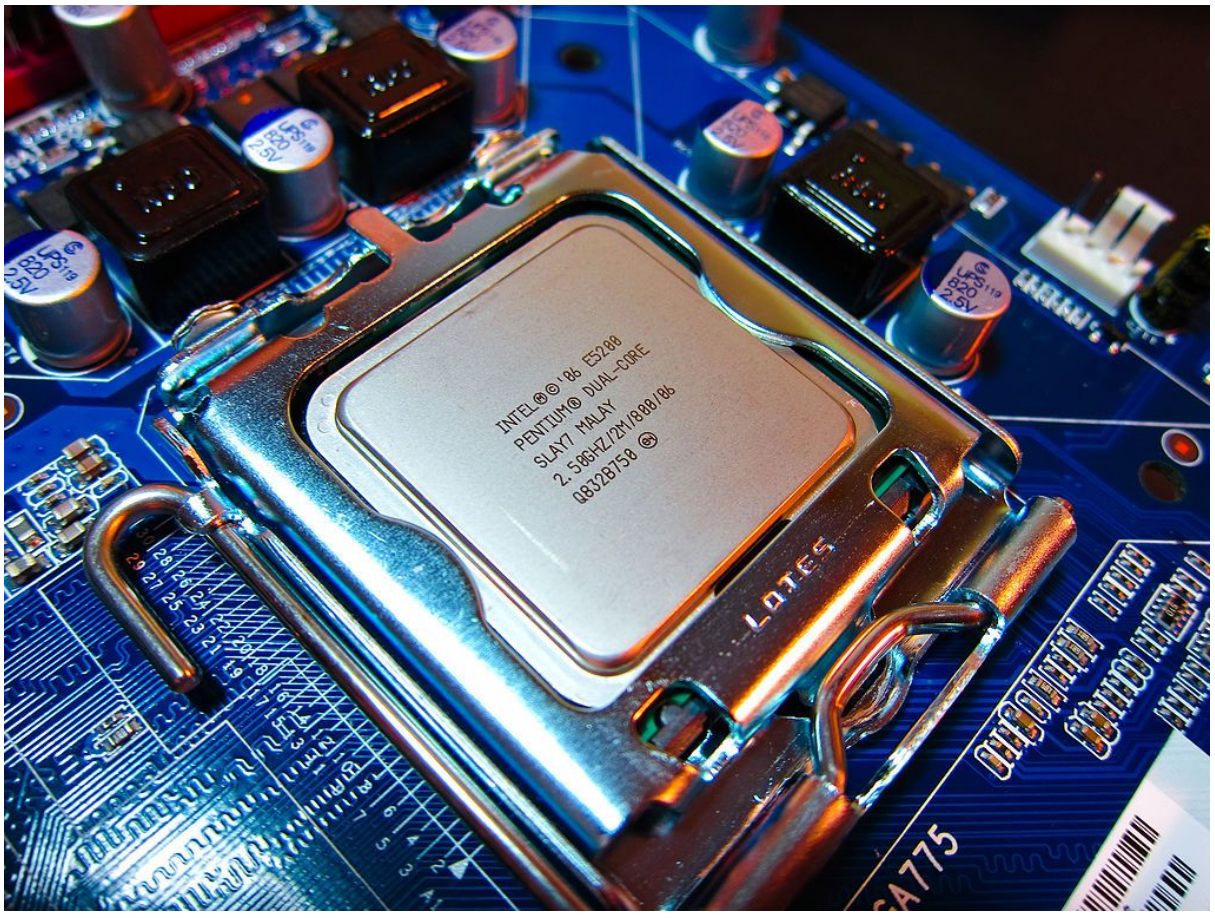
Motherboard

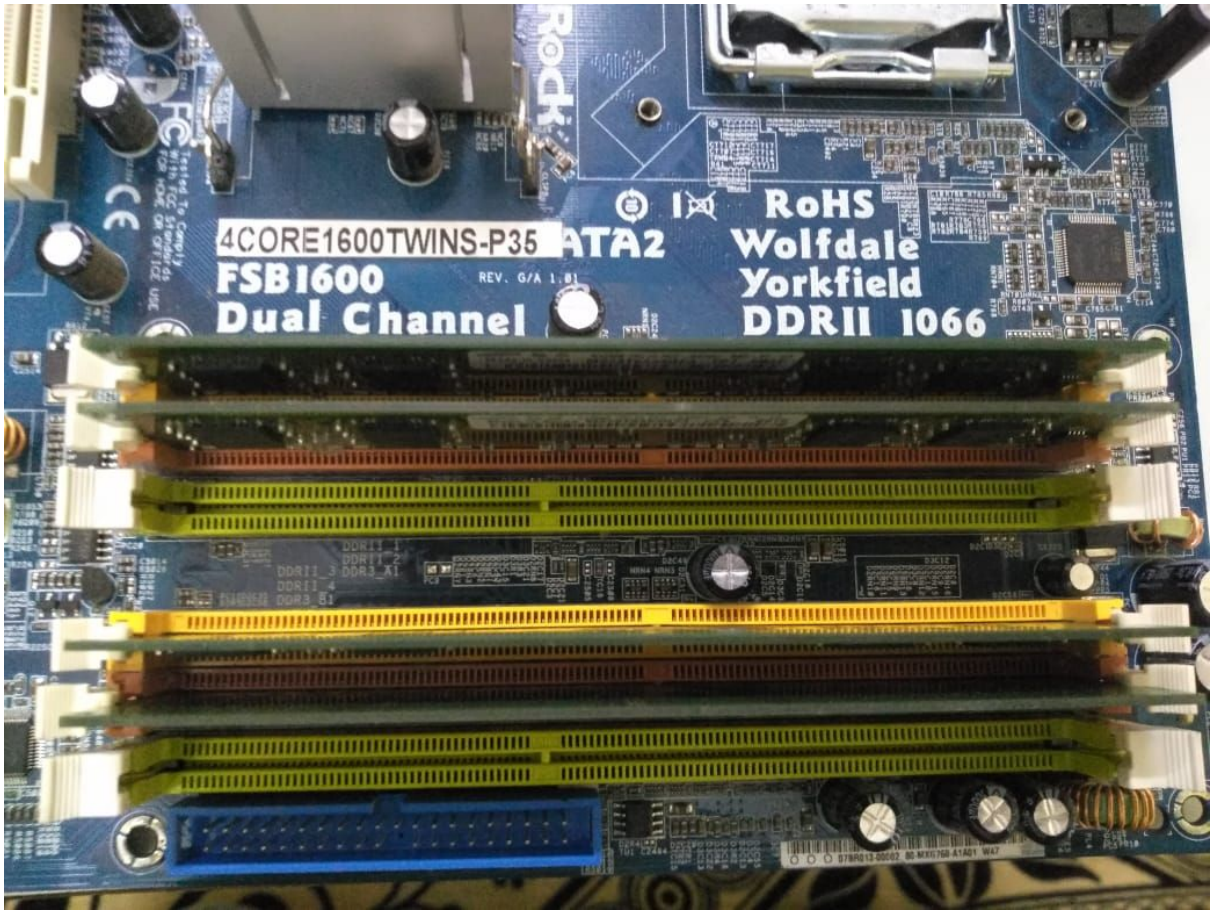
The various parts of the motherboard as studied by me are:

1.LGA-775 :The main core of the CPU which has 775 pins in side and the main middle part is completely exposed to the cooling fan. The pins carry current which are then pressurised by the metal plate to make contact. So never open the metal plate as you will lower the pressure and the contact would be broken and also don't apply too much of manual pressure as it may break the board. LGA-775 is a socket T i.e a Intel Desktop CPU socket with no socket pins. It is responsible for to communicate with RAM and graphic controller.



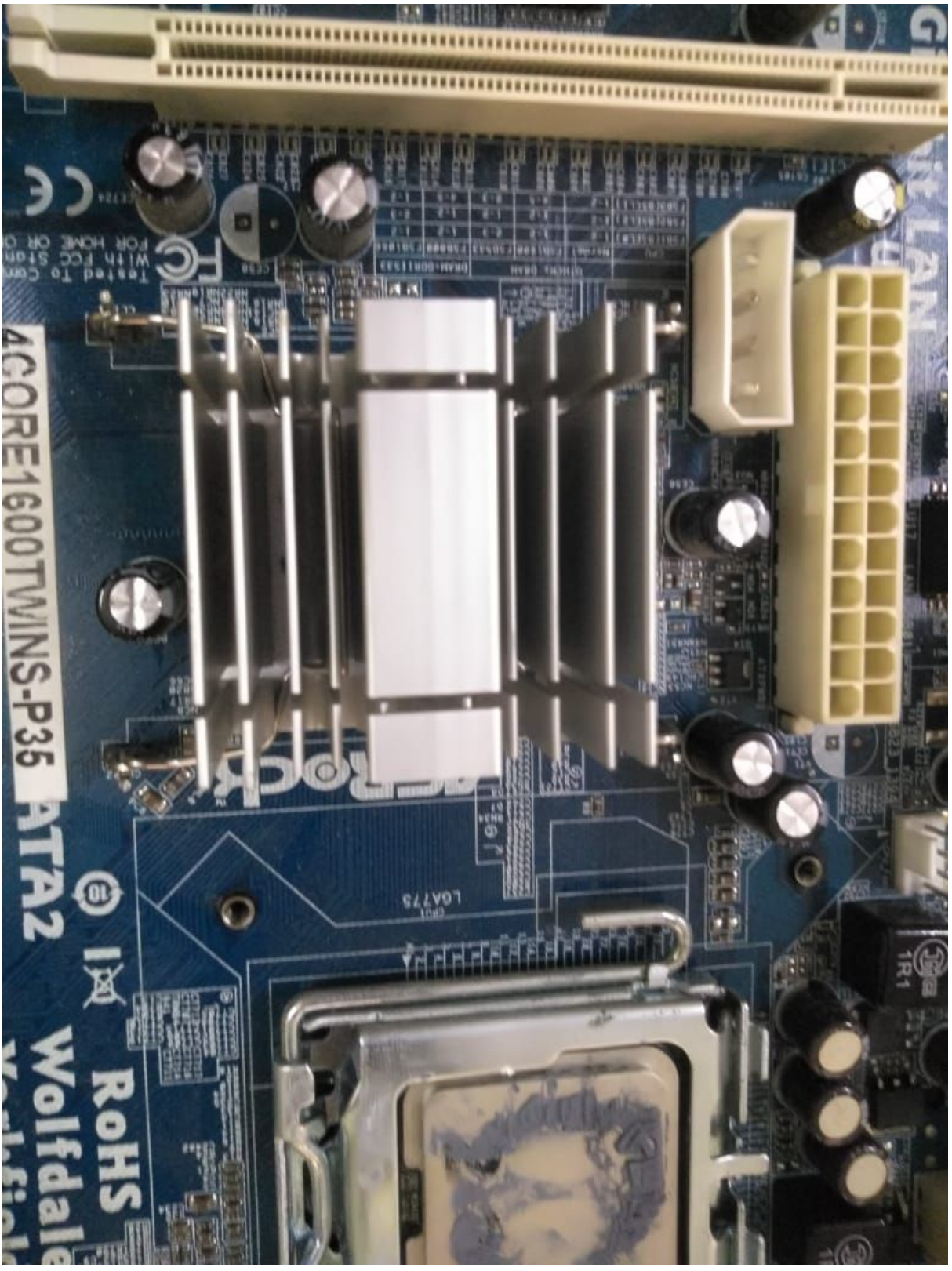
2.RAM Slots: These are the slots used to insert the RAM into the motherboard. Just open the plug and then insert the ram. There are total 6 ram slots with 1.5 V (written

on the top of the slot if seen properly) as their operating point. This tells us that the ram to be used should be DDR2.



RAM slot in the motherboard I analyzed. You can see the 1.5 V written on the top is you zoom in. Here already 4 RAM chips are inserted in their respective slots.

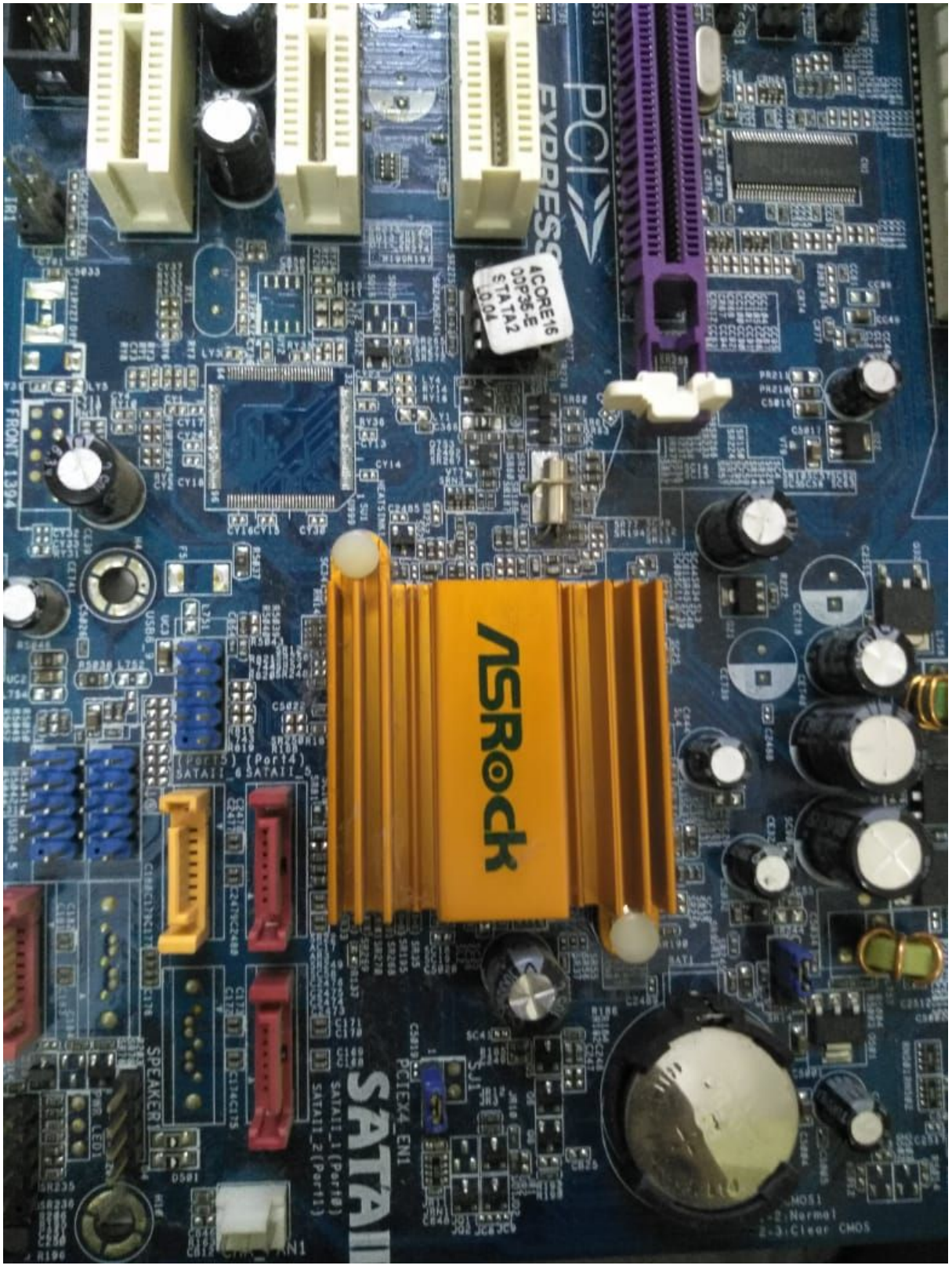
3.Northbridge :This the another important part of the motherboard. This acts as bridge between southbridge and socket T i.e LGA-775 in our case . It is always covered with something grey aluminium thing called “HeatSink” . HeatSink is used to dissipate heat as it absorbs heat from the chip and since it has higher surface area it quickly dissipates it. When CPU needs data from RAM it sends request to Northbridge and Northbride then forwards it to Southbridge.



Under the grey Aluminium HeatSink lies the Northbridge.

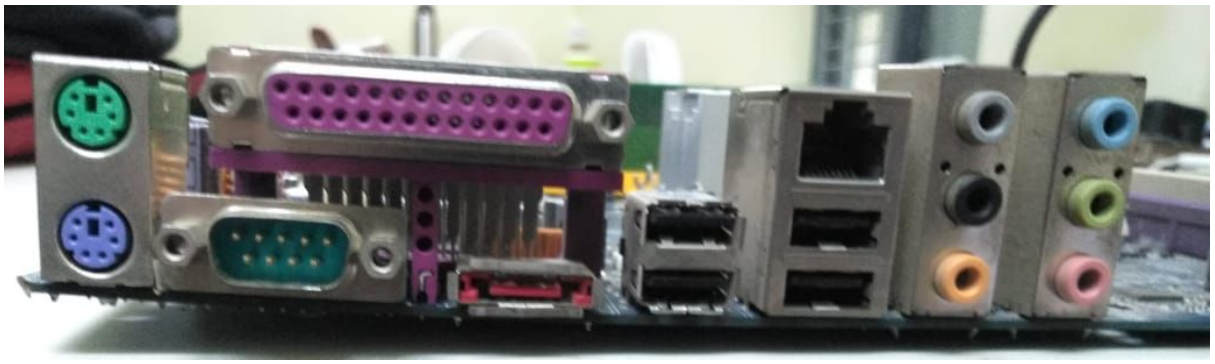
4.SouthBridge : Its an IC on the motherboard responsible for hardware controller, I/O controller and integrated

Hardware. It also has heat sink just like the Northbridge and the Socket T.



The golden metal is the heat sink for Southbridge and under it lies the Southbridge.

5.Connectors and Port : These are the slots given to interact with motherboard externally. It includes USB slots, LAN Connector, Audio Collector, SD card slot and other slots. It also allows connection of external Keyboard and Mouse.



External Connections slots in the motherboard.

6.PCI Express : This motherboard has 3 PCI Express slots (those white color one’s). It is based on P2P topology i.e they have seperate serial link to the host.They act as high speed serial expansion bus i.e other accessory cards can be inserted into these slots. This can also be used to increasing the storage abilities of motherboard.

7. GV-NX73L128D-RN :This is a NVIDIA graphics card for VGI output. What ever you see on desktop is made of millions of pixel and hence computer has to decide what to do with

those. So Graphic card acts as translator which converts binary data from CPU to pixels. Graphics card is consist of processor, memory card and display i.e here VGI port for desktop output.

This is the above graphics card which is connected into AGI_EXPRESS 1 slot given in the motherboard (the purple color slot)

8.FLOPPY 1 : This slot is used to connect to floppy inserted into the CPU. The connection is done with help of wires which are present at the point of insertion of the FLOPPY and those wires are then inserted into the FLOPPY 1 slot. FLOPPY 1 slot is just below the PCI Express slots i.e just below 3 white slots.

9.CMOS Battery :This battery stores BIOS settings like keeping the real world time in CPU updated despite being off. BIOS is a computer chip like CMOS on motherboard used to communicate between processor and hardware components. When computer first boots up BIOS pulls out imformation from CMOS chip.

This is a CMOS battery in motherboard at extreme right.

Some Unused but important Slots:

1.CHA_FAN1: This slot is used to connect a Fan externally. It has 3 pin so a fan with 3 pins would be connected to CHA_FAN1.

2.PWR_LED: If lid it shows that motherboard is receiving power from the supply and all is well.

3.SPEAKER1: This port is used to attach a speaker to motherboard but then it would only play noises from motherboard i.e beep sound during error and all other such noises. It won't play audio from desktop.
4.USB4_5,USB6_7,USB8_9 : These slots are used to add external USB adapters. Each slot has 10 pins i.e 5 pins in each row.
5.HD_AUDIO1:This slot will help you to get output of desktop sound unlike SPEAKER1 slot. This also has 10 pins with 5 pins in each row.
6.PCIEX4_EN1 :These slots are used for performance enhancement. It all depends on motherboard specifications. So the best thing would be to try and realize which one is better.
7.SATA :Sata slots are used to connecting external devices like Hard Disk, Optical Drivers to CPU i.e motherboard. The number of SATA ports depends on motherboard.

Electrical Components:
Hence, Motherboard is made of Integrated Circuits for logic Design, Electrical Components like Capacitor, Inductor, Transistor, Resistors.

- Since my motherboard is Dual Core there are 2 quartz Crystal to produce basic timing signal at various frequency required by other address bus.Crystal is a silver cylindrical piece located near Southbridge and other near Output sockets.
- There are candies like structure wrapped with copper wires. These are inductor coils called as RF chokes. These are used to reduce Radio interference with other electronic devices.

My motherboard is: 4CORE1600TWINS-P36 and is Intel Pentium Dual Core @ 2.2Ghz.