GANGOTRI COMPUTER INSTITUTE

A motherboard diagram shows the core components of a computer and how they are connected, including the **CPU socket** for the central processing unit, **RAM slots** for memory, and the **chipset** which manages data flow. Key elements also include the **BIOS chip** (Basic Input/Output System) for startup, **expansion slots** like PCIe for graphics cards, and various **ports and connectors** for peripherals. The diagram illustrates how components like storage (SATA/IDE), power, and I/O devices are linked together by the board's circuits and data buses.

Core Components

- **CPU Socket:** The physical socket where the CPU is installed.
- **RAM Slots:** Sockets where RAM modules are inserted to provide memory for the CPU.
- **Chipset:** A set of integrated circuits that manage the flow of data between the CPU, memory, and peripherals.
    - **Northbridge:** Controls high-speed components like the CPU, RAM, and graphics card.
    - **Southbridge:** Manages lower-speed components, including I/O devices, storage, and expansion slots.
- **BIOS/UEFI Chip:** Stores the firmware that initializes the hardware when the computer boots up.
- **CMOS Battery:** A small battery that provides power to the BIOS/UEFI chip to maintain system settings like the time and date.

Expansion and Connectivity

- **PCIe (Peripheral Component Interconnect Express) Slots:** Used for high-speed expansion cards, most commonly the graphics card.
- **SATA Ports:** Connectors for storage devices like hard drives and SSDs.
- **Power Connectors:** Points where the power supply unit connects to the motherboard to provide electricity.
- **USB Headers:** Internal connectors for front-panel USB ports.
- **I/O Panel:** The external section of the motherboard with ports for connecting peripherals like a mouse, keyboard, and monitor.