



CSCA0102

IT and Business Applications

Chapter 2

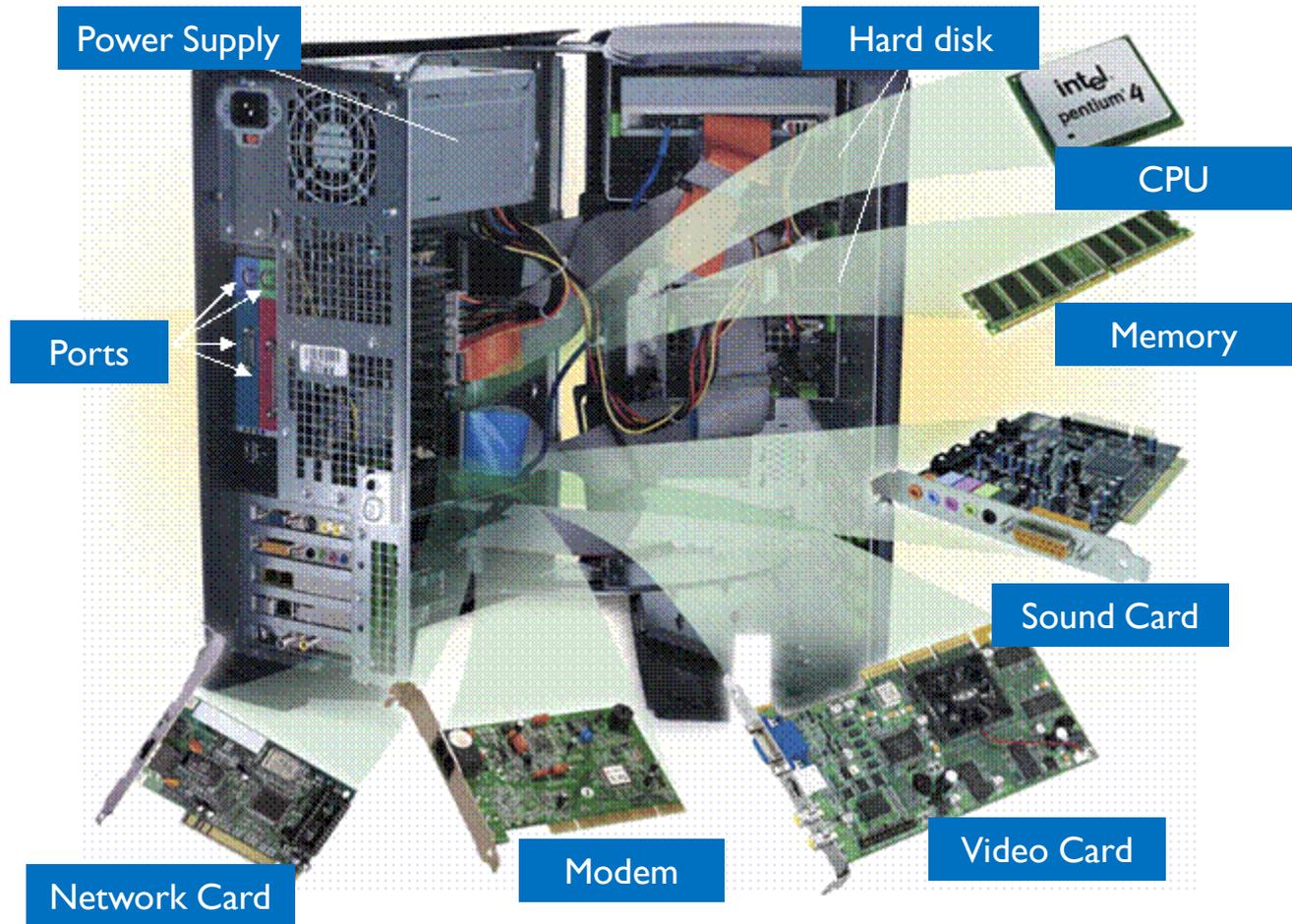
System Unit, Peripherals and Storage

System Unit

- The system unit is the core of a computer system.
- The most important of these components is the **central processing unit (CPU)**, or microprocessor, which acts as the "brain" of your computer.
- Another component is **random access memory (RAM)**, which temporarily stores information that the CPU uses while the computer is on.
- Almost every other part of your computer connects to the system unit using cables.

System Unit

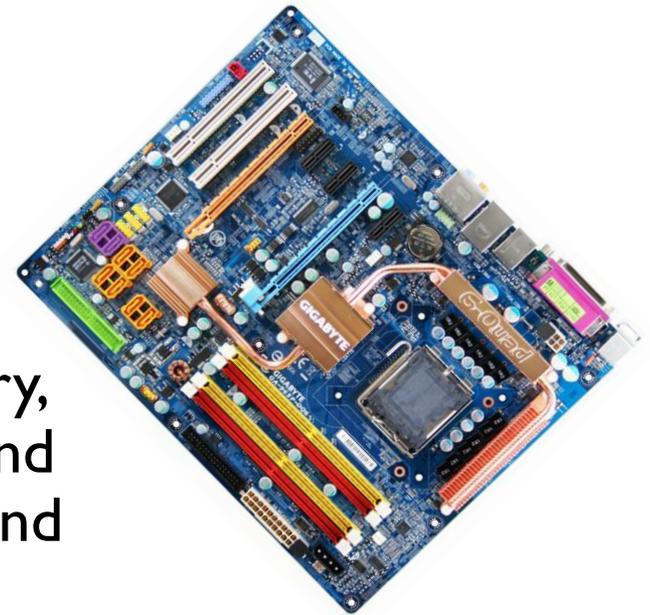
Components of System Unit



System Unit

Motherboard

- The main circuit board of a microcomputer.
- Contains the connectors for attaching additional boards.
- Typically, the motherboard contains the CPU, BIOS, memory, mass storage interfaces, serial and parallel ports, expansion slots, and all the controllers required to control standard peripheral devices.



System Unit

Central Processing Unit (CPU)

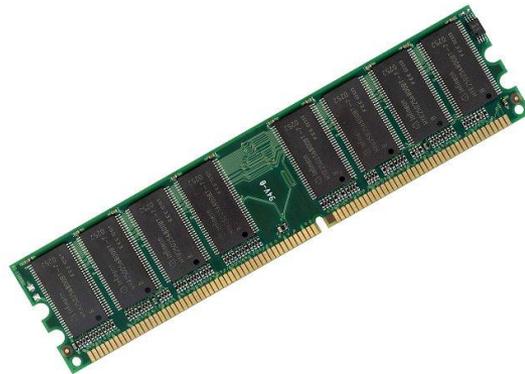
- Also known as microprocessor.
- The CPU contains the control unit, the arithmetic/logic unit and input-output unit.



System Unit

Memory

- **Memory** is a temporary storage place for data, instructions, and information.
- Memory stores the operating system, application programs, and the data processed by application programs.



System Unit

Memory

- **RAM (random access memory)** consists of memory chips that the processor can read from *and* write to.
- Most RAM is **volatile memory**, meaning that its contents are lost when the computer's power is turned off.
- Two basic types of RAM chips are **Dynamic RAM** and **Static RAM**.
- **Dynamic RAM (DRAM)** must be re-energized constantly or it loses its contents. **Static RAM (SRAM)** is faster and more reliable than DRAM and has to be re-energized less often, but it is much more expensive.

System Unit

Power Supply

- Also called a **power supply unit** or PSU, the component that supplies power to a computer.



System Unit

Modem/Network Card

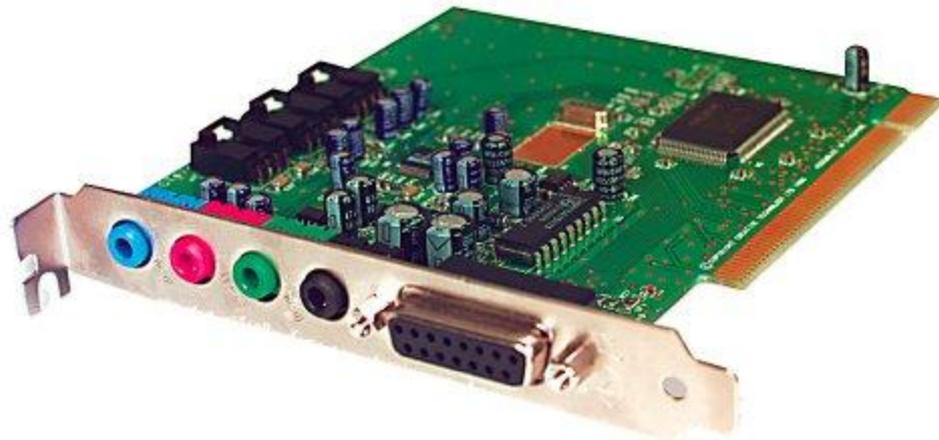
- A device that enables a computer to transmit data over, for example, telephone or cable lines.



System Unit

Sound Card

- An expansion board that enables a computer to manipulate and output sounds.



System Unit

Video Card

- A board that plugs into computer to give it display capabilities.
- The display capabilities of a computer, however, depend on both the logical circuitry (provided in the video adapter) and the display monitor.



System Unit

Hard Disk

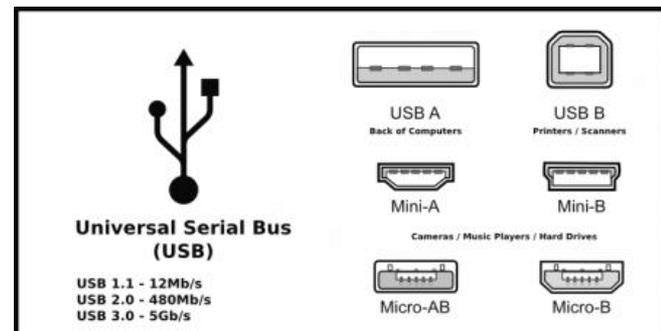
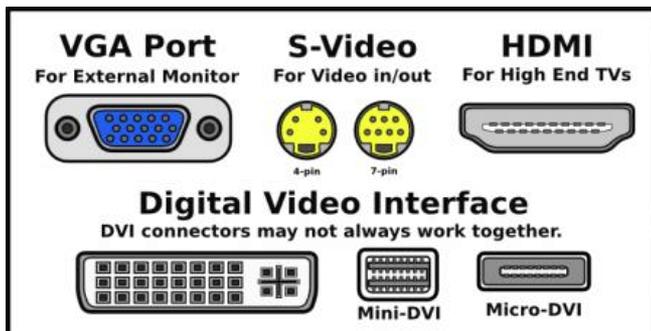
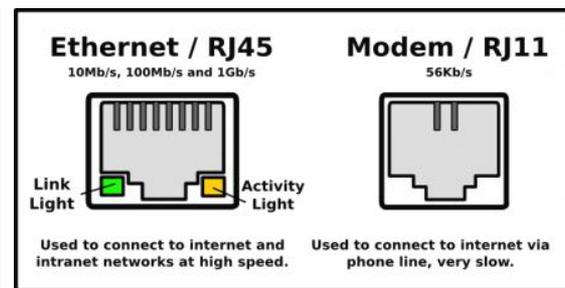
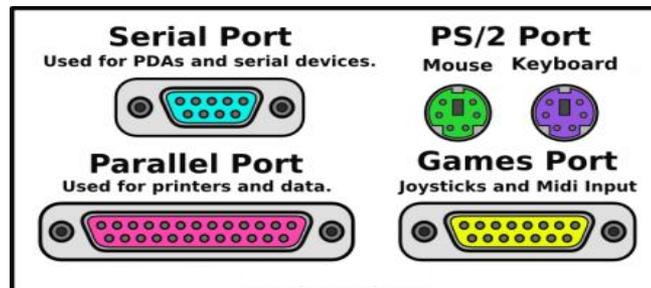
- A magnetic disk on which you can store computer data.
- Hard disks hold more data and are faster than other storage media.



System Unit

Ports

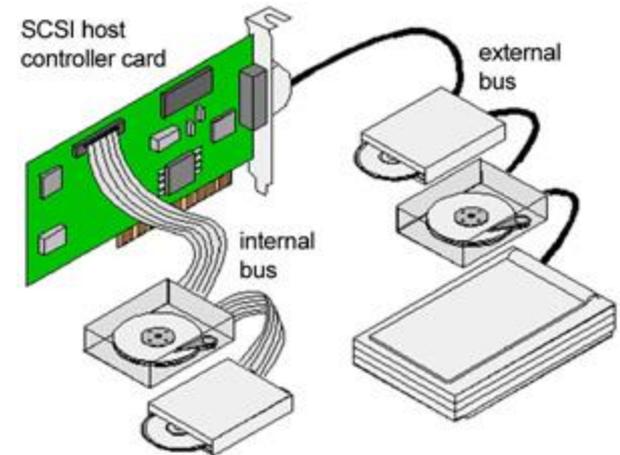
- An interface on a computer to which you can connect a device.



System Unit

Buses

- A collection of wires through which data is transmitted from one part of a computer to another.
- **Internal bus** connects all the internal computer components to the CPU and main memory.
- **Expansion bus** enables expansion boards to access the CPU and memory.



Peripherals

- A computer device that is not part of the essential computer.
- Peripheral devices can be external (mouse, keyboard, printer, monitor) or internal (CD-ROM drive, CD-R drive, internal modem).

Peripherals

Input Devices

- A device that can be used to insert data into a computer.



Peripherals

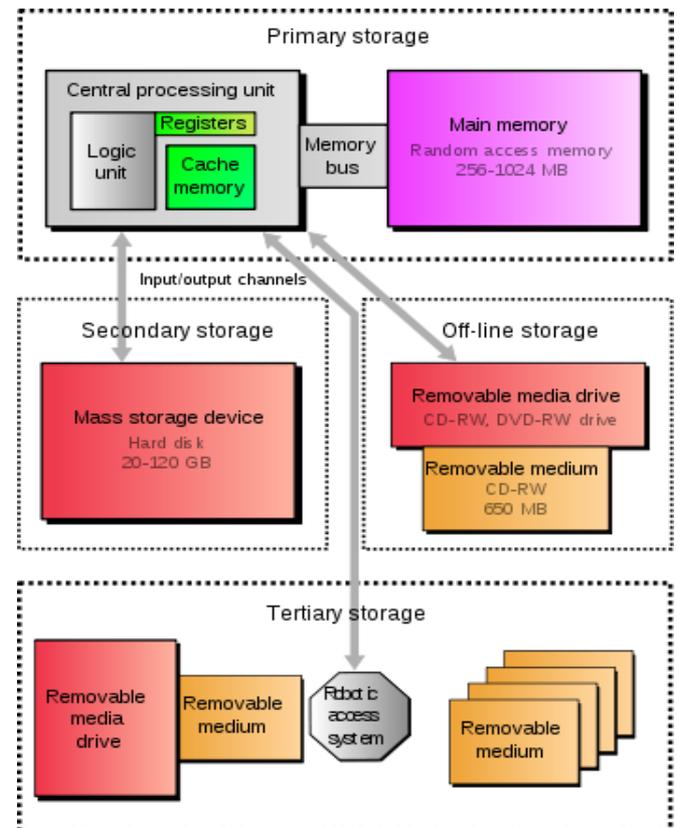
Output Devices

- A device that can be used to produce result or output form a computer.



Storage

- The capacity of a device to hold and retain data.
- Types of storage:
 - Primary
 - Secondary
 - Tertiary
 - Off-line



Storage

Primary Storage

- A storage location that holds memory for short periods of times while the computer running.
- Example: computer RAM and cache

Storage

Secondary Storage

- A storage medium that holds information until it is deleted or overwritten regardless if the computer has power.
- Example: hard disk

Storage

Off-line Storage

- Term used to describe any storage that is removable and cannot be accessed by the computer once removed.
- Off-line storage allows a user to store information that will not be affected by computer viruses or hardware failure.
- Example: floppy disk and pen drive

Storage

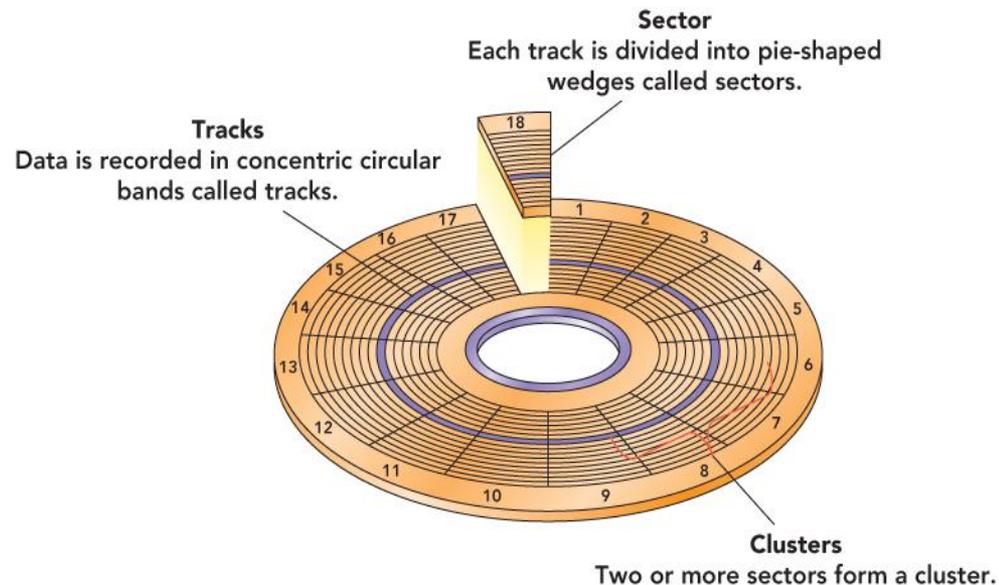
Tertiary Storage

- Typically it involves a robotic mechanism which will mount (insert) and dismount removable mass storage media into a storage device according to the system's demands.
- Example: tape libraries and optical disc

Storage

Storing the Data

- Data is stored on the surface of a platter in **sectors** and **tracks**. Tracks are concentric circles, and sectors are pie-shaped wedges on a track.



Storage

File System

- Used to control how information is stored and retrieved.
- Without a file system, information placed in a storage area would be one large body of information with no way to tell where one piece of information stops and the next begins.

Storage

File System

- FAT (File Table Allocation)
- NTFS (New Technology File System)
- NTFS advantages:
 - Faster
 - Safer
 - More space-efficient

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Storage

Storage Technologies

- Semiconductor
- Magnetic
- Optical
- Paper
- Cloud

Storage

Storage Technologies

Semiconductor

- Uses semiconductor-based integrated circuits to store information.
- Example: RAM, Flash memory



Storage

Storage Technologies

Magnetic

- Magnetic storage uses different patterns of magnetization on a magnetically coated surface to store information.
- Example: Hard disk, floppy disk, tape



Storage

Storage Technologies

Optical

- the typical optical disc, stores information in deformities on the surface of a circular disc and reads this information by illuminating the surface with a laser diode and observing the reflection.
- Example: Compact Disc, Digital Versatile Disc, BluRay Disc

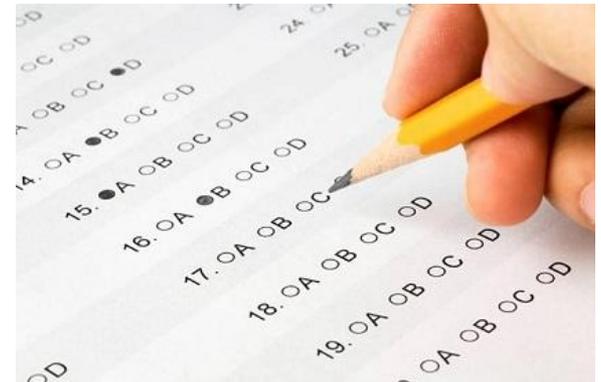
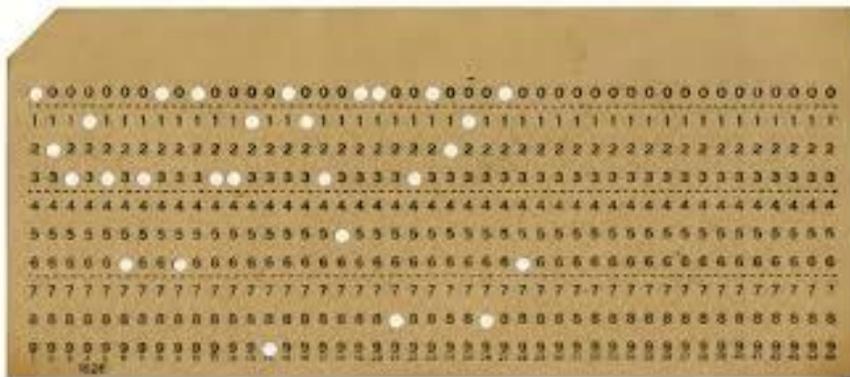


Storage

Storage Technologies

Paper

- Typically in the form of paper tape or punched cards, has long been used to store information for automatic processing, particularly before general-purpose computers existed.
- Example: punch card, OMR



Storage

Storage Technologies

Cloud

- **Cloud computing** is a term used to describe services provided over a network by a collection of remote servers.
- Example: Google Drive, Dropbox