Tikrit University

College of Computer Sciences & Mathematics

Computer Science Department

Computer Organization

First Stage

Lecture -5

Lecturer
Nayif Mohammed

Internal Hardware Computer Components

- In the previous lectures we explain the essential internal hardware that build the computer system , such as Motherboard , CPU, RAM , ROM …etc.
- Internal computer components are designed to fit INSIDE the computer system and they all carry out important roles.
- In this lecture we will discuss extra hardware which are complete the computer system work :
  - ***Power supply.***
  - ***Computer case***.
  - ***Internal cables.***

Power Supply

- The power supply converts alternating-current (AC) power direct-current (DC) power, which is a lower voltage.
- Must provide enough power for the installed components and future additions.

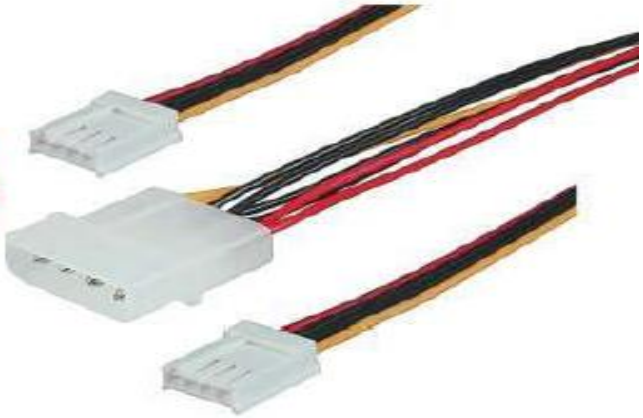
- **WARNING** : Do not open a power supply. Electronic capacitors located inside of a power supply can hold a charge for extended periods of time.

Computer Case

- Provides protection and support for internal components.
- Helps to prevent damage from static electricity .
- Should be strong, easy to service, and have enough room for expansion.
- Typically made of plastic, steel, and aluminum.

Internal Cables

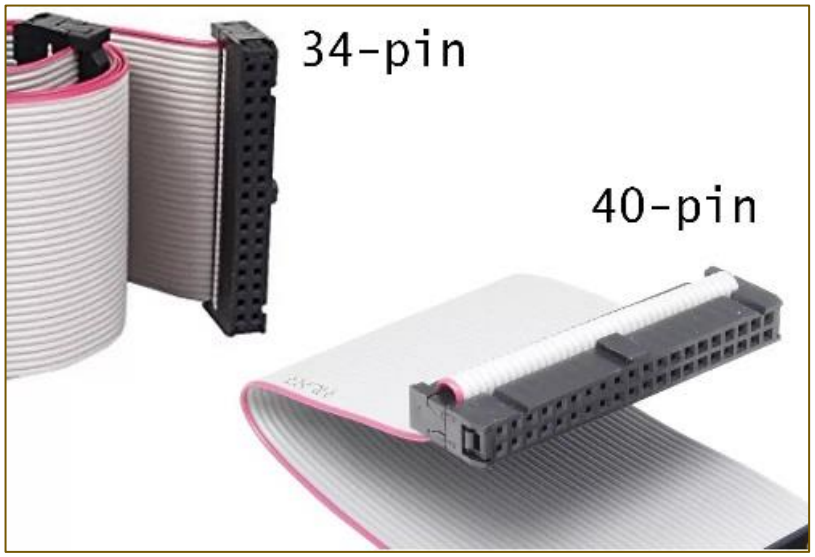
- There are two primary types of connectors found internally: **Socket connectors** and **Power connectors.**
- **Socket connectors** are designed for use with flat ribbon cable, and are generally used to transfer data among devices.
- **Power connectors** are used to supply and distribute power to internal devices inside the computer.



Internal Cables

- Data cables connect drives to the drive controller, which is located on an adapter card or on the motherboard.
- IDE, an acronym for **Integrated Drive Electronics**, is a standard type of connection for storage devices in a computer.
- Generally, IDE refers to the types of cables and ports used to connect some **hard drives** and **optical drives** to each other and to the **motherboard**.

- PATA (IDE) data cable (Parallel).
- PATA (EIDE) data cable.
- SATA data cable (Serial) .



Computer Ports

- External devices are connected to a computer using cables and ports.
- **Ports** are slots on the motherboard into which a cable of external device is plugged in.
- Examples of external devices attached via ports are the mouse, keyboard, monitor, microphone, speakers, etc.

Computer Ports

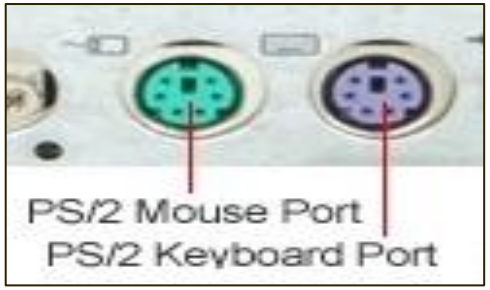
- Let us explain the important port.

1. Serial Port

- Used for external modems and older computer mouse
- Two versions: 9 pin, 25 pin model
- Data travels at 115 kilobits per second

2. Parallel Port

- ✓ Used for scanners and printers
- ✓ Also called printer port
- ✓ 25 pin model



3. PS/2 Port

- ❖ Used for old computer keyboard and mouse
- ❖ Also called mouse port
- ❖ Most of the old computers provide two PS/2 port, each for the mouse and keyboard

Computer Ports

4. Universal Serial Bus (or USB) Port

- It was introduced in 1997.
- Most of the computers provide two USB ports as minimum.
- Data travels at 12 megabits per seconds.

5. VGA Port

- Connects monitor to a computer's video card.
- It has 15 holes.
- Similar to the serial port connector. However, serial port connector has pins, VGA port has holes.

6. Ethernet Port

- Connects to a network and high speed Internet.
- Connects the network cable to a computer.
- Data travels at 10 megabits to 1000 megabits per seconds depending upon the network bandwidth.