In a computer system, the **processor (CPU)** communicates with the system memory (RAM) using three critical buses: the **address bus**, the **data bus**, and the **control bus**. These buses work together to ensure that data is transferred between the CPU and memory efficiently.

**1. Address Bus:**

* **Purpose**: The address bus is used by the CPU to **specify the memory address** it wants to access (read from or write to).
* **Unidirectional**: The address bus is typically **unidirectional**—the CPU places the address of the memory location on the bus, but the data flows only from the CPU to the memory controller, not the other way around.

**2. Data Bus:**

* **Purpose**: The data bus is used to **transfer actual data** between the CPU and memory (or other devices).
* **Bidirectional**: Unlike the address bus, the data bus is **bidirectional**—data can travel in both directions. Data can be sent **from the CPU to memory** (during a write operation) or **from memory to the CPU** (during a read operation).

**3. Control Bus:**

* **Purpose**: The control bus carries **control signals** from the CPU to the memory and other devices to indicate what action is being performed. These signals coordinate the actions between the CPU and the memory, specifying whether to **read** or **write** data and handling the timing of these operations.
* **Bidirectional**: The control bus can be **bidirectional** because it carries signals both from the CPU (for control purposes) and to the CPU (e.g., memory sending a signal back to indicate that the requested data is ready).