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Processor Socket

Its where you insert your CPU. Not all CPUs fits a processor socket like AMD and Intel. In addition, some don’t work on other motherboards.

Memory Slots

It’s where you hold your RAM sticks.

Expansion Slots

Slots that are used for extra hardware like GPUs, sound cards, network cables, additional USB slots, etc.

BIOS/UEFI Chip

Chip that contains the basic instructions to help the computer to startup.

SATA Ports

Connects to storage devices like hard drives and SSDs. Transports data between the motherboard and storage devices

USB Headers

Adds additional USB ports to the computer case.

Power Connections

Its where you connect your power supply.

Rear Panel Connectors

Its where you find your usb ports, audio input/output, ethernet, display outputs behind computer case.

Chipset

Controls how data communicates between CPU and other components. Usually made of two chips: the northbridge (controls the fastest interfaces like connections to graphics cards and RAM) and southbridge (controls the slower interfaces like SATA or USB connections)

CMOS battery

Coin Battery that holds the necessary power to boot up computer. It also holds so system information like system time and date, hardware settings, etc.

Ports and Connectors

Things like USB ports HDI ports, audio jacks, Ethernet ports, etc.

Expansion Capabilities

Whether your motherboard can have additional components, like graphics cards and other expansion cards.

Onboard Features BIOS/UEFI

Features that the motherboard contains like graphics processor, sound card, or Wi-Fi adapter.

Form Factor

Physical layout of the motherboard ATX, Micro-ATX, and Mini-ATX

How to know the information of the motherboard that you are using

* Windows + R 🡺 msinfo32

What is a motherboard?

Board in a computer chassis that distributes power and allows communication to and from the CPU, RAM, video card, and other computer hardware components (keyboard, mouse, modem, speakers, etc.)

What exactly does a motherboard do?

* Connects all of your hardware to your processor
* Distributes power from your power supply
* Specifies the storage devices, memory modules, and graphics connected to your computer

A motherboard has how many connections, ports, or slots?

There no fix number as it varies on the motherboard

Why are the motherboard's slots, ports, and connections color-coded?

To help identify which is which

What is the connection between a motherboard and a computer Cause?

You connect the motherboard to a desktop computer

What distinguishes a computer's motherboard from a laptop's motherboard?

They’re basically the same but the laptop’s is just thinner and smaller

What should you look for in a motherboard?

Size, overclocking, chipset, expansion slots

What are some of the most well-known motherboard manufactures?

ASUS, Biostar, Gigabyte, Intel, MSI, etc.

Why do we need primary storage

Types of Primary Storage

1. Read Only Memory

We can only read the memory but not modify nor change it. It is non-volatile, meaning that it wont lose data once there is a power outage. It is the primary memory of the computer system

* 1. PROM (programmable read only memory)
     1. ROM that can only be modified once a year. It is not erasable
  2. EPROM (erasable progrmmable read only memory
     1. PROM that can be ereased via ultra-violet light for up to 40 minutes
  3. EEPROM (electronically erasable and programmable read only memory)
     1. Can be reprogrammed around 10 thousand times. Takes about 4-10 milliseconds. Slow yet flexible
  4. MROM (mask ROM)
     1. ROM that is masked during production

1. Random Access Memory

Can be read and changed in any order. Used for storing work and machine code

1. DRAM (dynamic RAM)
   1. Volatile memory; should be refreshed regularly with voltage. Uses the main memory of the computer
2. SRAM (static RAM)
   1. Faster than dram as it uses cache and internal registers of CPU. Can be classified as non-volatile and pseudostatic
3. Flash Memory
   1. Non-volatile memory; can be erased and reprogrammed electrically
4. Cache Memory
   1. High-speed memorybthat syncs with high-speed PCU; acts as a buffer between ram and cpu. Very expensive

Types of Secondary Storage

1. Magnetic Storage Devices
2. Solid-state drives

Characteristics of Secondary Storage Devices

* Non-volatility
* Capacity
* Speed
* Cost

How do they work?

* Data Writing Process
* Data Reading Process

Difference between primary secondary

|  |  |  |
| --- | --- | --- |
| Comparison | Primary | Secondary |
| Storage | Main memory and stores temporarily | External memory and stores data permanently |
| Access | CPU can directlt access data | CPU cannot directly access the data |
| Volatility | Volatile, loses dtaa in case of power outage | Non-volatile; data is stored evn during power outage |
| Storage | Stored inside costly semiconductor chips | Stored on external hardware |
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