

**EXPERIMENT NO: 4**

**Title: Hands on Activity on : Dismantling and  
assembling PC**

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<b>AIM</b>	To disassemble and assemble the system
<b>LEARNING OBJECTIVE</b>	To understand assembling of various PC components.
<b>LEARNING OUTCOME</b>	Student will be able to assemble and disassemble CPU.
<b>LAB OUTCOME</b>	CSL 403.4: Ability to explain and compare various components and buses on system or compare multicore processors.
<b>PROGRAM OUTCOME</b>	PO11, PO21, PO41, PO83, PO93
<b>BLOOM'S TAXONOMY LEVEL</b>	Analyze
<b>THEORY</b>	<p>A network adapter is the component of a computer's internal hardware that is used for communicating over a network with another computer. It enable a computer to connect with another computer, server or any networking device over an LAN connection. A network adapter can be used over a wired or wireless network.</p> <p>A floppy disk, also known as a floppy, diskette, or simply disk, is a type of disk storage composed of a disk of thin and flexible magnetic storage medium, sealed in a rectangular plastic enclosure lined with fabric that removes dust particles. Floppy disks are read and written by a floppy disk drive (FDD). Floppy disks, initially as 8-inch (203 mm) media[1] and later in 5 1/4-inch (133 mm) and 3 1/2 inch (90 mm) sizes, were a ubiquitous form of data storage and exchange from the mid-1970s into the first years of the 21st century.[2] By 2006 computers were rarely manufactured with installed floppy disk drives; 3 1/2-inch floppy disks can be used with an external USB floppy disk drive, but USB drives for 5 1/4-inch, 8-inch, and non-</p>

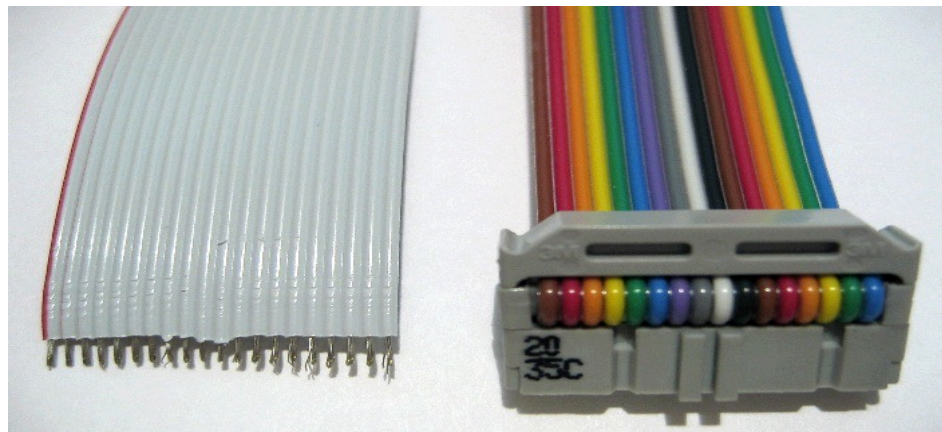
standard diskettes are rare to non-existent. These formats are usually handled by older equipment.



A ribbon cable (also known as multi-wire planar cable) is a cable with many conducting wires running parallel to each other on the same flat plane. As a result the cable is wide and flat. Its name comes from its resemblance to a piece of ribbon.

[1]

Ribbon cables are usually seen for internal peripherals in computers, such as hard drives, CD drives and floppy drives. On some older computer systems (such as the BBC Micro and Apple II series) they were used for external connections as well. The ribbon-like shape interferes with computer cooling by disrupting airflow within the case and also makes the cables awkward to handle, especially when there are a lot of them; as a result, round cables have almost entirely replaced ribbon cables for external connections and are increasingly being used internally as well.



A hard disk drive (HDD), hard disk, hard drive, or fixed disk[b] is an electro-mechanical data storage device that uses magnetic storage to store and retrieve digital data using one or more rigid rapidly rotating platters coated with magnetic material.

The platters are paired with magnetic heads, usually arranged on a moving actuator arm, which read and write data to the platter surfaces.[2] Data is accessed in a random-access manner, meaning that individual blocks of data can be stored and retrieved in any order. HDDs are a type of non-volatile storage, retaining stored data even when powered off.[3][4][5] Introduced by IBM in 1956,[6] HDDs were the dominant secondary storage device for general-purpose computers beginning in the early 1960s. HDDs maintained this position into the modern era of servers and personal computers, though personal computing devices produced in large volume, like cell phones and tablets, rely on flash products. More than 224 companies have produced HDDs historically, though after extensive industry consolidation most units are manufactured by Seagate, Toshiba, and Western Digital. HDDs dominate the volume of storage produced (exabytes per year) for servers. Though production is growing slowly, sales revenues and unit shipments are declining because solid-state drives (SSDs) have higher data-transfer rates, higher areal storage density, better reliability,[7] and much lower latency and access times.



Random-access memory (RAM /ræm/) is a form of computer memory that can be read and changed in any order, typically used to store working data and machine code.[1][2] A random-access memory device allows data items to be read or written in almost the same amount of time irrespective of the physical location of data inside the memory. In contrast, with other direct-access data storage media such as hard disks, CD-RWs, DVD-RWs and the older magnetic tapes and drum memory, the time required to read and write data items varies significantly depending on their physical locations on the recording medium, due to mechanical limitations such as media rotation speeds and arm movement.



A central processing unit (CPU), also called a central processor or main processor, is the electronic circuitry within a computer that executes instructions that make up a computer program. The CPU performs basic arithmetic, logic, controlling, and input/output (I/O) operations specified by the instructions. The

computer industry used the term "central processing unit" as early as 1955.[1][2] Traditionally, the term "CPU" refers to a processor, more specifically to its processing unit and control unit (CU), distinguishing these core elements of a computer from external components such as main memory and I/O circuitry.[3]

The form, design, and implementation of CPUs have changed over the course of their history, but their fundamental operation remains almost unchanged. Principal components of a CPU include the arithmetic logic unit (ALU) that performs arithmetic and logic operations, processor registers that supply operands to the ALU and store the results of ALU operations, and a control unit that orchestrates the fetching (from memory) and execution of instructions by directing the coordinated operations of the ALU, registers and other components.



A motherboard (sometimes alternatively known as the mainboard, main circuit board, system board, baseboard, planar board or logic board,[1] or colloquially, a mobo) is the main printed circuit board (PCB) found in general purpose computers and other expandable systems. It holds, and allows, communication between many of the crucial electronic components of a system, such as the central processing unit (CPU) and memory, and provides connectors for other peripherals[2]. Unlike a backplane, a motherboard usually contains significant sub-systems such as the central processor, the chipset's input/output and memory controllers, interface connectors, and other components integrated for general purpose use and applications.



heat sink (also commonly spelled heatsink[1]) is a passive heat exchanger that transfers the heat generated by an electronic or a mechanical device to a fluid medium, often air or a liquid coolant, where it is

	<p>dissipated away from the device, thereby allowing regulation of the device's temperature at optimal levels. In computers, heat sinks are used to cool CPUs, GPUs, and some chipsets and RAM modules. Heat sinks are used with high-power semiconductor devices such as power transistors and optoelectronics such as lasers and light emitting diodes (LEDs), where the heat dissipation ability of the component itself is insufficient to moderate its temperature.</p>
<b>HARDWARE REUSED</b>	CPU Units
<b>STEPS</b>	<p><b>Safety Precautions:</b></p> <ol style="list-style-type: none"> <li>1. Beware of electrostatic discharge(ESO)</li> <li>2. Buildcomputeronahardsurface,awayfromconcepts .</li> <li>3. Wearshoesandtheshortsleevedcottonwear.</li> <li>4. Use Phillips, head screwdriver.</li> <li>5. Keep the components away frommoisture.</li> <li>6. Avoid using pressure whileinstalling.</li> </ol> <p><b>Steps for Assembling.</b></p> <ol style="list-style-type: none"> <li>1. Setting the cabinetready .</li> <li>2. Preparing to fit thecomponents.</li> </ol>

3. Fitting the motherboard.
4. Fitting the RAM, processor and cooler.
5. Installing PC cards.
6. Fitting the hard disk and floppy drive.
7. Installing the CD ROM drives.
8. Connecting the ribbon cables.
9. Powering the drives and motherboard.
10. Connecting the cables for the case front panel.
11. Final check.

**Getting the Cabinet ready:**

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

**Preparing to fit the Components:**

1. Network adapter drive.
2. Floppy disk drive.
3. Ribbon cables.
4. Hard disk.
5. CD ROM Drive.
6. RAM
7. CPU
8. Heat sink / cooler / fan.
9. Motherboard.
10. Screws.

**Fitting the Mother board.**

1. Line up the patch on the motherboard ( ps/l, USB, etc ) with the appropriate holes in the back panel / O shield of the case.
2. Check the points where you and to install

	3. Install them and make the mother board sit on them and fix
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screws if required.

**Mother board parts:**

1. ACRslot.
2. PCISlot.
3. AGPSlot.
4. ATXConnectors.
5. CPUFan.
6. Chipset NorthBridge.
7. CPUsocket.
8. Floppy.
9. Systemmemory.
10. Chipset southbridge.
11. Panelconnector.
12. Powersupply.
13. IDEconnectors.

**ATX Connectors:**

1. PS,Mouse.
2. Keyboard.
3. USB.
4. Parallel ( Prints)
5. SerialCOM1.
6. Serial COM2.
7. Sound.

**Fitting the processor:**

1. Raisethesmallleveratthesideofthesocket.
2. Notice that there is a pin missing at one corner, determine the direction to fit in the processor.
3. YoushouldnotforcetheCPU.Wheninsertingit.Allpins

should slide smoothly into the socket.

4. Lock the lever back down.
5. Install the heat sink over it (Different type for each processor). Heat sink / CPU fan.

#### **Fitting the RAM:**

1. The RAM must be suitable for motherboard.
2. There are currently 2 types of RAM available.
  - a) SDRAM.
  - b) DDRAM.
3. The motherboard's chipset determines which type of RAM may be used.

#### **Installing the PCI Cards:**

1. Most of the cards are inbuilt these days.
2. NIC, Sound Cards etc. are fitted into PCI slots.

#### **Fitting the hard disk and Floppy disk:**

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

#### **Installing the CDROM Drives:**

1. CDROM drive is similar to installing a hard disk.
2. 1<sup>st</sup> check that the jumper configuration is correct.
3. Fix the screw.

#### **Connecting the Ribbon Cables:**

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

	Power.
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### **Powering the driver and motherboard:**

Connecting the cables for the case front panel

1. SD, SPK or SPEAK: The loudspeakers or p.i. has 4 pins.
2. RS, RE, RS or RESET: Connect the two pin Reset cable here.
3. PWR, PW, PWSW, PS or power SW: Powerswitch, the pc's son (switch, The plug is two pin).
4. PWLED, PWRLED or Power LED: The light emitting diode on the front Panel of the case illuminates when the computer is switched on. It's a 2 Pin cable.
5. HD, HDD, and LED: These two pins connect to the cable for the hard disk Activity LED.

### **Final Check:**

Mother board jumper configurations are the settings for the processor operator.

1. Drive jumper settings, master/ slave correct?
2. Are the processor, RAM modules and plug in cards finally seated in the sockets?
3. Did you plug all the cables in? Do they all fit really?
4. Have you tightened all the screws in plug in cards or fitted the clips?
5. Are the drives secure?
6. Have you connected the power cable 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 system, fans should start spinning.

	<ul style="list-style-type: none"> <li>• U should hear a single beep and after about 5-10 sec.</li> <li>• Amber light on monitor should go green.</li> <li>• You will see computer start to boot with a memory check.</li> <li>• Now check front LED'S to see if u plugged them in correctly.</li> <li>• Check all other buttons.</li> <li>• Power afford change any wrong settings.</li> </ul>
<b>CONCLUSION</b>	We successfully understood all the components of a CPU such as the motherboard ,ram,hardisk,etc, and their functioning .We also fit the components and the system was turned on.
<b>REFERENCES</b>	<a href="https://en.wikipedia.org/wiki/Ribbon_cable">https://en.wikipedia.org/wiki/Ribbon_cable</a> <a href="https://en.wikipedia.org/wiki/Hard_disk_drive">https://en.wikipedia.org/wiki/Hard_disk_drive</a> <a href="https://en.wikipedia.org/wiki/CD-ROM">https://en.wikipedia.org/wiki/CD-ROM</a> <a href="https://en.wikipedia.org/wiki/Optical_disc_drive">https://en.wikipedia.org/wiki/Optical_disc_drive</a> <a href="https://en.wikipedia.org/wiki/Random-access_memory">https://en.wikipedia.org/wiki/Random-access_memory</a> <a href="https://en.wikipedia.org/wiki/Central_processing_unit">https://en.wikipedia.org/wiki/Central_processing_unit</a> <a href="https://en.wikipedia.org/wiki/Heat_sink">https://en.wikipedia.org/wiki/Heat_sink</a> <a href="https://en.wikipedia.org/wiki/Computer_fan">https://en.wikipedia.org/wiki/Computer_fan</a> <a href="https://www.computerhope.com/jargon/m/mothboar.htm">https://www.computerhope.com/jargon/m/mothboar.htm</a>