EXPERIMENT 1:

Every student should identify the peripherals of a computer, components in a CPU and its functions. Draw the block diagram of the CPU along with the configuration of each peripheral and submit to your instructor. Every student should disassemble and assemble the PC back to working condition.

AIM: To identify the peripherals of a computer, assemble and disassemble the system.

Software Requirement: No Software Required.

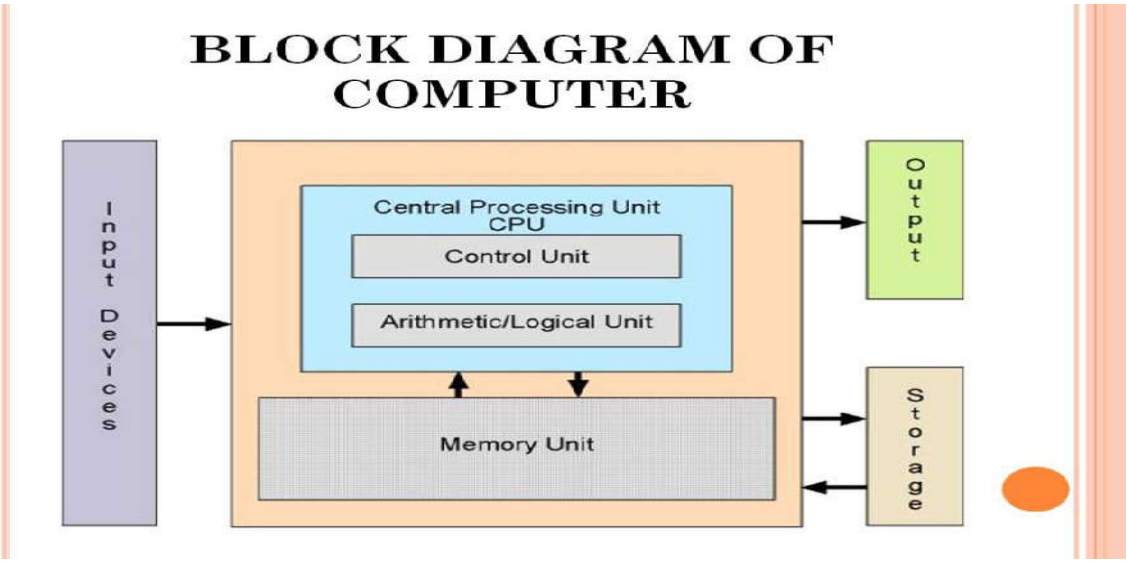
Hardware Requirement: Desired Configuration for the above task is

- System unit
- CPU
- Mother Board
- FDD
- CD ROM Drive
- HDD
- Ethernet Card
- Monitor, Keyboard, Mouse & Speakers

Safety Precautions:

1. Beware of electrostatic discharge (ESO)
2. Build computer on a hard surface, away from concepts.
3. Wear shoes and the short sleeved cotton wear.
4. Use Phillips, head screw driver.
5. Keep the components away from moisture.
6. Avoid using pressure while installing.

BLOCK DIAGRAM OF COMPUTER :



PERIPHERALS OF COMPUTER :

1. Cabinet:

- It is used to install all hardware devices like(mother board, SMPS,HDD, CD Rom, FDD)
- It has Start, Restart Button, Led's, Audio and USB Connecters are available at front side.

2. Monitor:

- Monitor of a computer is like a television screen.
- It displays text characters and graphics in colors or in shades of grey.
- The monitor is also called as screen or display or CRT (cathode ray tube). In the monitor the screen will be displayed in pixels format.

i. 800 by 600 pixels
ii. 1024 by 768 pixels

3. Keyboard:

- Key board is like a type writer, which contains keys to feed the data or information into the computer
- Keyboards are available in two modules. These are

a. standard key board with 83-88 keys
b. enhanced key board with 104 keys or above

4. Mouse:

- Every mouse has one primary button (left button) and one secondary button (right button).
- The primary button is used to carry out most tasks, where as secondary button is used in special cases you can select commands and options

5. Printer: _

- A device that prints images (numbers, alphabets, graphs, etc…) on paper is known as Printer.
- We have different types of printers to take printouts. These are as follows:

i. Dot matrix printer ii. Inkjet printer

6. Speakers:

- Speakers make your system much more delightful to use entertain you while you are working on computer

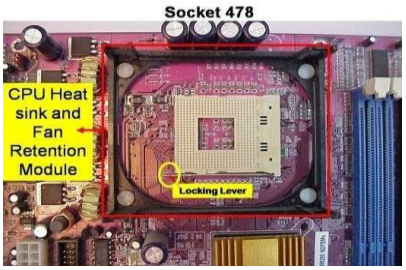
7. Scanner: Scanner used to scan images and text.

8. System Board/Motherboard:

- This is the major part of the PC hardware
- It manages all transactions of data between CPU peripherals.
- which holds the Processor, Random Access Memory and other parts, & has slots for expansion cards
- It is rectangle shape

9. Socket 478:

- It use 478 – PIN MICROPGA package it is used installing CPU. It is square type design.

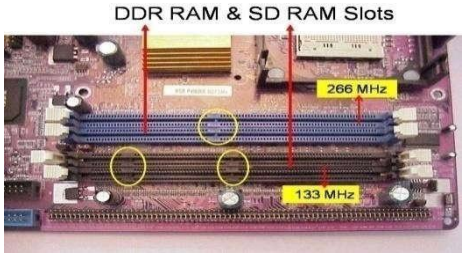


10. CPU:

- The central processing unit contains the heart of any computer, the processor. The processor is fitted on to a Mother Board. The Mother Board contains various components, which support the functioning of a PC.
- It is brain of the computer
- It is square shape

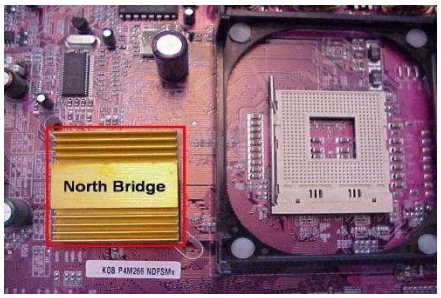
11. RAM Slots:

- Ram slots are used to install the rams
- It is large rectangle shape and each ending has small clips.
- There two type ram slots
- SD Ram ----------Two Gaps (synchronous DRAM) is a generic name for various kinds of dynamic random access memory (DRAM) that are synchronized with the clock speed that the microprocessor is optimized for. This tends to increase the number of instructions that the processor can perform in a given time.
- DDR Ram One Gap (Double Data Rate Synchronous DRAM: A clock is used to read data from a DRAM. DDR memory reads data on both the rising and falling edge of the clock, achieving a faster data rate.)



12. North Bridge:

- It is also called as controller
- It is nearby socket 478
- It placed middle of the mother board
- It converts electronic signals to binary values and binary values to electronic signals



13. South Bridge:

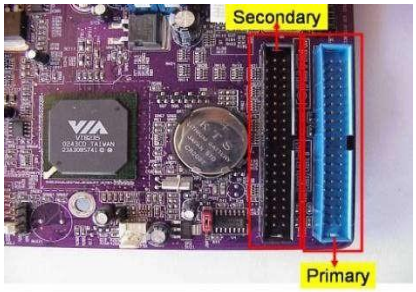
- It is controls major components mother board and it back bone of the input out devices
- It is communicates PCI slots, IDE-1, IDE-2, floppy connecter, BIOS chip.
- It nearby CMOS battery

14. CMOS Battery:

- Computer is using a coin shape battery
- It generates the clock signal and it manage system continues time.

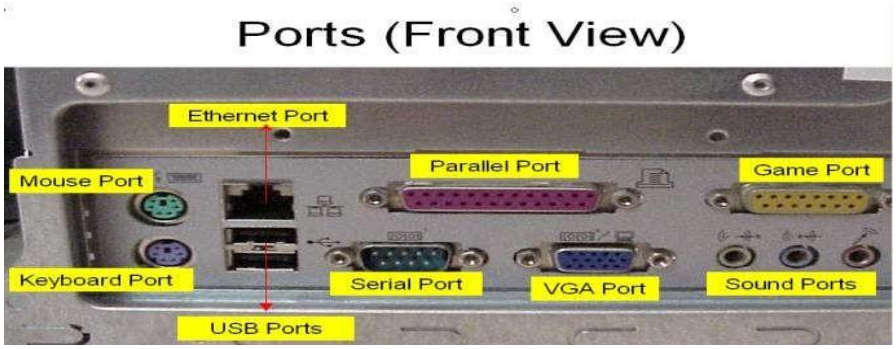
15. Primary & Secondary (IDE-1 & IDE-2):

- It is also called as IDE-1, IDE-2.
- It used to connecting Hard Disk Drive, CD ROM, DVD ROM.



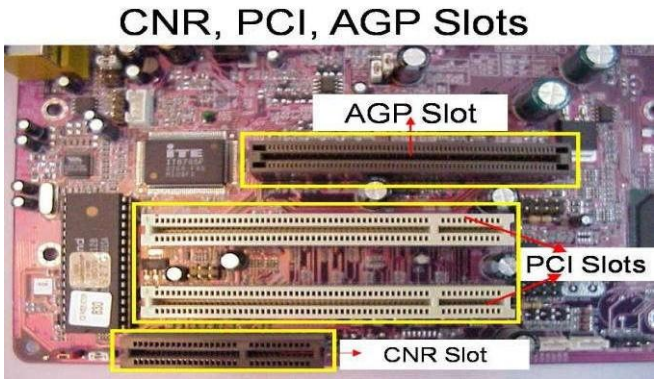
16. Input & Output Ports:

- IO ports are used to connecting IO device such as key boards, mouse, monitor, printer, scanner, speakers etc...



17. AGP Slot & AGP Card:

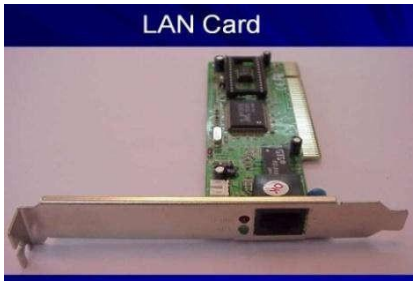
- AGP Slot is used install the AGP card.
- AGP back view same as VGA port (15-female pins) and used to connecting the monitor's c. This slot is above PCI slots and its color is Black or Brown.



18.CI Slots & PCI (expansion) Cards:

- PCI slots are used to install the PCI cards such as

i. LAN (Ethernet) Card---Back view Ethernet port



ii.Sound Card- Back view Audio pin connectors)

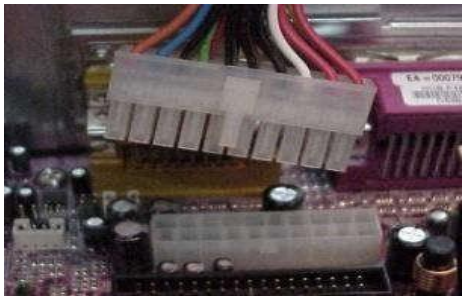
iii. TV Tuner (Internal) Card - Dish Pin connecter
iv. PCI Slots are white or yellow color
v. PCI Card has Single gap only

19. BIOS Chip:

- BIOS controls how the operating system and hardware wok together
- BIOS identification is BIOS name is available on chip or mother board

20. ATX Power Connector:

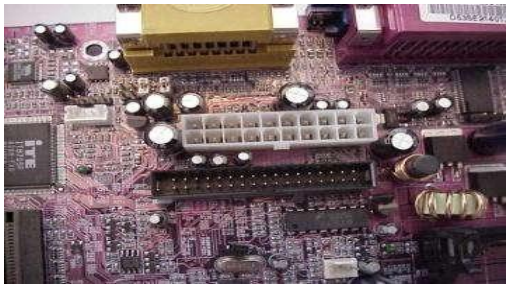
a. ATX power connecter is used to connect ATX power plug (This is from SMPS)
b. It is white color and it has ATX Name is available on Mother Board
c. ATX Power connecter has 20/24 pins available.



d. Typical ATX 1.3 power supply. From left to right, the connectors are 20-pin motherboard, 4-pin "P4connector", fan RPM monitor (note the lack of a power wire), SATA power connector (black), "Molex connector" and floppy connector.

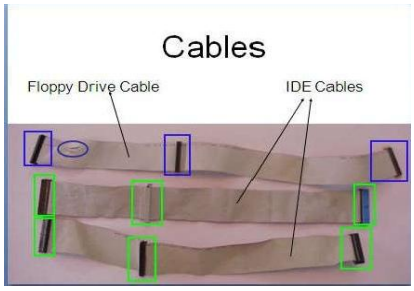
21. Floppy Connector:

- Floppy connecter is used to connect Floppy Disk Drive.
- This is beside of ATX power connecter and Name FDD is available on the mother board.



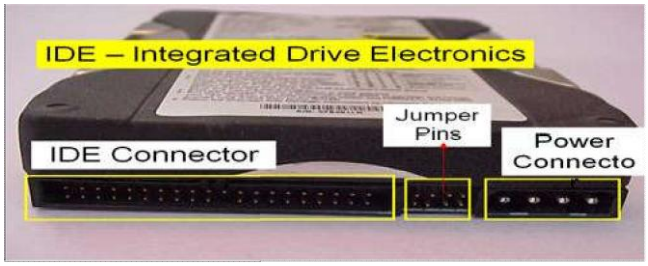
22. Bus Cables & Data Cables:

- A Bus is collection of wires through which is data is transmitted from one device to another device cables are two types:
  a. IDE cable: it used to connect HDD, CD ROM, DVD ROM
  b. FDD cable: it used to connect FDD (braking or manufacture defecting)



23. Hard Disk Drive:

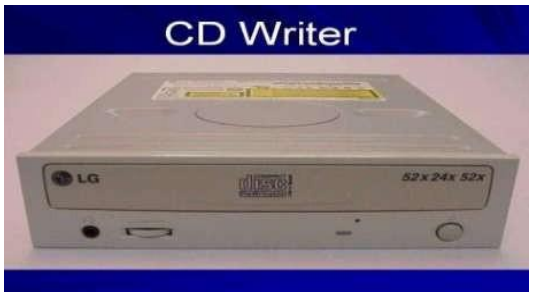
- The hard disk drive is the main, and usually largest, data storage device in a computer
- The operating system, software titles and most other files are stored in the hard disk drive
- Identifications is the panel name is Hard Disk Drive



Hard Disk Drive (HDD)

24. CD ROM Drive & CD-Drive:

- CD-Rom (Compact Disk Read only Memory) Drive is a device that reads the information from Compact Disks (CD).
- CD-Writer is used to write the data into Compact Disks.
- Identification is the panel name is CD Writer



25. Floppy Disk Drive:

- The floppy disk drive is used to read the information stored in floppy disks.
- Floppy disks also called as a diskette.
- Identification is smaller than CD Writer.

26. SMPS:

- SMPS is used to supply the power to Mother Board HDD,CD ROM, FDD
- In SMPS holds a transformer, voltage control and fan
- Identification is the rectangular box shape and panel name is switching mode power supply.

Assembling & Disassembling the System Hardware Components of the Personal Computer

1. Setting the Cabinet ready:

- Check how to open the cabinet and determine where to fix the components.
- Determine if the case has the appropriate risers installed.

2. Fitting the Mother board:

- Line up the patch on the motherboard (ps/l, USB, etc) with the appropriate holes in the block panel I/O shield of the case.
- Check the points where you and to install
- Install them and make the mother board sit on them and fix screws if required.

3. Installing the CPU:

- Raise the small lever at the side of the socket.
- Notice that there is a pin missing at one corner, determine the direction to fit in the processor.
- You should not force the CPU. When inserting it. All pins should slide smoothly into the socket.
- Lock the lever back down.

4. Installing CPU fan:

- Install the heat sink over it (Different type for each processor). Heat sink /CPU fan.

5. Fitting the RAM:

- The RAM must be suitable for motherboard.
- There are currently 3 types of RAM available.
    a) SD RAM.
    b) DDR SD RAM.
    c) RD RAM.
- The mother board‘s chipset determines which type of RAM may be used.

6. Installing SMPS:

7. Installing the ATX Power Connector

ATX Connectors:

- PS, Mouse.
- Key board.
- USB.
- Parallel (Prints)
- Serial COM1.
- Serial COM 2.
- Joystick.
- Sound.

8. Installing the HDD and Floppy disk:

- Place the floppy and hard disks in their slots.
- Leave some space above HDD to prevent heat building.
- Check the jumper configuration.
- Fix the screws.

9. CD ROM Drive:

- CD-ROM drive is similar to installing a hard disk.
- 1st check that the jumper configuration is correct.
- Fix the screw.

10. LAN Card:

11. Connecting the ribbon Cables and Front panel connections

- Attach the long end of the cable to the IDEU connector on the motherboard first. The red stripe on the IDE cable should be facing the CD Power.

12. Final Check:

- Mother board jumper configurations are the settings for the processor operator.
- Drive jumper settings, master/ slave correct?
- Is the processor, RAM modules and plug in cards finally seated in their sockets?
- Did you plug all the cables in? Do they all fit really?
- Have you frightened all the screws in plug- in cards or fitted the clips?

- Are the drive secure?
- Have u connected the power cables to all driver?

Powering up for the first time:

1. Ensure that no wires are touching the CPU heat sink fan.
2. Plug your monitor, mouse and keyboard.
3. Plug in power card and switch the power supply.
4. If everything is connected as it should be
    - All systems, fans should start spinning
    - U should hear a single beep and after about 5-10 sec
    - Amber light on monitor should go green
    - You will see computer start to boot with a memory check
    - Now check front LED'S to see if u plugged them in correctly
    - Check all other buttons
    - Power afford change any wrong settings

Why should one learn about hardware?

1. Troubleshoot you and save time.
2. Knowing about system internals and components.
3. Very easy installation for modern hardware.
4. Install extra memory.
5. Removing components.

TEST DATA: No Test Data for This Experiment

ERROR: No Errors for this Experiment

RESULT: Assembling and disassembling the system is completed

Viva Q & A :

1) Define hardware?
2) Define software?
3) What are the functional units of a computer?
4) IDE Stands for
5) What are the other names for LAN card
6) What is the use of LAN card?