# Chapter 2

# Hardware Setup

If your mainboard has already been installed in your computer you may still need to refer to this chapter if you plan to upgrade your system's hardware.

**Be sure to disconnect the power cable from the power source before performing any work on your mainboard, i. e. installing a CPU, memory module, changing a jumper setting, etc. Not doing so may result in electrical shock!**

## 2-1 Installing a CPU in a Socket 478

The Intel Socket 478, designed for the Pentium 4 processor, has been incorporated as a standard mainboard specification To insert your CPU into Socket 478 please do the following:

1. Locate a small dot marked on the top surface of the CPU close to one if it's corners. The same corner will also be cut off, leaving a noticeable notch in the CPU's corner. These markings indicate Pin 1 of the CPU.
2. Pull up the lever of Socket 478 so that it is perpendicular with the surface of the mainboard. Gently insert the CPU with Pin 1 at the same corner of Socket 478 that contains the end of the lever. Allow the weight of the CPU to push itself into place. Do not apply extra pressure as doing so may result in damaging your CPU. Snap the lever back into place.

**Installing a standard Intel specified heat sink with cooling fan is necessary for proper heat dissipation from your CPU. Failing to install these items may result in overheating and possible burn-out of your CPU.**

## 2-3 Setting Your CPU's Parameters(*SeePU* Technology)

***SeePU*** is a new user friendly technology that enables the user to setup a mainboard's CPU parameters through an easy to use BIOS setup procedure. It is no longer necessary to make many jumper settings as on conventional mainboards.

After installing all your hardware into your PC system, you can manually configure your CPU clock ratio according to your processor's specifications. By turning on your system'spower. Enter the CMOS Setup Utility by pressing the Delete key when your BIOS identification screen appears, then go to the Frequency/Voltage Control option and select your CPU clock ratio (See Chapter 3).

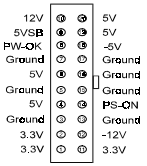
**You do not need to make voltage settings because SeePU automatically sets your CPU voltage.**

## 2-3 Connector and Jumper Settings

Connectors are used to link the system board with other parts of the system, including the power supply, the keyboard, and the various controllers of the system case.

The power supply connector is the last connection to be made while installing a mainboard. Before connecting the power supply, please make sure it is not connected to the power source.

### ATX/ATX12V Power Supply Connector (PW1/PW2/PW3)




PW1

| Pin | Signal | Wire |
|---|---|---|
| 1 | COM | BLK |
| 2 | COM | BLK |
| 3 | +12VDC | YEL |
| 4 | +12VDC | YEL |

PW2

| Pin | Signal | Wire |
|---|---|---|
| 1 | COM | BLK |
| 2 | COM | BLK |
| 3 | COM | BLK |
| 4 | +3.3VDC | ORG |
| 5 | +3.3VDC | ORG |
| 6 | +5VDC | RED |

PW3

The ATX power supply provides a single 20-pin connector interface which incorporates standard +/-5V, +/-12V, optional 3.3V and Soft-power signals. The Soft-power signal, a 5V trickle supply is continuously supplied when AC power is available. When the system is in the Soft-Off mode, this trickle supply maintains the system in it's minimum power state.

The ATX12V power supply has a new +12 V (4-pin) and +5 V/3.3 V(6-pin) auxiliary power connector. To enable the delivery of more +12 VDC and +5/3.3V VDC current to the motherboard.

### Software Power-Off Control

This mainboard can be powered down using theWindows 9x Software Power-Off function. To power down your computer, click the START button on the Windows 9x task bar. Select "Shut Down The Computer" and the system turns off. The message "It is now safe to turn off your computer" will not be shown when using this function.

### Power-On By Modem

While in Soft-off state, if an external modem ring-up signal occurs, the system wakes up and can be remotely accessed. You may enable this function in BIOS's Power Management Setup menu. (See Chapter 3)

### Blinking LED in Suspend Mode

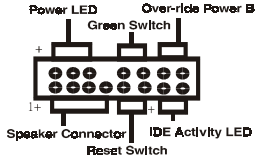
While in Suspend mode, the LED light on the front panel of your computer will flash. Suspend mode is entered by pressing the Override Power Button, pushing the Green button on your ATX case, or enabling the Power Management and Suspend Mode options in BIOS's Power Management menu. (See Chapter 3)

### Poly-fuse Over Current Protection

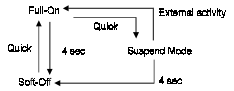
The poly-fuse protects the system from dangerous voltages the system might be exposed to via the keyboard or USB connectors. In case of such exposure, the poly-fuse will immediately be disconnected from the circuit, just like a normal fuse. After being disconnected for a certain period of time, the poly-fuse will return to its normal state, after which the keyboard or USB can function properly again.

## Front Panel Connector Set (CN1) A through F

### A. Over-ride Power Button Connector




The power button on the ATX chassis can be used as a normal power switch as well as a device to activate Advanced Power Management Suspend mode. This mode is used for saving electricity when the computer is not in use for long periods of time. The Soft-OFF by PWR-BTTN function in BIOS's Power Management Setup menu must be set to "Delay 4 Sec." to activate this function.




**Over-ride Power Button**

When the Soft-OFF by PWR-BTTN function is enabled, pushing the power button rapidly will switch the system to Suspend mode. Any occurence of external activities such as pressing a key on the keyboard or moving the mouse will bring the system back to Full-On. Pushing the button while in Full-On mode for more than 4 seconds will switch the system completely off. See Over-ride Power Button Operation diagram.

### B. Power Indicator LED Connector

The power indicator LED shows the system's power status. It is important to pay attention to the correct cables and pin orientation (i.e., not to reverse the order of these two connectors.)

### C. Green Switch Connector

Some ATX cases provide a Green switch which is used to put the system in Suspend mode. In Suspend mode, the power supply to the system is reduced to a trickle, the CPU clock is stopped, and the CPU core is in it's minimum power state. The system is woken up whenever the keyboard or mouse is touched. The system resumes in different ways as defined by Power Management Setup screen in BIOS.

### D. System Reset Switch Connector

This connector should be connected to the reset switch on the front panel of the system case. The reset switch allows you to restart the system without turning the power off.

### E. Speaker Connector

This 4-pin connector connects to the case-mounted speaker

### F. IDE Activity LED Connector

The IDE activity LED lights up whenever the system reads/writes to the IDE devices.

## Clear CMOS Data (JP1)

| Pin | Definition |
|---|---|
| 1~2 | Normal (default) |
| 2~3 | Clear CMOS Data |

To clear the contents of the CMOS, please follow the steps below.

1. Disconnect the system power supply from the power source.
2. Set the jumper cap at location 2~3 for 5 seconds, then set it back to the default position.
3. Connect the system's power and then start the system.
4. Enter BIOS's CMOS Setup Utility and choose Load Setup Defaults. Type Y and press enter.
5. Set the system configuration in the Standard CMOS Setup menu.

## Power On By Keyboard (JP5)

| Pin | Definition |
|---|---|
| 1~2 | Disable (default) |
| 2~3 | Enable |

This board is able to be turned on by the PS/2 keyboard (hot key). To use this function, select a hot key of your choice at the PS2KB Wakeup option under Wake Up Events in the BIOS's Power On Management screen. You must also set this jumper's cap to pins 2-3 to use this function.

## Power On By USB (JP6)

| Pin | Definition |
|---|---|
| 1~2 | Disable (default) |
| 2~3 | Enable |

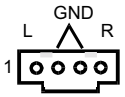
This board is able to be turned on by a USB keyboard hot key or a USB mouse click. To use this function, select a hot key of your choice at the USB Kb Power Wake-Up From S3/S4/S5 option under Wake Up Events in the BIOS's Power On Management screen. You must also set this jumper's cap to pins 2-3 to use this function.

## Onboard Audio (JP8)

| Pin | Definition |
|---|---|
| 1~2 | Enable |
| 2~3 | Disable (default) |

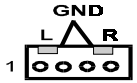
This function allows you to enable or disable the on board audio. You must set the jumper cap to pins 1-2 to enable or set pins 2-3 to disable this function.

## CD-ROM Audio-in Connector (CN2)



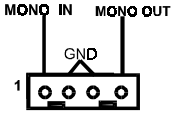

Use the audio cable enclosed with your CD-ROM disk drive to connect the CD-ROM to your mainboard. This will enable your CD-ROM's audio function.

## Auxiliary Audio-in Connector (CN3)



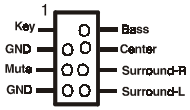

This connector is for use with a secondary CD-ROM, DVD-ROM or CDR/CDRW disk drive.

## Optional Audio Mono-in/out Connector (CN4)



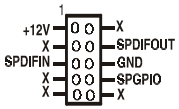

This connector is used for Add on Card e.g. modem with Mono In/Out connector

## AC3 Surround/Center + Bass Connector (CN4B)



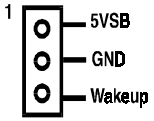

This connector is for Surround and Center+Bass speaker output ext. Plug in the optional AC3 Surround/Center+Bass jack extension into this connector. The black colored jack is for surround speaker output and the orange colored jack is for center+bass speaker output.

## Optional S/PDIF-in/out Connector (CN4C)



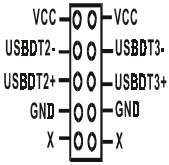

The S/PDIF-in/out connector supports the digital audio. This connector must be connected to the cable from an external device (i.e.2-channel decoded AC-3 from DVD decoders).

## WOL (Wake-on-LAN) Connector (CN5)



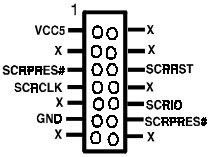

Enable the Wake Up On LAN selection in BIOS's Power Management Menu to use this function. The capability to remotely manage PCs on a network is a significant factor in reducing administrative and ownership costs. Magic Packet technology is designed to give WOL capability to the LAN controller. This header is used to connect an add-in NIC (Network Interface Card) which gives WOL capability to the mainboard.

## USB 0/1Ports and USB 2/3 Connector (USB1/CN6)




If you want to use a USB keyboard, you must enable the USB keyboard support function in BIOS's Integrated Peripherals menu (See Section 3-4). This board contains a USB Host controller and includes a root hub with two USB ports (meets USB Rev 1.0 spec.) and a connector for optional USB Adaptor (USB2/3). Four USB peripherals or hub devices are able to be connected.

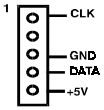
## Smart Card Reader Connector (CN7)




This connector must be connected to a Smart card reader(Optional).

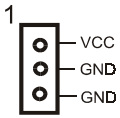
Smart Card Reader (Optional)

### Alert On LAN Connector (CN10)



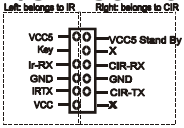

.Alert On LAN enabled LAN controller to report messages to a network management console without the aid of the system processor. In order to use this function, the connector must be connected to a LAN card that support AOL feature.

### Blue LED Connector(CN17)



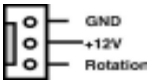

This feature work entirely the same as the power indicator LED, both shows the system's power status. The only difference is that this one is blue while the other is red LED.

### IR/CIR Connector (IR2)




Select a UART Mode in BIOS's Integrated Peripherals menu the UART port to support IR/CIR functions. (See section 3-4)

### CPU/System Cooling Fan Connectors (FAN1/FAN2)




The board's management extension hardware is able to detect the CPU and system fan speed in rpm (revolutions per minute). These connectors supports 3-pin cooling fans with minimum of 4500 RPM. The wiring and plug may vary depending on the manufacturer. On standard fans, the red is positive (+12V), the black is ground, and the yellow wire is the rotation signal.

## 2-4 Main Memory Configuration

The DRAM memory system consists three banks and the memory size ranges from **32MBytes~1GBytes**. If you only use one bank it does not matter which one you use and if you use two or more banks, it does not matter which bank you install first.

***DRAM Specifications***

DIMM type: 3.3V, 64/72-bit Synchronous DRAM

Module size: Single/double-sided 32/64/128/256/512MBytes/1GBytes

DRAM speed: 7.5/10ns for Synchronous DRAM

Parity: Either parity or non-parity

This mainboard supports 3.3v, unbuffered, 4-clock, SDRAM DIMM only. Buffered, 5V, or 2-clock SDRAM DIMMs should not be used.

Due to loading anomalies, using DIMM with an 'n x 4' DRAM base on this mainboard is not recommended. For example, a DIMM that uses sixteen 16Mb x 4 devices should not be used.