) Installation

• This AGP slot supports both 4X and 2X AGP cards. An AGP 4X card will support a double transfer rate of an AGP 2X card.
When AGP 4X card is used on board, it runs with 1.5V voltage. In case of overclocking, the AGP 4X voltage can be raised by 0.1 stepping by adjusting JP1 and JP2, so as to support a higher transfer rate.


AGP 4X/2X
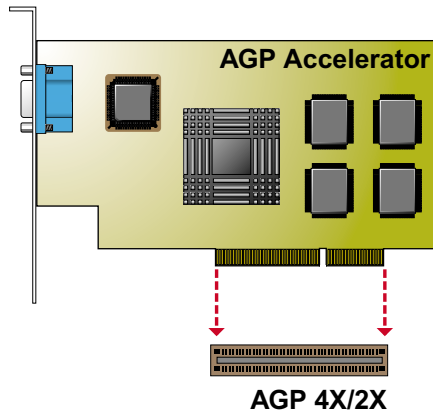
2-4 HDD/FDD Installation

• To install HDD (Hard Disk Drive), you may connect the cable's blue connector to the mainboard's primary (IDE1) or secondary (IDE2) connector, 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 jumper accordingly. Please refer to your hard disk documentation for the jumper settings.
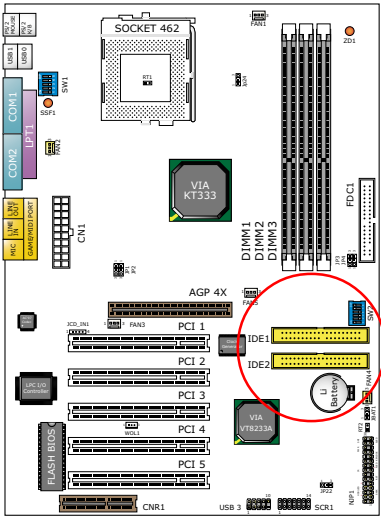
Hard Disk Drive Connector: Orient the red line on the IDE ribbon cable to Pin1.

Gray connector

Black connector

red line
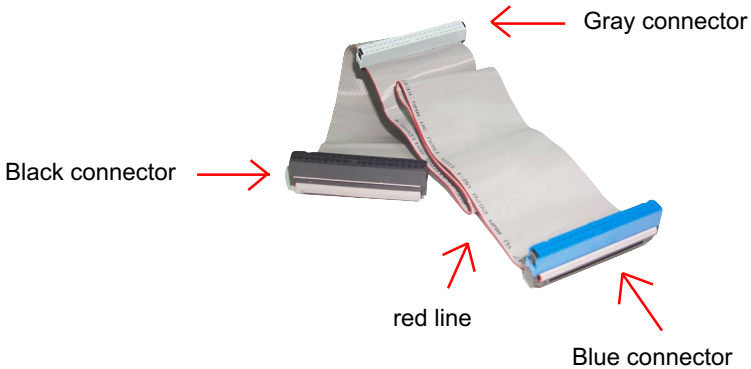
Blue connector

IDE Cable

• To install FDD (Floppy Disk Drive), you may connect the single end to the board , and connect two plugs on the other end to the floppy drives.
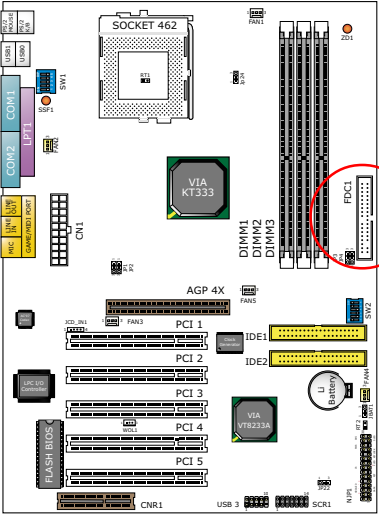
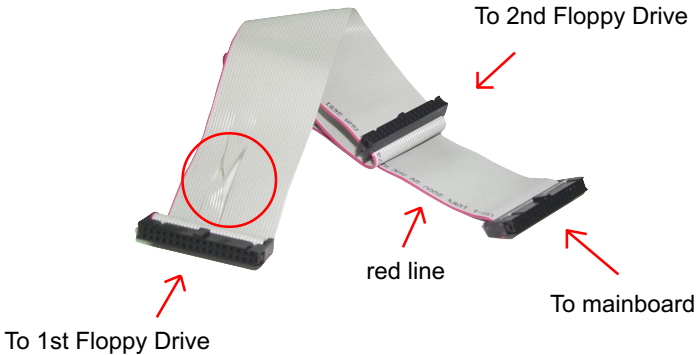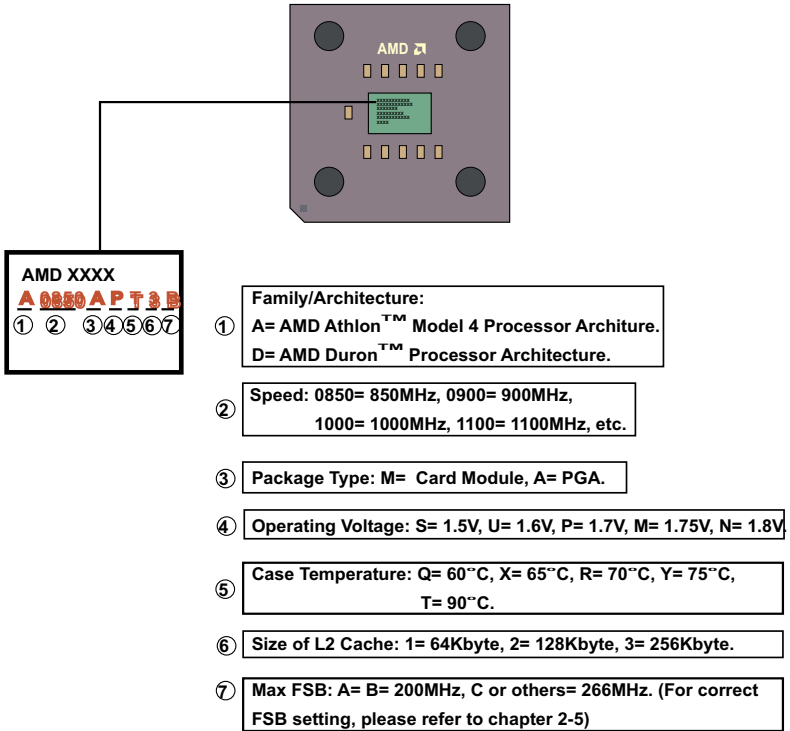Floppy Disk Drive Connector: Orient the red line on the floppy ribbon cable to Pin1.

To 2nd Floppy Drive

red line

To mainboard
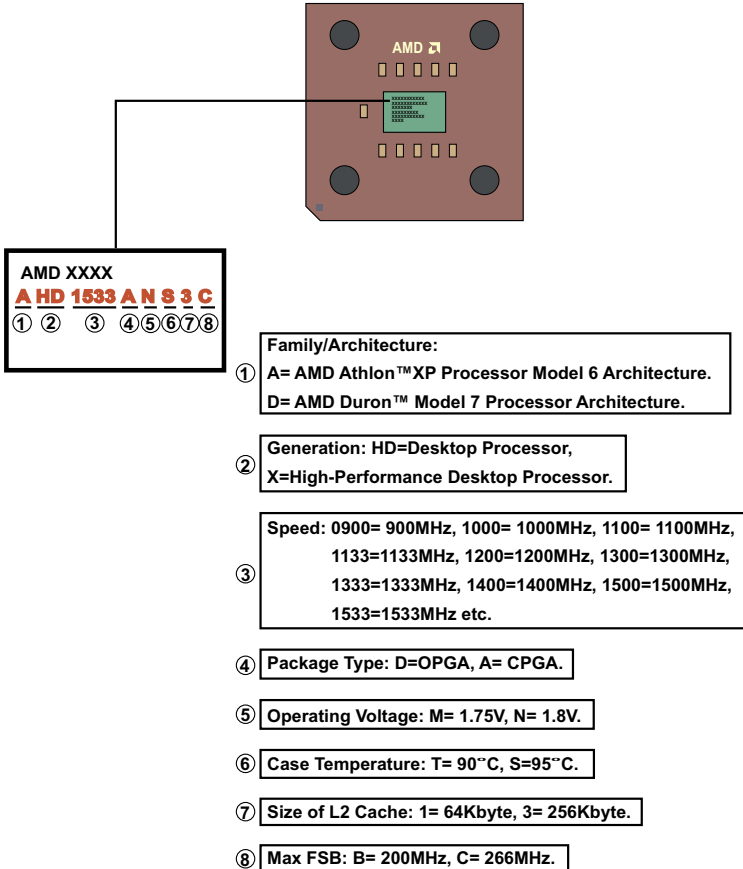
To 1st Floppy Drive

FDD Cable

2-5 Switch Setting For CPU Frequency And Voltage

2-5.1 Information On AMD Socket 462 Processor (Model 4, 5 Products)

• On the AMD Socket 462 Processor, you can find a codified identification marking which is to provide useful information about the CPU. The marking is interpreted as below.

AMD XXXX

A 0850 A P T 3 B
① ② ③④⑤⑥⑦

① **Family/Architecture:**
A= AMD Athlon™ Model 4 Processor Architure.
D= AMD Duron™ Processor Architecture.

② **Speed: 0850= 850MHz, 0900= 900MHz,**
     1000= 1000MHz, 1100= 1100MHz, etc.

③ **Package Type: M= Card Module, A= PGA.**

④ **Operating Voltage: S= 1.5V, U= 1.6V, P= 1.7V, M= 1.75V, N= 1.8V**

⑤ **Case Temperature: Q= 60˚C, X= 65˚C, R= 70˚C, Y= 75˚C,**
     T= 90˚C.

⑥ **Size of L2 Cache: 1= 64Kbyte, 2= 128Kbyte, 3= 256Kbyte.**

⑦ **Max FSB: A= B= 200MHz, C or others= 266MHz. (For correct**
     FSB setting, please refer to chapter 2-5)

2-5.2 Information On AMD Socket 462 Processor (Model 6, 7 Products)

AMD XXXX

A HD 1533 A N S 3 C
① ② ③ ④⑤⑥⑦⑧

① **Family/Architecture:**
A= AMD Athlon™XP Processor Model 6 Architecture.
D= AMD Duron™ Model 7 Processor Architecture.

② **Generation: HD=Desktop Processor,**
X=High-Performance Desktop Processor.

③ **Speed: 0900= 900MHz, 1000= 1000MHz, 1100= 1100MHz,**
1133=1133MHz, 1200=1200MHz, 1300=1300MHz,
1333=1333MHz, 1400=1400MHz, 1500=1500MHz,
1533=1533MHz etc.

④ **Package Type: D=OPGA, A= CPGA.**

⑤ **Operating Voltage: M= 1.75V, N= 1.8V.**

⑥ **Case Temperature: T= 90˚C, S=95˚C.**

⑦ **Size of L2 Cache: 1= 64Kbyte, 3= 256Kbyte.**

⑧ **Max FSB: B= 200MHz, C= 266MHz.**

2-5.3 Information On AMD Socket 462 Processor (Model 8 Products)

AMD XXXX

A X 2000 D K S 3 C
①② ③ ④⑤⑥⑦⑧

① **Family/Architecture:**
A= AMD Athlon™XP Processor Model 8 Architecture.

② **Generation: X=High-Performance Desktop Processor.**

③ **Model Numbers: 1800 operates at 1533 MHz, 1900 at 1600 MHz, 2000 at 1667 MHz, TBA=1800 MHz, TBA=1867 MHz, TBA=2000 MHz.**

④ **Package Type: D=OPGA.**

⑤ **Operating Voltage: K= 1.65V.**

⑥ **Die Temperature: Q= 100¨C, S=95¨C, T= 90¨C.**

⑦ **Size of L2 Cache: 3=256Kbyte.**

⑧ **Max FSB: C=266MHz.**
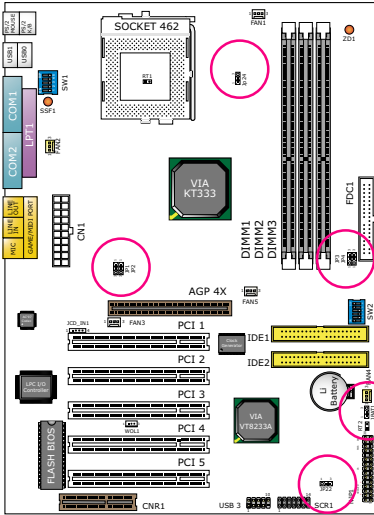
2-5.4 Frequency Ratio Select (By SW1 DIP1-DIP5)

- The AMD Athlon and Duron processors provide four Frequency ID signals (FID) for the system controller to indicate the SYSTCLK multiplier at which the processor core operates. Normally, multiplier (or bus ratio) is detected automatically. Therefore, if the processor does not support the function, then "Bus Ratio" can not be selected.
- When DIP5 of SW1 is on, LED "SSF1" will be on, and light is on, it means that Bus Ratio Select Function is enabled. As long as your CPU supports Bus Ratio Select function, then Bus Ratio can be selected by users.

SSF1
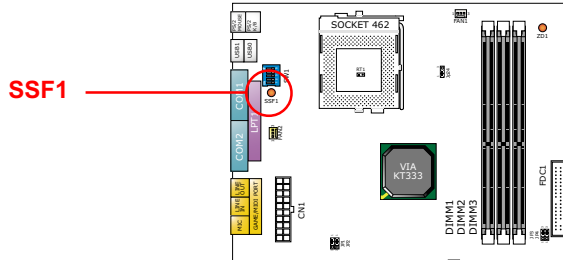
SW1 DIP1 ~ DIP4 SETTING				SW1 DIP5
5.5x		6.0x		Bus ratio detected by FID (Auto)
6.5x		7.0x		
7.5x		8.0x		Bus ratio selected by SW1 DIP 1-4
8.5x		9.0x		
9.5x		10.0x		
10.5x (Default)		11.0x		SW1 DIP 5 allows you to enable or disable the "Frequency Ratio Select" function.
11.5x		12.0x		
12.5x				

2-5.5 CPU External Frequency Setting (By SW2)

SW2	CPU EXTERNAL CLOCK	PCI CLOCK	FSB CLOCK
	100MHz (Default)	33.3MHz	200MHz
	133.3MHz	33.3MHz	266MHz
	140MHz	35.0MHz	280MHz
	150MHz	37.5MHz	300MHz
	166MHz	33.3MHz	333MHz

👓 *Important:*
  • *Do figure out the correct processor type by processor's OPN (Ordering Part Numbers). Correct CPU external frequency is key to ensure reliability of your system.*
  • *Incorrect CPU external frequency or overclocking might cause unstable performance, so we strongly recommend to leave "SW2" at default setting or legal operation.*

2-6 Jumper Settings

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

JP24: Overheated CPU Shutdown

85˚C Overheated CPU shutdown function enabled (default)	JP24
Overheated prevention disabled	JP24

JP3/JP4: Memory Module Voltage Select

2.5V (default)	JP3 JP4
2.6V	JP3 JP4
2.7V	JP3 JP4

JBAT1: Clear CMOS Data

Clear CMOS Data	JBAT1
Retain Data (Default)	JBAT1

JP1/JP2: AGP 4X Voltage Select

1.5V (default)	JP1 JP2
1.6V	JP1 JP2
1.7V	JP1 JP2

JP22: Power Lost Resume

Disabled (default)	JP22
Enabled	JP22

⚆⚆ *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.*

2-6.1 JP1/JP2 AGP 4X Voltage Select

JP1/JP2: AGP 4X Voltage Select	
1.5V (default)	JP1 JP2
1.6V	JP1 JP2
1.7V	JP1 JP2

2-6.2 JP3/JP4 Memory Module Voltage Select

This function allows you to select the voltage supplied to the DRAM. The default voltage (2.5V) should be used unless processor overclocking requires a higher voltage.

JP3/JP4: Memory Module Voltage Select	
2.5V (default)	JP3 JP4
2.6V	JP3 JP4
2.7V	JP3 JP4

2-6.3 JP1 Power Lost Resume

This jumper allows user to use the switch of ATX power supply to control ON/OFF switch directly instead of using the power switch on the mainboard.

JP22: Power Lost Resume	
Disabled (default)	⬜━━━ 1 3 JP22
Enabled	━━━⬜ 1 3 JP22

2-6.4 JP24 Overheated CPU Shutdown

JP24 is a design to enable the overheat prevention function for some CPUs which are incorporated with a protective thermal diode. The latest AMD Athlon XP CPUs are incorporated with such thermal diode and can be protected by this function. Setting JP24 at 1-2 closed (the default setting) will shut down the system when CPU gets to 85˚C (the default protection temperature). Only when it gets cooler, can you restart your system.
For other CPUs that are not incorporated with a protective thermal diode, JP24 is a vain design. Please set it at 2-3 closed to disable the function.

<u>Reminder</u>: If a sudden shutdown happens to your system which has been running well for a while with an AMD Athlon XP CPU, this might be caused by the "Overheated CPU Shutdown" design. Please use a better CPU cooling fan and restart your system.

JP24: Overheated CPU Shutdown	
85˚C Overheated CPU shutdown function enabled (default)	3 ⬜ 1 ▮ JP24
Overheated prevention disabled	3 ▮ 1 ⬜ JP24

2-6.5 JBAT1 For Clear CMOS Data

A battery must be used to retain the mainboard configuration in CMOS RAM.

| JBAT1: Clear CMOS Data	
Clear CMOS Data	JBAT1
Retain Data (Default)	JBAT1

☞ *NOTE:*
You can clear CMOS by 2-3 pin closed when the system is POWER OFF. Then, return to 1-2 pin closed position (default). You may damage the mainboard if clearing the CMOS with POWER ON. Unplugging the power cord from power supply before clearing CMOS will be a safest bet for user.

2-7 Connectors Configurations

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

2-7.1 On Board FAN Connector

GND
+12V
SENSOR
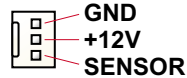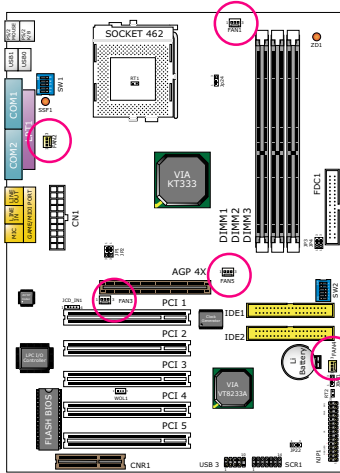
| On-Board FAN Connectors		
CPU FAN1		FAN1
CPU FAN2		FAN2
SYSTEM FAN1		FAN3
CHASSIS FAN		FAN4
SYSTEM FAN2		FAN5

These fan connectors support CPU/System/chassis cooling fan with +12V. When connecting wire to FAN connectors, users should pay attention 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 this 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.

NOTE:
1. Always consult vendor for proper CPU cooling fan.
2. 2"Yellow" fan connectors are used on this series to mark that they support fan speed sensor function. The other 3 white fan connectors do not support sensor function.

2-7.2 WOL1 Wake On LAN

GND

**+5V
Standby** **PME**
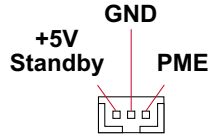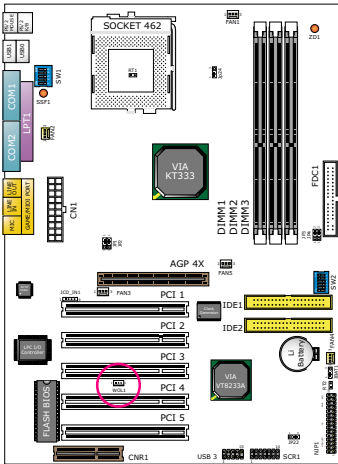
WOL1: Wake On LAN	
Connect the Wake On LAN signal from LAN card to WOL1	WOL1

This connector connects to a 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.
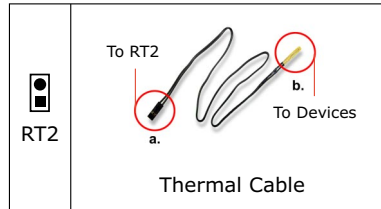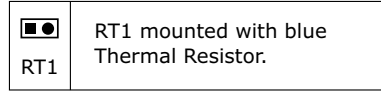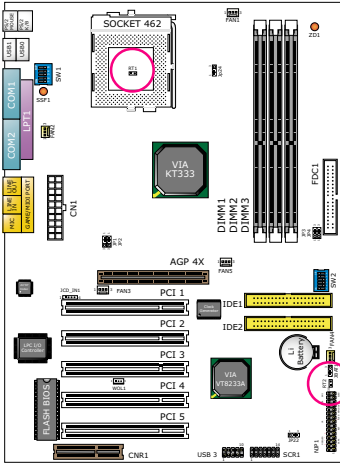
This feature requires that Wake On LAN feature is enabled in the BIOS setting called *"Power Management Setup"* and that your system must be on ATX power supply with at least 720mA / +5V standby power.

2-7.3 CD-ROM Audio Connector (JCD_IN1)

1 ▪●●● 4
JCD_IN1
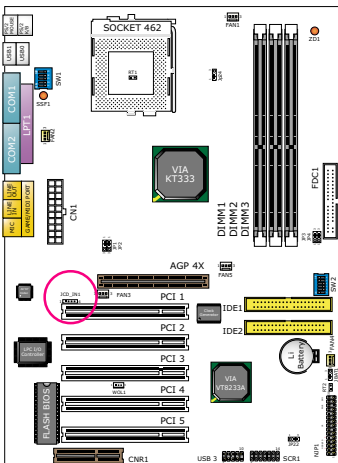
JCD_IN1: CD ROM Audio Connector	
PIN NO.	CD1
PIN 1	Left Channel
PIN 2	GND
PIN 3	GND
PIN 4	Right Channel

32

2-7.4 RT1/RT2 Thermal Sensor Connector (Option)

■ ● RT1	RT1 mounted with blue Thermal Resistor.

RT2 — To RT2, b. To Devices, a. — Thermal Cable

1. Connector RT1: A blue thermal resistor is already soldered to connector RT1 to detect 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.**

2-7.5 Complex Header

• This complex Header consists the following connector for various supports:
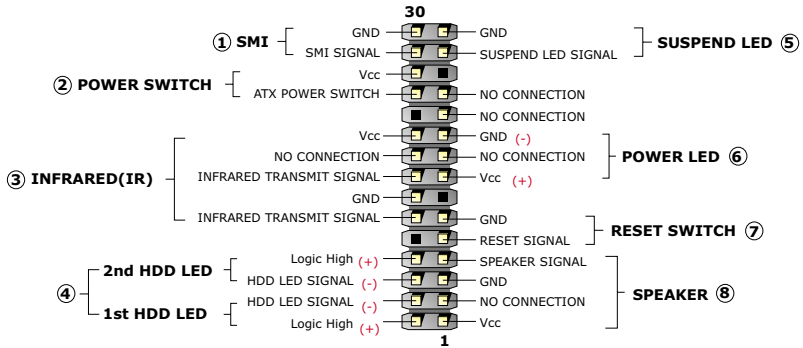
1. SMI Connector (System Management Interrupt):
   Connection: This 2-pin connector is connected to the case-mounted
   Suspend Switch.
   Function   : Manually placing the system into a Suspend mode or
   "Green" mode.

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.
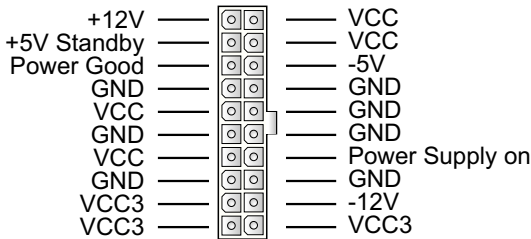
8. Speaker Connector:
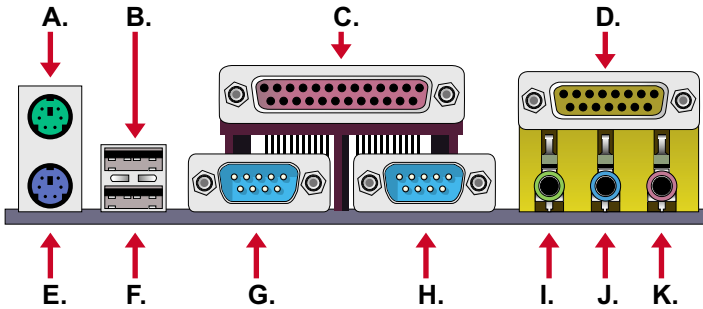   **Connection:** Connected to the case-mounted Speaker.
   Function   : To supply power to the case-mounted Speaker.

2-7.6 ATX Power Supply Connector

• This connector connects to an ATX power supply. The plug from the power supply should only be inserted to ATX Power connector in a specific orientation. Find the proper orientation and push it down firmly to make sure that all pins are aligned.
• Your power supply should support at least 10mA on the 5V standby voltage. It may cause difficulty to turn on the system power if the power supply does not support the load.
• **For Wake On LAN function, the power supply should support at least 720mA current.**
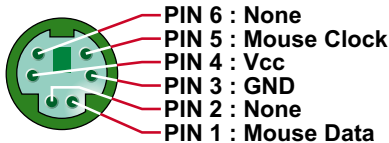
```
      +12V ——— |◎|◎| ——— VCC
+5V Standby ——— |◎|◎| ——— VCC
Power Good ——— |◎|◎| ——— -5V
       GND ——— |◎|◎| ——— GND
       VCC ——— |◎|◎| ——— GND
       GND ——— |◎|◎| ——— GND
       VCC ——— |◎|◎| ——— Power Supply on
       GND ——— |◎|◎| ——— GND
      VCC3 ——— |◎|◎| ——— -12V
      VCC3 ——— |◎|◎| ——— VCC3
```

2-7.7 Chassis Panel Connectors
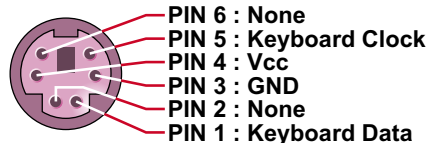
A : PS/2 MOUSE PORT
B : USB 0 PORT
C : LPT1 PORT
D : GAME/MIDI PORT
E : PS/2 KEYBOARD PORT
F : USB 1 PORT
G : COM 1 PORT
H : COM 2 PORT
I : LINE OUT / SPEAKER OUT PORT
J : LINE IN
K : MICROPHONE

2-7.8 PS/2 Mouse And PS/2 Keyboard

PIN 6 : None
PIN 5 : Mouse Clock
PIN 4 : Vcc
PIN 3 : GND
PIN 2 : None
PIN 1 : Mouse Data

PS/2 MOUSE

PIN 6 : None
PIN 5 : Keyboard Clock
PIN 4 : Vcc
PIN 3 : GND
PIN 2 : None
PIN 1 : Keyboard Data

PS/2 KEYBOARD

2-7.9 Smart Card Reader Connector (SCR1)

• The connector "SCR1" allows you to use Smart Card Reader. It is compliant with Personal Computer Smart Card (PC/SC) working group standard and smart card (ISO 7816) protocols.

SCR1 pin assignment
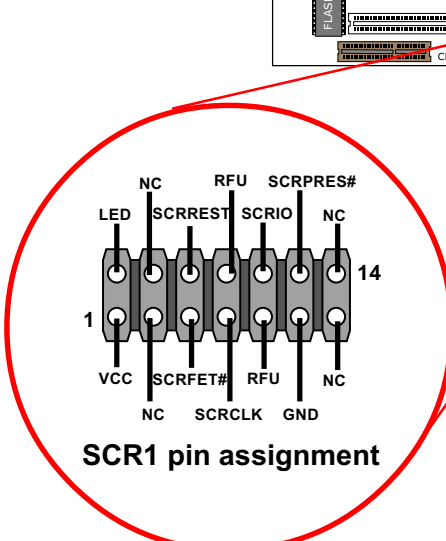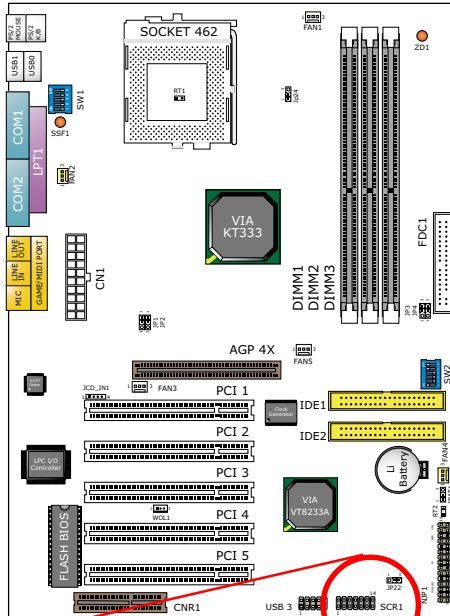
2-7.10 Communication And Networking Riser Slot (CNR)

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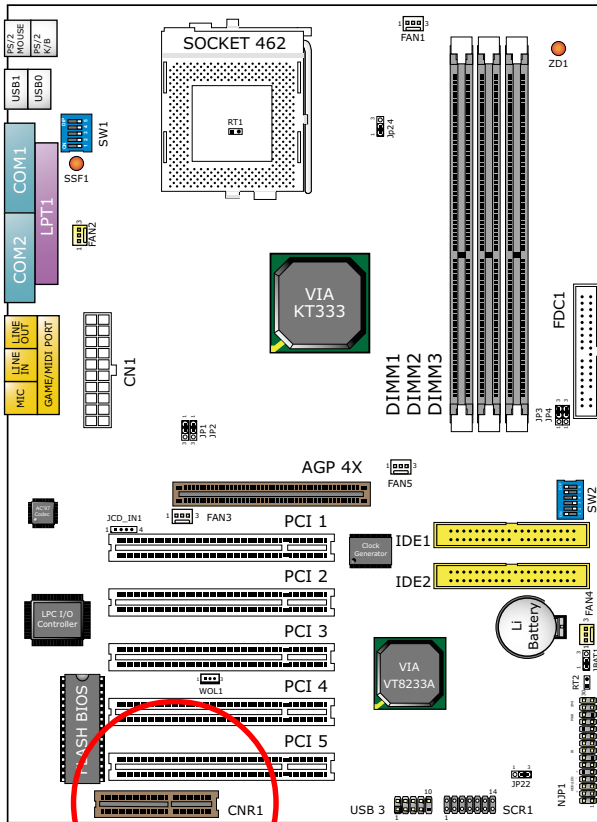

CNR slot

🔍 *Note:*
1. If modem CNR is installed, the modem CNR must be set as primary.
2. LAN CNR is not supported on this mainboard.
3. The audio CNR must be set as secondary, if on-chip AC 97 is enabled.
4. CNR devices are not provided with this mainboard.

2-7.11 USB Ports and USB Headers (Header USB 3)

• This series of mainboards provides two USB ports USB0 and USB1 on board supporting various USB devices. In addition, the USB header is added on board to provide two additional USB ports by using one additional USB Cables. User can order the additional USB cable from your mainboard dealers or venders.
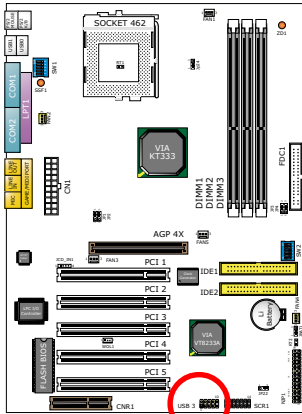
Additional USB Cable (Optional)

USB Port
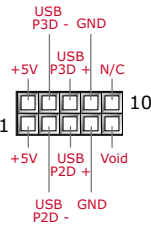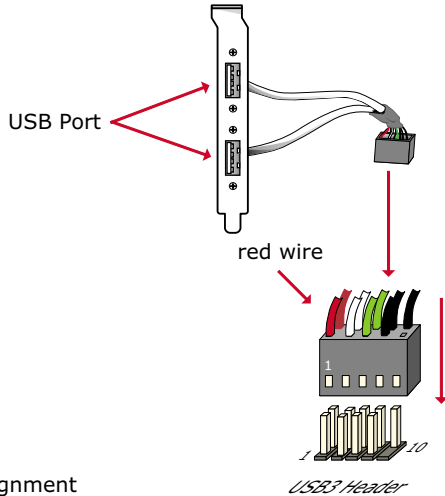
red wire

USB3 Header Pin Assignment

USB3 Header

• When plugging the USB cable into Header USB3, user must make sure the red wire is connected to Pin 1.