Libyan International Medical University

Faculty of
information Technology

Abdulmoez Fakhri elabbar

Objectives :-

1. List composes of system unit , and there use ?

2. Define the motherboard and list of components, and explain their role ?

3. Discuss how the CPU process data , and factors that performance of CPU ?

4. What are the similarities between human brain and computer ?

5. Describe problem solving steps

6. Define algorithm and flowchart and use them in a task

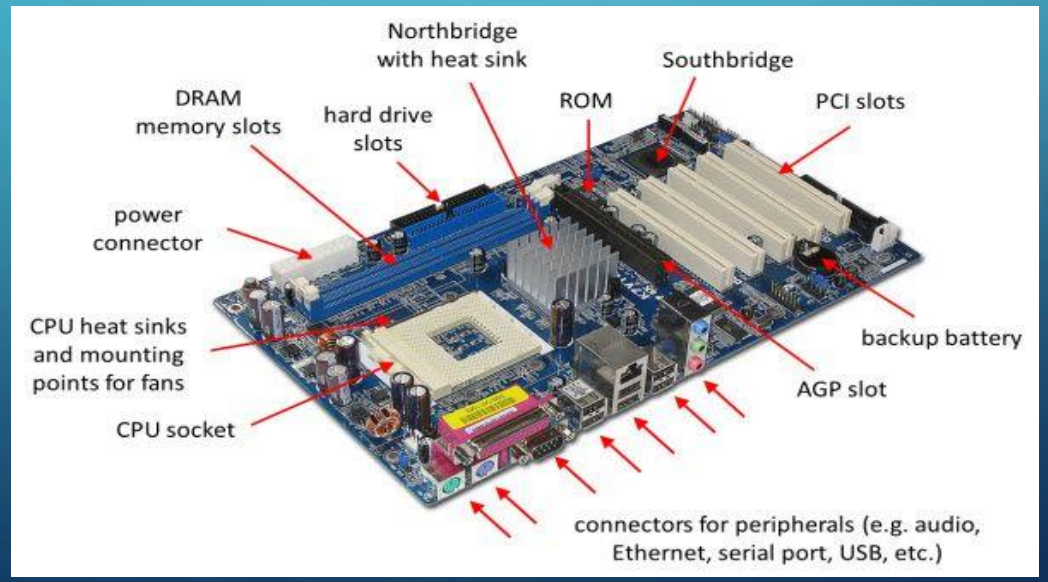
7. List types of memory and the purpose of each type ?

List composes of system unit , and there use ?

1. Motherboard
2. Random Access Memory (RAM)
3. GPU (Graphics Processing Unit)
4. Cooling System – Air Cooling/ Water Cooling/ Liquid Cooling
5. DVD ROM
6. Hard drive
7. Power Supply Unit PSU

Motherboard :-

The motherboard is the circuit board that holds the main internal components of the computer together. On the motherboard there are three major cards; sound card that operates the sound, the video card that handles the graphics that you see on the monitor and the modem card which allows computers to communicate with each other. Also on the motherboard is the Central Processing Unit (CPU), processor or brain of the computer. The CPU controls information and tells the other components inside the computer what to do.

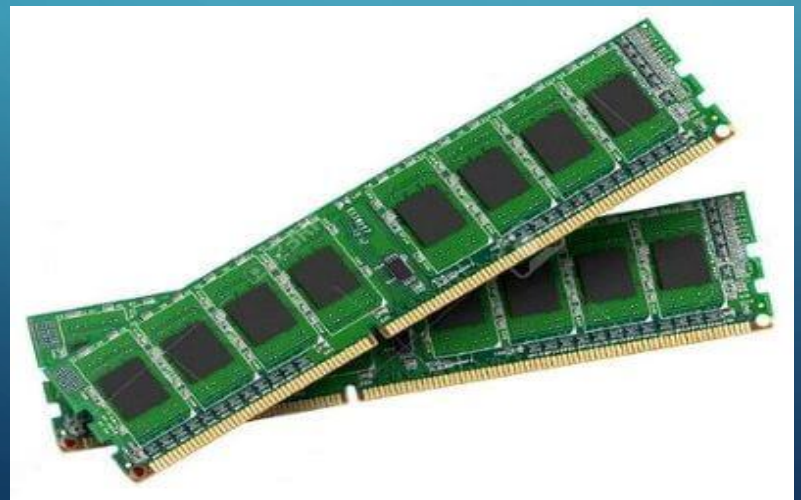


Random Access Memory (RAM)

random access memory (RAM). RAM is volatile memory, which means it is not permanent and its contents are erased when the computer's power is switched off. The purpose of RAM is to

• Receive and hold program instructions and data while being used by the system.

• Provide those instructions and data to the CPU when needed.



GPU (Graphics Processing Unit)

GPU stands for graphics processing unit. You'll also see GPUs commonly referred to as graphics cards or video cards. Every PC uses a GPU to render images, video and 2D or 3D animations for display. A GPU performs quick math calculations and frees up the CPU to do other things. Whereas a CPU uses a few cores focused on sequential serial processing, a GPU has thousands of smaller cores made for multi-tasking.

(CPU) Cooling System :-

A component that draws heat away from a **CPU** chip and other hot-running chips such as a graphics **processor** (GPU). See heat pipe and notebook **cooler**. Heat Sink. The simplest **cooler** is an aluminum heat sink, which absorbs and disperses the heat. Fans and Heat Sinks Together.

CD-ROM Drive

This is a high capacity optical data storage device with a removable disk. It writes data onto or reads data from a storage medium.
A CD-ROM drive may be connected to the computer via an IDE (ATA), SCSI, S-ATA, Firewire, or USB interface or a proprietary interface.

Hard Disk Drive :-

A hard disk drive is a high capacity, non-volatile, magnetic data storage device with a volume (disk) that is usually non-removable.
Data is magnetically read and written on the platter by read/write heads that float on a cushion of air above the platters.

Power Supply Unit

The power supply unit (PSU) is used to convert AC currents from the main supply to the different DC voltages required by various computer components.
Power supplies are quoted as having a certain power output specified in watts, A standard power supply would typically be able to deliver around 350 watts.
You will need more power from the power supply if your PC has more operating components.

Define the motherboard and list of components, and explain their role

The motherboard

is a large flat piece of plastic or fiberglass that contains thousands of electrical circuits etched onto the board’s surface. The circuits connect numerous plug-in receptacles that accommodate the computer’s most important components (such as the CPU and RAM). The motherboard provides the centralized physical and electrical

Motherboard component list

1. input/output
2. CPU Chip
3. RAM , PCI , ISA , AGP and CPU slots
4. IDE controller
5. CMOS Battery
6. Power supply plug in

1. input/output

USB USB is the General-purpose connection for PC. You can find USB versions of many different devices, such as mice, keyboards, scanners, cameras, and even printers. a USB connector's distinctive rectangular shape makes it easily recognizable.

2. CPU Chip

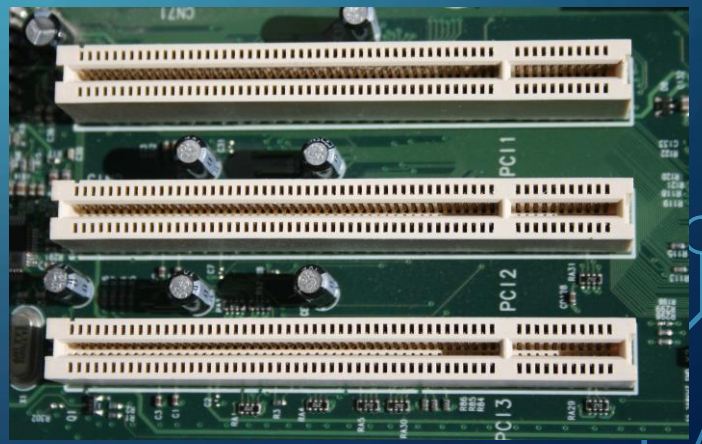
CPU Chip : The central processing unit, performs all the calculations that take place inside a pc. CPUs come in Variety of shapes and sizes.

Ram slots

RAM slots: Random-Access Memory (RAM) stores programs and data currently being used by the CPU. RAM is measured in units called bytes. RAM has been packaged in many different ways. The most current package is called a 168-pin DIMM (Dual Inline Memory module).

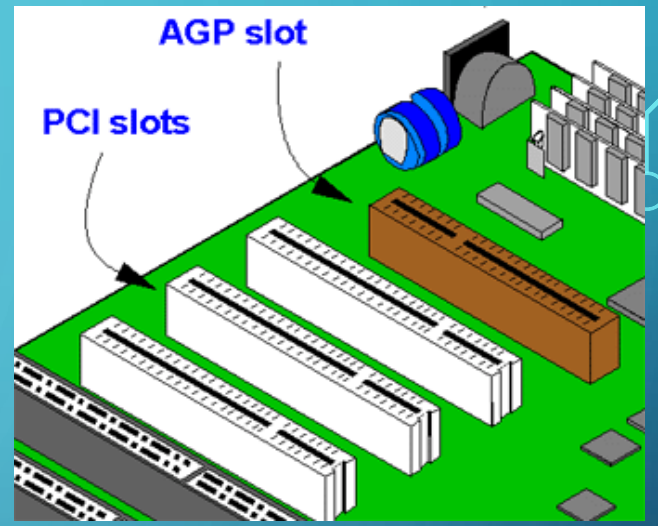
PCI slots

PCI slot: Intel introduced the *Peripheral component interconnect* bus protocol. The PCI bus is used to connect I/O devices (such as NIC or RAID controllers) to the main logic of the computer. PCI bus has replaced the ISA bus.



AGP slots

AGP slot: If you have a modern motherboard, you will almost certainly notice a single connector that looks like a PCI slot, but is slightly shorter and usually brown. You also probably have a video card inserted into this slot. This is an Advanced Graphics Port slot.



CPU slots

CPU slot: To install the CPU, just slide it straight down into the slot. Special notches in the slot make it impossible to install them incorrectly. So remember if it does not go easily, it is probably not correct. Be sure to plug in the CPU fan's power.

4. IDE controller

IDE (Integrated Drive Electronics) is a standard electronic interface used between a computer motherboard's data paths or bus and the computer's disk storage devices. ... In today's computers, the **IDE controller** is often built into the motherboard.

5. CMOS Battery

CMOS stands for “Complementary Metal Oxide Semiconductor.” The CMOS battery powers the BIOS firmware in your laptop [2]. BIOS needs to remain operational even when your computer isn't plugged into a power source. That's where the battery comes in

6. Power supply plug in

Power supply plug in: The Power supply, as its name implies, provides the necessary electrical power to make the pc operate. the power supply takes standard 110-V AC power and converts into 12-Volt, 5-Volt, and 3.3-Volt DC power.

Discuss how the CPU process data

The working of the CPU is defined as a three-step process. First, an instruction is fetched from memory. Second, the instruction is decoded and the processor figures out what it's being told to do. Third, the instruction is executed and an operation is

Factors affecting CPU performance

clock **speed**.

cache size.

number of cores.

What are the similarities between human brain and computer

Our brain as a central information processor vs. computer having a central processing unit

Our brain takes sensory input → processing/ sense making → in order to produce behavior as output. Computers work similarly: information input → processing → output task

Computers requires both hardware and software to function. Our body is essentially hardware, what we learn from formal education and informal life experiences are software.

Describe problem solving steps

1. Identify The problem
2. Understanding The problem
3. Identify alternative ways to solve the problem
4. Select the best way to solve the problem from the list of alternative solutions
5. list instructions that enable you to solve the problem using the selected solution
6. Evaluate the solution

Define algorithm and flowchart ? and use them in a task

Algorithm and flowchart are the powerful tools for learning programming. An algorithm is a step-by-step analysis of the process, while a flowchart explains the steps of a program in a graphical way. Algorithm and flowcharts helps to clarify all the steps for solving the problem.

Symbol	Name	Function
	Start/end	An oval represents a start or end point.
	Arrows	A line is a connector that shows relationships between the representative shapes.
	Input/Output	A parallelogram represents input or ouptut.
	Process	A rectangle represents a process.
	Decision	A diamond indicates a decision.

Write an algorithm

F = ax+by

1. Start
2. input a , x , b , y
3. F = ax+by
4. Print F
5. End .

List types of memory and the purpose of each type

Long-Term Memory

Long-term memory is our brain's system for storing, managing, and retrieving information.

Short-Term Memory

Closely related to "working" memory, short-term memory is the very short time that you keep something in mind before either dismissing it or transferring it to long-term memory.

the purpose of each type

Short-Term Memory

being faster than forms of mass **storage** such as a hard disk drive, volatility can protect sensitive information, as it becomes unavailable on power-down. Most of the general-purpose random-access **memory** (**RAM**) is **volatile**.

Long-Term Memory

Overview. Non-volatile memory is typically used for the task of secondary storage or long-term persistent storage. The most widely used form of primary storage today

Thanks

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