

NETWORKING & SYSTEM ADMINISTRATION LAB**Name: ANJIMA C P****Roll No:27****Batch:A****Date:18/03/2022****Experiment No.: 1**

Identify major components of a computer system such as

- Motherboard
- RAM modules
- Daughter cards
- Bus slots
- SMPS
- Internal storage devices
- Interfacing ports

Procedure**Motherboard**

A **motherboard** (also called **mainboard**, main **circuit board**) is the main [printed circuit board](#) (PCB) in general-purpose computers and other expandable systems. It holds and allows communication between many of the crucial electronic components of a system, such as the [central processing unit](#) (CPU) and [memory](#), and provides connectors for other [peripherals](#). Unlike a [backplane](#), a motherboard usually contains significant sub-systems, such as the central processor, the [chipset](#)'s [input/output](#) and memory controllers, [interface](#) connectors, and other components integrated for general use.

Modern motherboards include:

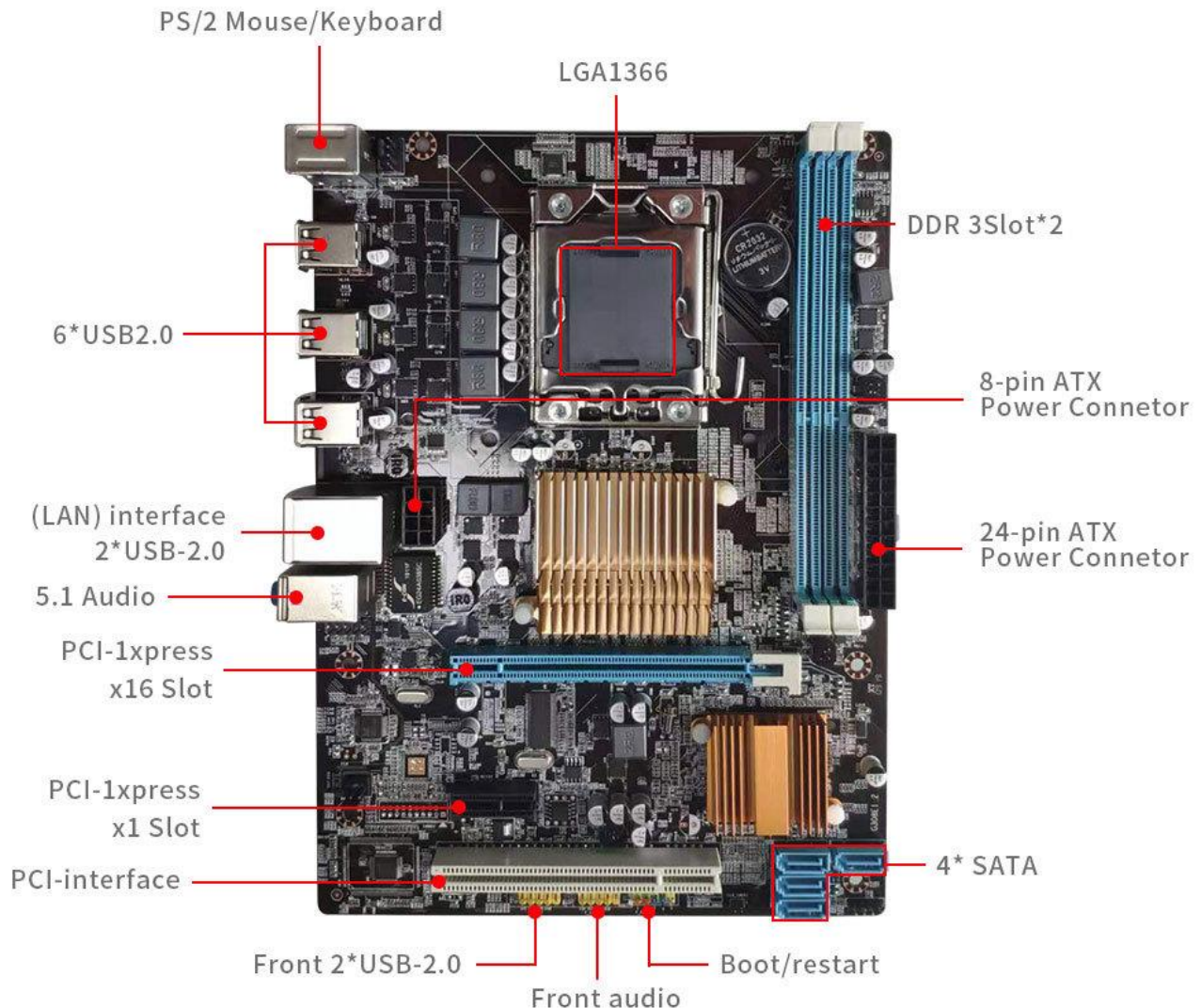
- [CPU sockets](#) (or CPU slots) in which one or more [microprocessors](#) may be installed. In the case of CPUs in [ball grid array](#) packages, such as the [VIA Nano](#) and the [Goldmont Plus](#), the CPU is directly soldered to the motherboard.^[3]
- Memory slots into which the system's main memory is to be installed, typically in the form of [DIMM](#) modules containing [DRAM](#) chips can be [DDR3](#), [DDR4](#) or [DDR5](#)
- The [chipset](#) which forms an interface between the [CPU](#), [main memory](#), and peripheral buses
- [Non-volatile memory](#) chips (usually [Flash ROM](#) in modern motherboards) containing the system's [firmware](#) or [BIOS](#)
- The [clock generator](#) which produces the system [clock signal](#) to synchronize the various components
- Slots for [expansion cards](#) (the interface to the system via the buses supported by the chipset)
- Power connectors, which receive electrical power from the computer [power supply](#) and distribute it to the CPU, chipset, main memory, and expansion cards. As

of 2007, some [graphics cards](#) (e.g. [GeForce 8](#) and [Radeon R600](#)) require more power than the motherboard can provide, and thus dedicated connectors have been introduced to attach them directly to the power supply^[4]

- Connectors for hard disk drives, optical disc drives, or solid-state drives, typically [SATA](#) and [NVMe](#) now

▼ Motherboard

X58 Complete interface



Ram modules

In [computing](#), a **memory module** or **RAM** (**random-access memory**) **stick** is a [printed circuit board](#) on which [memory integrated circuits](#) are mounted. Memory modules permit easy installation and replacement in electronic systems, especially computers such as [personal computers](#), [workstations](#), and [servers](#). The first memory modules were proprietary designs that were specific to a model of computer from a specific manufacturer. Later, memory modules were standardized by organizations such as [JEDEC](#) and could be used in any system designed to use them.

Types of memory module include:

- **TransFlash Memory Module**
- **SIMM**, a single in-line memory module
- **DIMM**, dual in-line memory module
 - **Rambus** memory modules are a subset of DIMMs, but are normally referred to as RIMMs
 - **SO-DIMM**, small outline DIMM, a smaller version of the DIMM, used in laptops

Distinguishing characteristics of computer memory modules include voltage, capacity, speed (i.e., **bit rate**), and **form factor**. For economic reasons, the large (main) memories found in personal computers, workstations, and non-handheld game-consoles (such as PlayStation and Xbox) normally consist of dynamic RAM (DRAM). Other parts of the computer, such as **cache memories** normally use **static RAM (SRAM)**. Small amounts of SRAM are sometimes used in the same package as DRAM. However, since SRAM has high leakage power and low density, **die-stacked** DRAM has recently been used for designing multi-megabyte sized processor caches.

Physically, most DRAM is **packaged** in black epoxy resin.



Daughter card

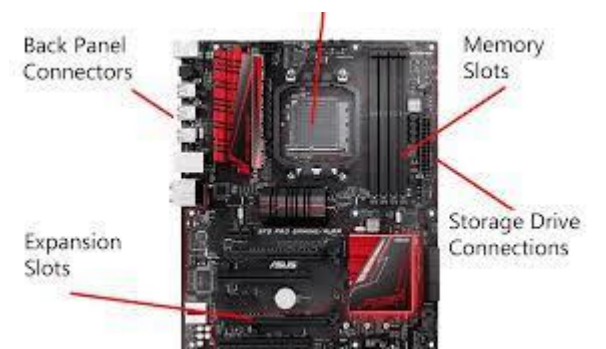
A printed circuit board that plugs into another circuit board (usually the motherboard). A daughtercard is similar to an expansion board, but it accesses the motherboard components (memory and CPU) directly instead of sending data through the slower expansion bus. A daughtercard is also called a daughterboard



Bus slots

Alternatively known as a **bus slot** or **expansion port**, an **expansion slot** is a connection or port inside a computer on the motherboard or riser card. It provides an installation

point for a hardware expansion card to be connected. For example, if you wanted to install a new video card in the computer, you'd purchase a video expansion card and install that card into the compatible expansion slot.



SMPS

A switched-mode power supply (SMPS) is an electronic circuit that converts power using switching devices that are turned on and off at high frequencies, and storage components such as inductors or capacitors to supply power when the switching device is in its non-conduction state.

Switching power supplies have high efficiency and are widely used in a variety of electronic equipment, including computers and other sensitive equipment requiring stable and efficient power supply.

A switched-mode power supply is also known as a switch-mode power supply or switching-mode power supply.



Internal storage devices

Some storage devices are classed as 'internal' which means they are inside the computer case.

Most computers have some form of internal storage. The most common type of internal storage is the hard disk.



At the most basic level, internal storage is needed to hold the operating system so that the computer is able to access the input and output devices.

It will also be used to store the applications software that you use and more than likely, the original copies of your data files.

Internal storage allows the data and applications to be loaded very rapidly into memory, ready for use. The data can be accessed much faster than data which is stored on an external storage device. This is because internal storage devices are connected directly to the motherboard and its data bus whereas external devices are connected through a hardware interface such as USB, which means they are considerably slower to access.

Internal storage also means that if the computer is moved around, it will still retain its most commonly used data.

The main disadvantage of internal storage is that when the hard disk fails (and it will), all the data and applications may be lost.

This can be avoided to some extent by using more than one hard disk within the machine. Each hard disk has a copy of all the data, so if one fails the other can carry on. This is called a RAID array. An alternative is to use external drives for backup

Interfacing ports

A computer port is a connection point or interface between a computer and an external or internal device. Internal ports may connect such devices as hard drives and CD ROM or DVD drives; external ports may connect modems, printers, mice and other devices.

Computer ports have numerous functions and connectors of varying designs. Types of computer ports include:

- **Serial Ports:** These are most commonly used for connections to mice and modems.
- **Parallel Ports:** These are most commonly used for printers.
- **Small Computer System Interface (SCSI) Ports:** These are used to connect printers and up to seven total devices, such as hard disks and tape drives, to the same port; they can support higher data transmission speeds than serial or parallel ports.

- **Universal Serial Bus (USB) Ports:** As the name implies, these can be used to connect many devices including all previously mentioned plus keyboards, scanners, external hard drives, USB drives (also sometimes called thumb drives or portable USB drives), cameras, iphones and many other peripherals and devices.

