

## **Hardware and Software Motherboard Notes**

**BIOS** – basic input output system – basic programming that tells your motherboard how to operate.

**CMOS** – complementary metal oxide semiconductor – changeable settings that work alongside the BIOS.

**RAM** – random access memory – used for system memory and CMOS memory, it can be changed but it must have constant electricity supplied or it will lose its settings.

**ROM** – read only memory – historically used for the BIOS, it does not require electricity to retain its information; the memory can be read but cannot be changed.

**EEPROM** – electrically erasable programmable read only memory – used for the BIOS, basically, it is read only memory unless you run a special program to electrically erase the information and then reprogram it.

**POST** – power on self test – part of the BIOS program that performs a diagnostic check for things such as the system memory, video device and keyboard.

**USB** – universal serial bus – a standard for connecting peripheral devices, usb1.1 has a speed of 1.5 MB/sec, usb2.0 has a speed of 60 MB/sec and usb3.0 has a speed of 600 MB/sec.

**LED** – light emitting diode – used for lights in computers especially the lights on the front of the case.

**ZIF** – zero insertion force – a way to connect an electrical connector without applying force to the connector as in a CPU socket.

**I/O** – stands for input/output and refers to the communication between an information processing system (such as a computer), and the outside world, possibly a human. Inputs are the signals or data received by the system, and outputs are the signals or data sent from it.

**Chipset** – A set of chips on the motherboard that facilitate communication between the CPU, memory, expansion cards, I/O ports, hard drives, etc. Often called the front side bus or the Northbridge and historically there was even a Southbridge but more and more parts of the chipset are being put together and even incorporated into the processors such as the memory controller. This, of course, increases speed while decreasing size.

**LGA** – Land Grid Array – it is an Intel desktop CPU socket first used as an LGA775 socket. Unlike earlier common CPU sockets, such as its predecessor Socket 478, the LGA has no socket holes; instead, it has protruding pins which touch contact points on the underside of the processor.

**Computer engineer** – one who designs integrated chips, controllers, printed circuit boards and the software used for these devices to communicate with each other.

**BOOT** – a boot sequence is the initial set of operations that the computer performs when power is switched on. The bootloader typically loads the main operating system for the computer. The computer word boot is short for "bootstrap" (itself short for "bootstrap load"). The term bootstrap derives from the idiom pull oneself up by one's bootstraps.

The I/O panel is the rectangular piece in the back of a computer case where the ports of the motherboard go through.

Standoffs, also known as risers, are used to keep the motherboard off of the case when the motherboard is attached to the case.

The main front panel connectors are the power switch, the reset switch, the power LED, the HDD LED and sometimes the speaker. The LED's have polarity, meaning you can put them on backwards. The positive wire has an arrow indicator on it. If you connect it backwards, you will not damage anything but the LED will not light up.

A	4 pin power connector
B	CPU socket
C	Fan headers
D	Memory slots
E	24 pin power connector
F	SATA connectors
G	Chipset with Heatsink
H	PCI Slot
I	PCI express x1 slot
J	CMOS battery
K	PCI express x16 slot
L	I/O ports

