
UTM
UNIVERSITI TEKNOLOGI MALAYSIA

School of Education,
Faculty of Social Sciences
and Humanities

# TECHNOLOGY & INFORMATION SYSTEM

## Section – 07

## Lecturer: Dr. Haswadi bin Hasan

# ASSIGNMENT 3

# PC ASSEMBLY

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## PART A:

Part A-List at least FOUR tools needed to assemble a PC. For each tool, Provide picture(s), explanations of its functions and its importance.

### 1.0 Anti-static equipment


Anti-static equipment is a device that reduces, dampens, or otherwise inhibits electrostatic discharge, or ESD which is the build-up or discharge of static electricity. Anti-static equipment is important to protect us from static shock and prevent build-up of electricity.

### 2.0 Light source

Headlamp is a device that provide us light to see in the darkness. It is important for us to see parts of PC cases or screws that are in shadows. Headlamp will give us direct illumination without us having to hold it with an extra hand.

### 3.0 Pilers


Pilers is a hand tool used to hold objects firmly, bending, cutting, and compressing a wide range of materials. Pilers is important for us to cut excess wire ties and bend the wires in the PC cases. Needle-Nosed pilers is useful in removing and inserting jumpers on motherboards and hard drives.

### 4.0 Screwdrivers

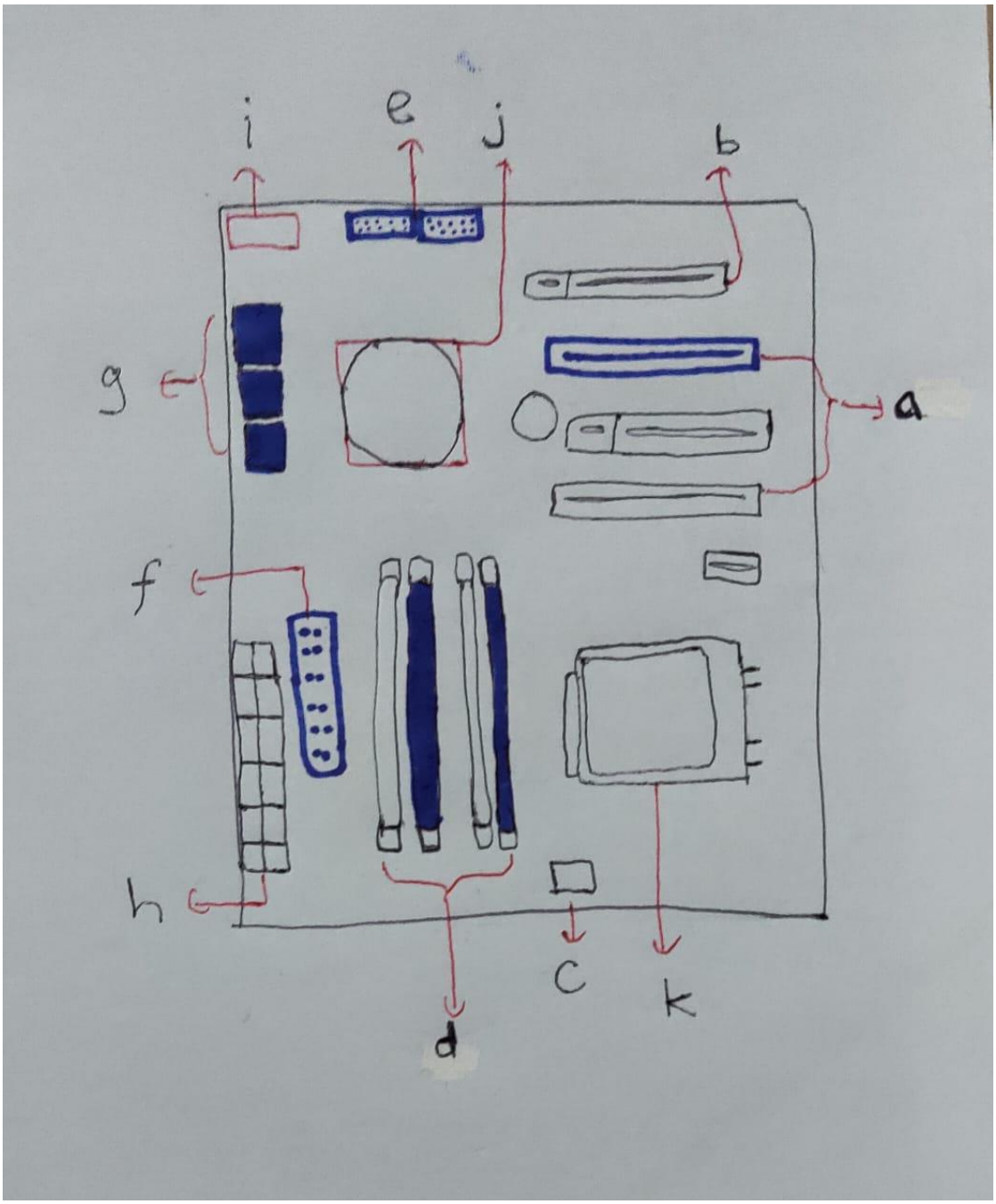

Screwdrivers is a hand tool for turning screws with slotted heads. Phillips-head screw is an important tool as the screws founded in the PC are mostly Phillips-head. Other than that, hex driver is useful for hexagonal motherboard standoff screws or some CPU cooler screws.

### 5.0 Zip or Twist ties

Zip or Twist ties is a type of fastener for holding items together, mostly used to hold electrical cables or wires together. Zip or twist ties can help us to keep the cables in place which help us to keep the dust accumulation low and the airflow high inside the PC.

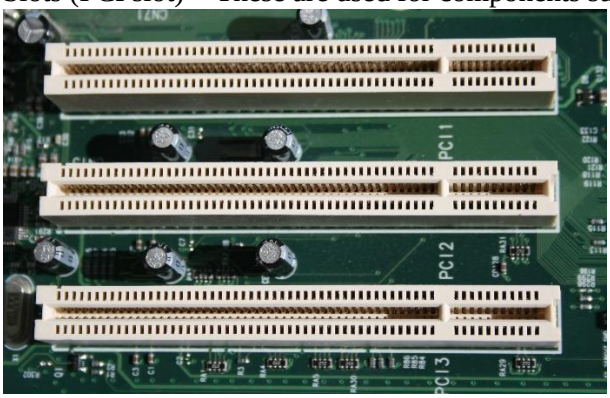
## PART B:

### 1.0 Motherboard Diagram

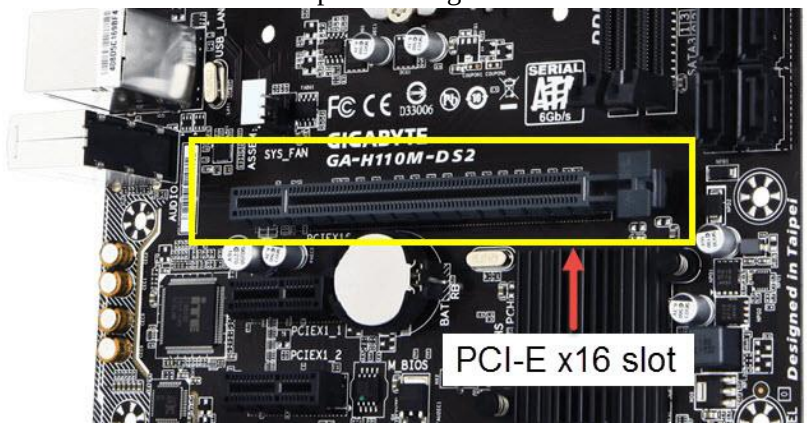


## 2.0 Explanations of Motherboard Functions and Example of Models:

A. Slots (PCI slot) = These are used for components such as ethernet, cards, sound, and modems.

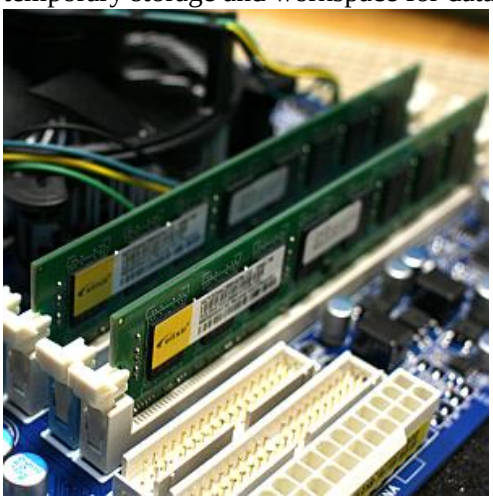



B. Graphic Card = This slot is called PCI-E 16x slot, and this slot is used for graphics card. It is used for connect to the computer through the motherboard.

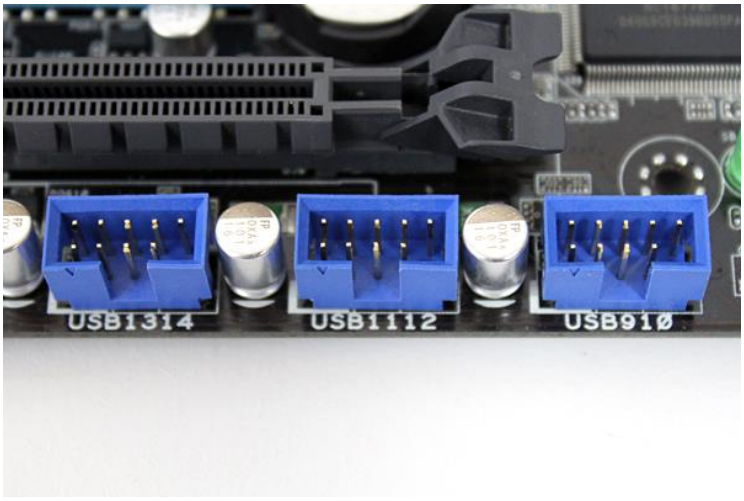



C. Heat Sink = This is slot designed for heat sink, and it is used for moving the heat away from the central processing unit of a computer.

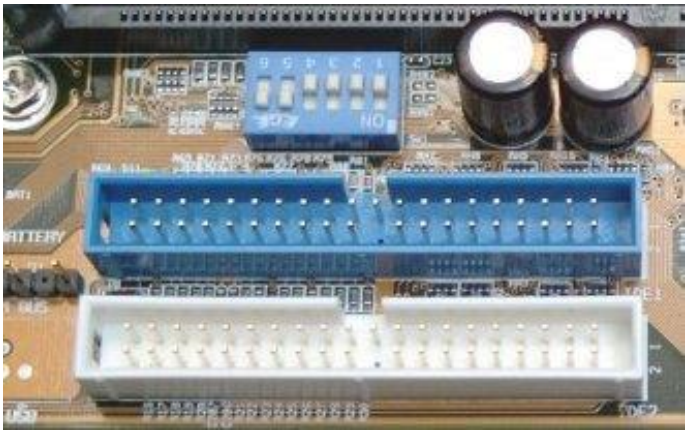
D. Memory slot (RAM) = This memory slot is for RAM, and RAM is used for providing fast temporary storage and workspace for data and program code.



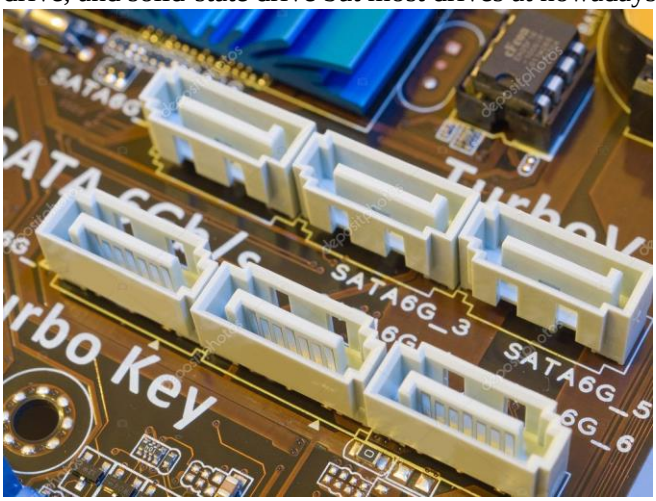
E. This slot is where the external USB connection for USB bracket.



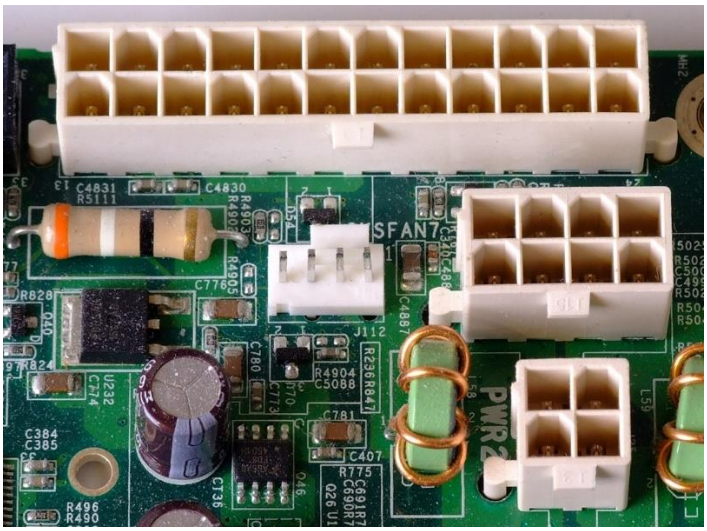

F. IDE (Integrated Drive Electronics) Cable = This slot is the connection for hard drive or CD/DVD drive.



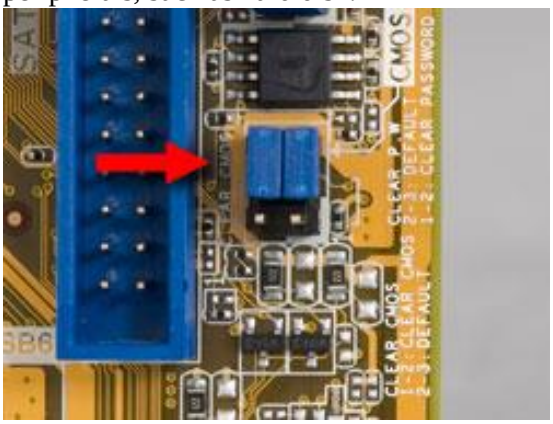
G. SATA Cable = This slot function is same as IDE for the connection for hard drive, CD/DVD drive, and solid-state drive but most drives at nowadays come with SATA connection.




H. Power Supply = this is the power connector and it is used for turning on and off a signal from the motherboard.

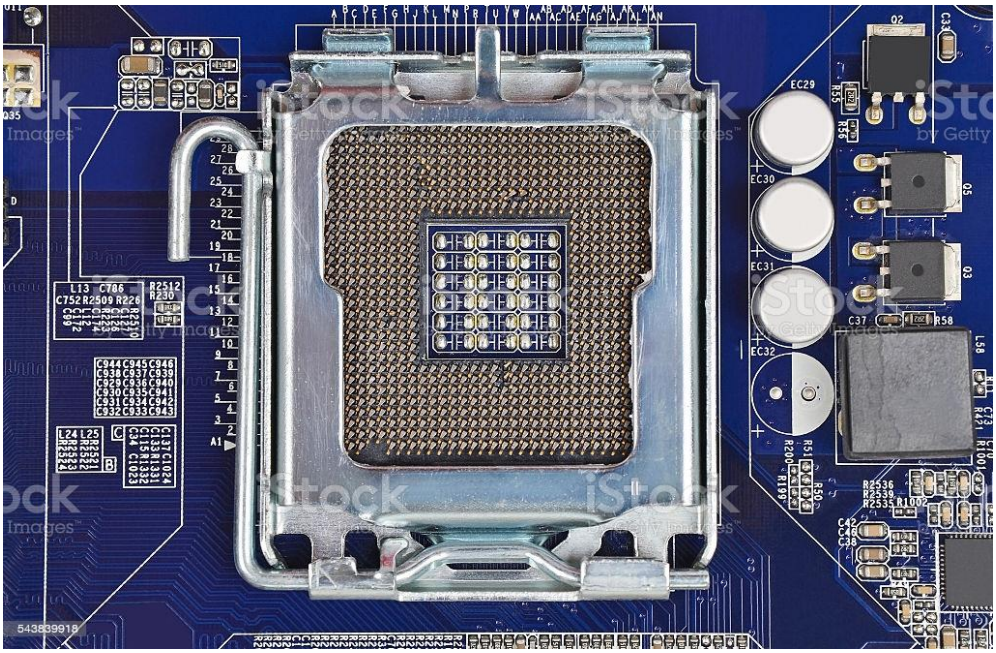



I. Hard Disk (jumper setting) = this jumper slot setting is used for configuring the computer peripherals, such as hard disk.



J. CD ROM = CD ROM is used for distributing computer software or any type of data that can be stored on them.

K. CPU Processor = This is the main of the computer's operating system and programs, and it is used for performing the actual data processing and computing.



## PART C:

## STEP [1]- Provide an empty case

Provide an empty case that fit the features you would like to install it on your CPU. Make sure before using it has all slots and has safely places to but your features inside.

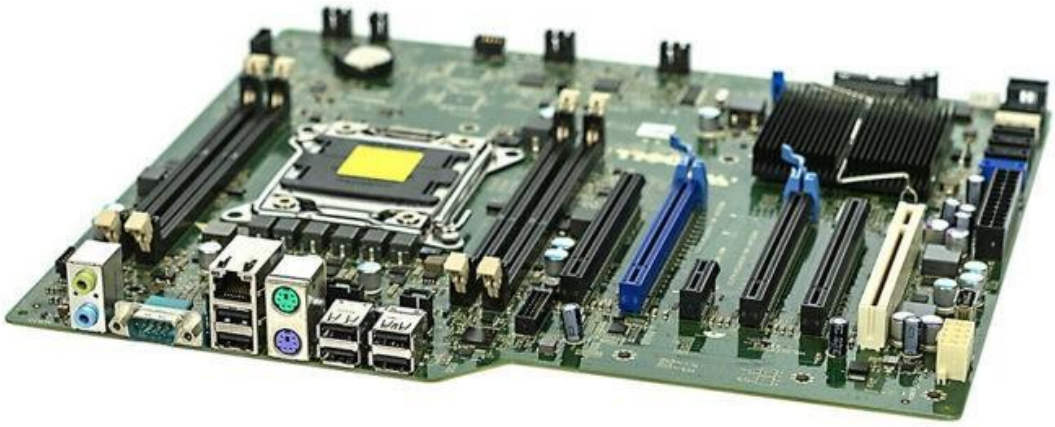
## STEP [2]- Preparing The Motherboard

Overtime motherboards have lost many of the "jumpers" that were needed to configure the board. Most of the setup is done using the BIOS (Basic Input Output System) that can be accessed the first time the computer is turned on.

It may not be necessary to do anything at this step, depending on the age and type of motherboard.

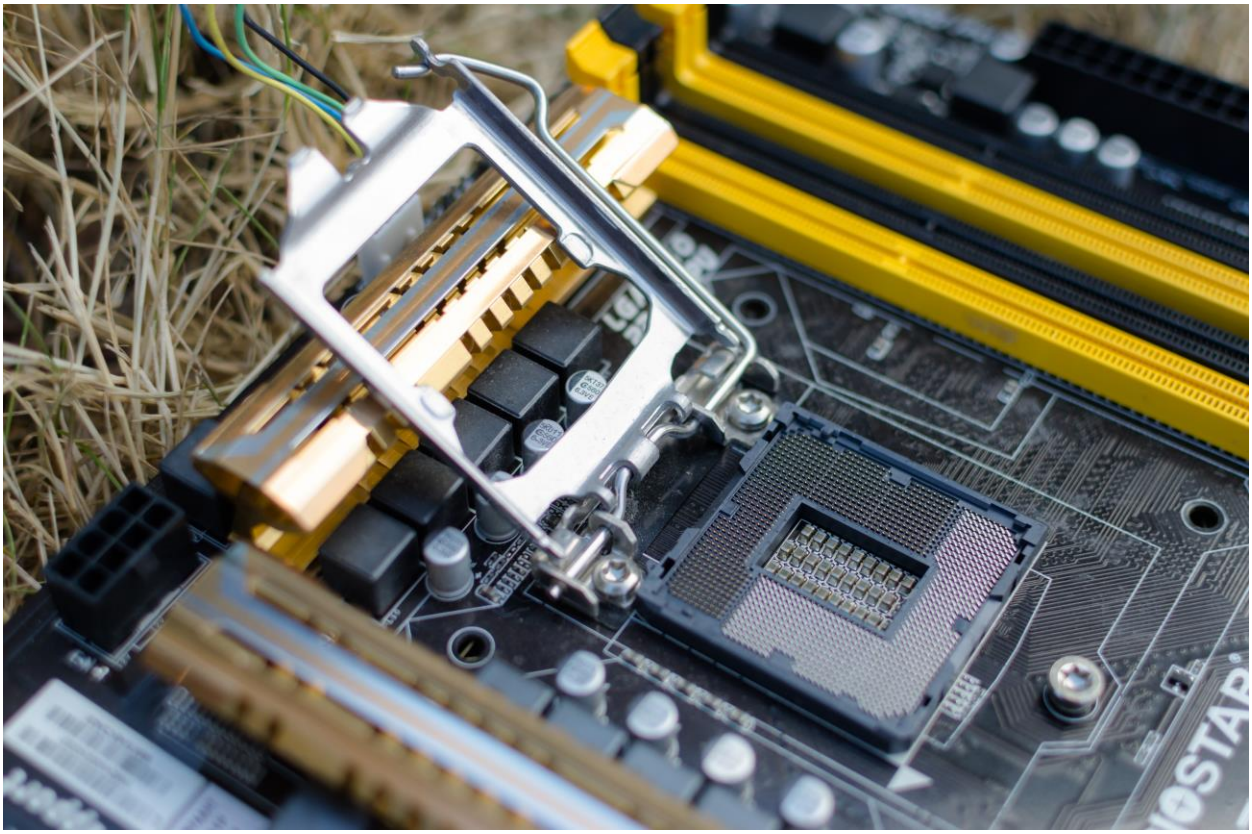
You will get to view the handbook for your motherboard and see if the jumpers got to assail the motherboard itself for the configuration. Common settings include CPU voltage and bus speed, so read the instructions and make sure this or anything else does not need to be configured on the motherboard before proceeding.

After you've set anything necessary on the motherboard, you'll want to decide how many screws you need to hold the motherboard inside the case, and set the motherboard on a flat surface so we will install the CPU and memory. It's a good idea to keep the motherboard in the anti-static bag that it comes with to reduce the possibility of damage due to static electricity.



## STEP [3]- insert the chip

Now you can enter your slide. Confirm that the notches on the socket are aligned with the notches along the edge of the slide. These notches are designed to prevent you from incorrectly placing the CPU in a socket. With the slide in the socket, you can lower the mounting bracket back into place. Be sure to slide the notch at the end of the bracket around the single screw at the base of the socket before using the metal jack to lock the CPU in place.



## STEP [4]- insert the RAM

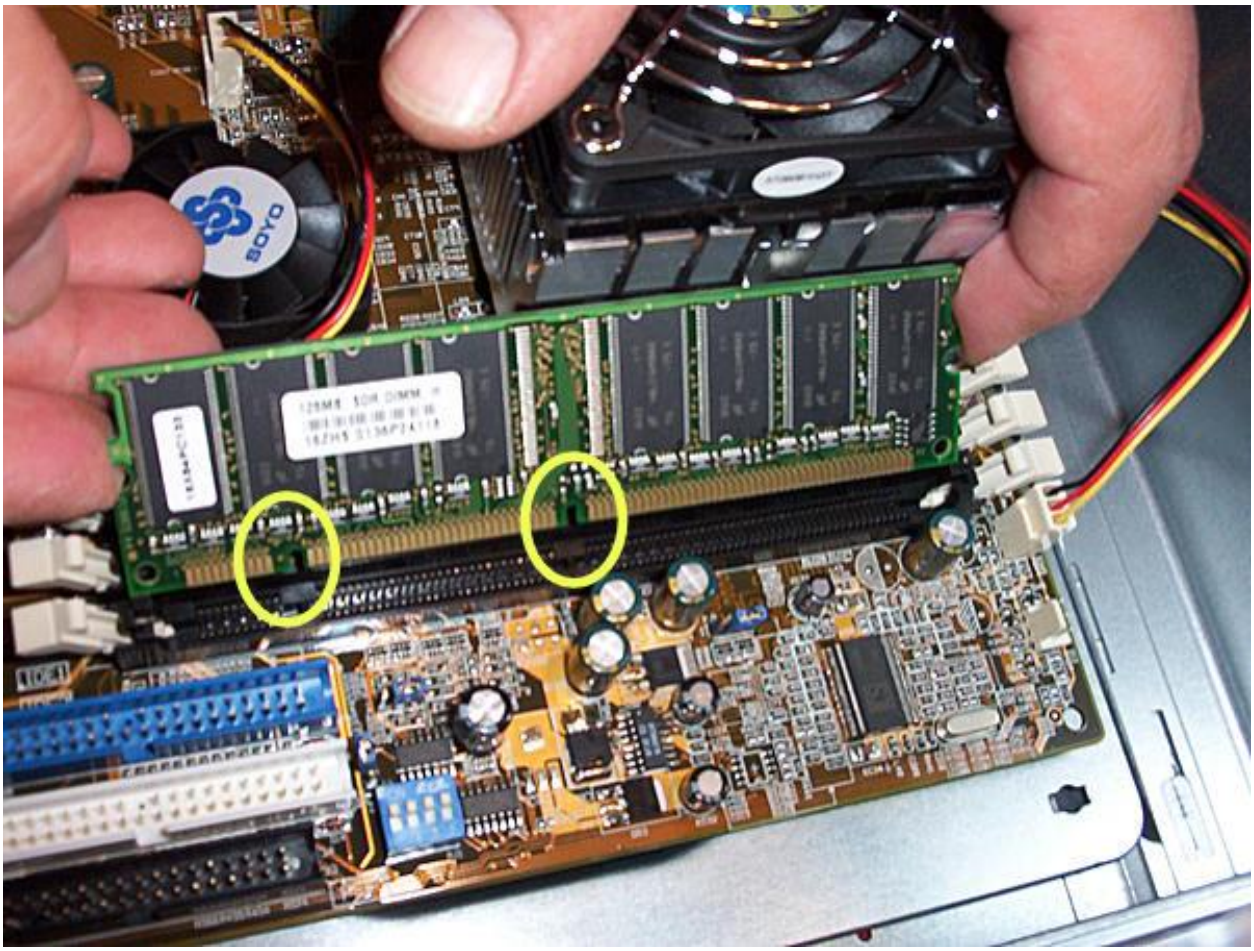
Remove the memory from the package and note the number of screws on the bottom of the memory module. One side will have more pins than the other side, and there will be a large gap between the two sides of the pins.

Look at the memory slots on the motherboard and you can see the same pattern, one side has more pins than the other.

Make sure the pattern is matched on both the memory stick and the motherboard, then place the memory into the slot, and push it down firmly.

The memory has to "snap into place", and you want to make sure that the plastic tabs on each end of the memory slot are securely locked on either side of the memory.

If you have more than one memory unit, repeat the above process to install the remaining part of the memory.



## STEP [5]- mount the motherboard into the case

Open the case you want to install the motherboard.

Check that all-metal hex nuts are in place to fit the new board. Make sure none of them will short any solder points to the board.

Check that all plastic dividers are in place to fit your new motherboard.

Put the motherboard in the case.

Screw the screws into place to hold the panel in place. Make sure they're the only thing that goes with the hex nuts ... that's the whole purpose of these.


wikiHow to Mount a Motherboard in a Case


wikiHow to Mount a Motherboard in a Case

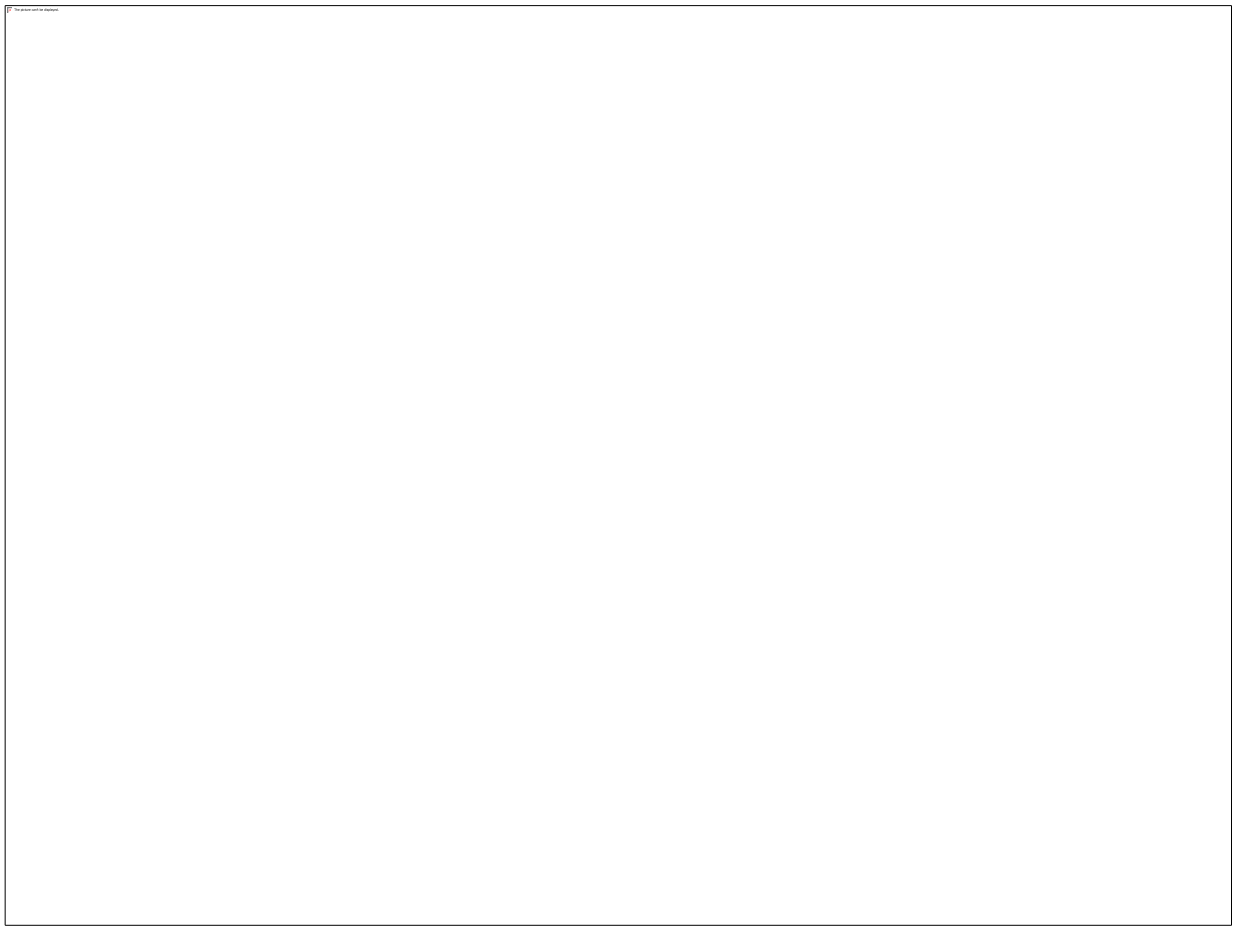
## STEP [6]- Heatsink/Fan Installation

Remove the heatsink / fan from the box, be sure to remove the plastic cover over the bottom. This plastic cover is to keep the thermal grease in place with charging. You need to remove the plastic cover so that the thermal grease can stick to the CPU and improve heat transfer.

Place the heatsink and fan assembly directly onto the CPU

Install mounting brackets from the heatsink over the tabbed parts in the CPU socket. Often times this has a small square tab that protrudes on either side of the socket. You will likely have to use a screwdriver to press down when attaching the second side.

There may be a large crane that needs to be turned clockwise and pressed down to finish installing the heatsink. This ensures that the coolant and the fan are securely connected.



## STEP [7]- Insert Hard disk in the case

After putting the Graphics card in the motherboard, we then take the Hard Disk and place it on the lower bulkhead of the case behind the motherboard. In some pc cases, there may be separate slots for hard disk, we just need to insert the hard disk in the proper slot. The hard disk is to be connected to the

motherboard. The cables that are used are SATA cable or IDE ribbon cable. We should be careful if the hard disk is properly placed in its place.


*Figure: Insert hard disk in the pc case*

## STEP [8] – Mount optical drive/ CD ROM drive

The CD ROM drive is used for inserting CD. (Compact Disc) The drive is to be mounted in the drive bay in the front of the case and then we will secure its position with screws. An Optical disk drive can be connected to the motherboard using SATA cable or IDE cable, if its old. Wiring can also be done later if it causes problem to place other components.

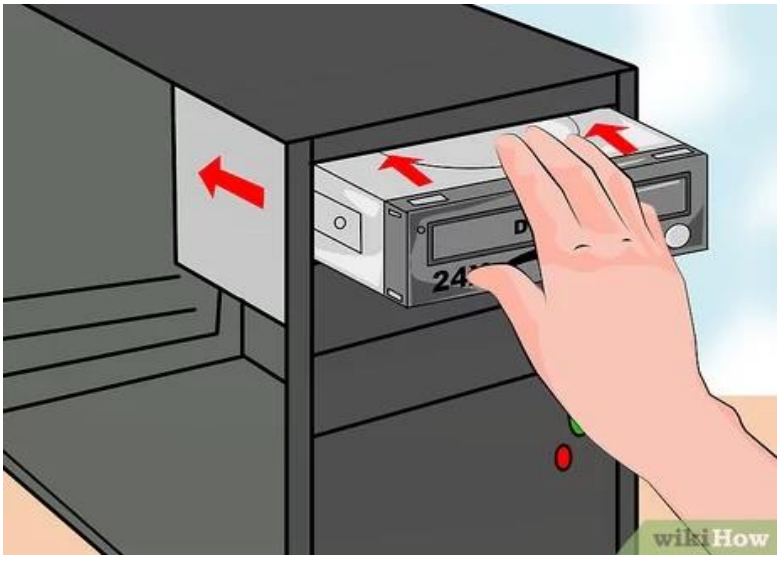



*Figure: Inserting optical drive*

## STEP [9] – Connect case front panels

Front panels of the case include power button, reset button, led lights, USB slot and audio panel. The cables from the front panel are connected to the motherboard.  These provide connection to the speaker, microphone, headphones. They are preferred to do wiring early because later it might be difficult to wire them in their specified position in the motherboard.

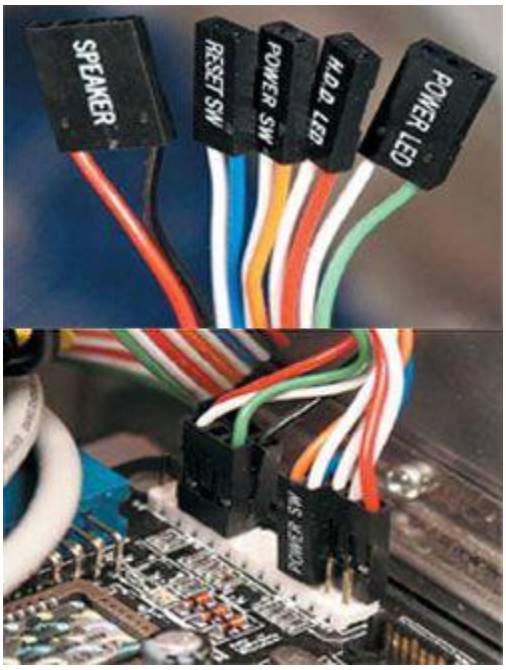



*Figure: case front connectors*

## STEP [10] – Mount power supply

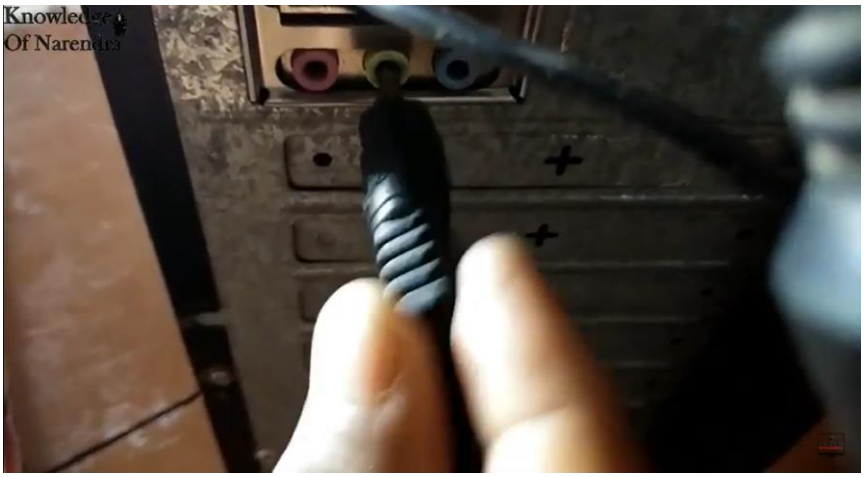
At last the power supply source is inserted into the lower side of the case. We connect the power supply to the motherboard using a 24-pin connector. The power supply also connects to the hard drive. There is a specified place in the case for the power supply to be placed. We have to be careful if the power supply is placed properly according to its specified position.

*Figure: mounting power supply*

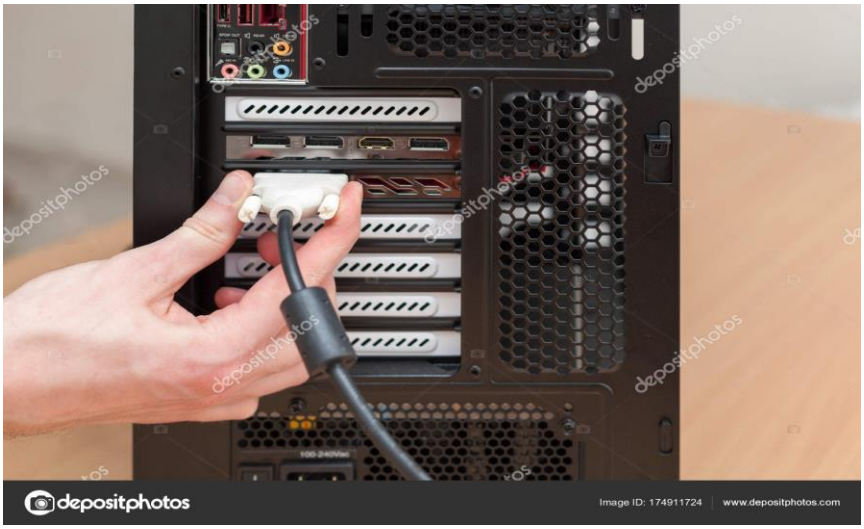
# LAST STEP - Closing the case and connecting the peripherals.

Place the side cover back on and secure the side panels with case screws.

Connect peripheral devices which include keyboard, mouse, wireless network dongle, printer and webcams with your CPU by plugging into USB port.




Then, connect speakers and microphone into 2.5 mm sockets.




Finally connect the CPU with monitor by plugging into display ports