

NETWORKING & SYSTEM ADMINISTRATION LAB**Experiment No.: 2****Aim**

Familiarization of Hardware Components in a Computer.

Procedure

Here are some common individual computer hardware components that you'll often find *inside* a modern computer. These parts are almost always found inside the computer case, so you won't see them unless you open the computer:

- Motherboard
- Central Processing Unit (CPU)
- Random Access Memory (RAM)
- Power Supply Unit (PSU)
- Video card
- Hard Disk Drive (HDD)
- Solid-State Drive (SSD)
- Optical disk drive (e.g., BD/DVD/CD drive)

1. Motherboard

The motherboard serves to connect all of the parts of a computer together. The CPU, memory, hard drives, and other ports and expansion cards all connect to the motherboard directly or via cables.

Motherboard Definition

The motherboard is the piece of computer hardware that can be thought of as the "backbone" of the PC, or more appropriately as the "mother" that holds all the pieces together.

Phones, tablets and other small devices have motherboards, too, but they're often called *logic boards* instead. Their components are usually soldered directly onto the board to save space, which means there aren't expansion slots for upgrades like you see in desktop computers.

The IBM Personal Computer that was released in 1981, is considered to be the very first computer motherboard (it was called a "planar" at the time).

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Popular motherboard manufacturers include ASUS, AOpen, Intel, ABIT, MSI, Gigabyte, and Biostar.

2. Central Processing Unit (CPU)



All sorts of devices use a CPU, including desktop, laptop, and tablet computers, smartphones, even your flat-screen television set.

Intel and AMD are the two most popular CPU manufacturers for desktops, laptops, and servers, while Apple, NVIDIA, and Qualcomm are big smartphone and tablet CPU makers.

You may see many different names used to describe the CPU, including processor, computer processor, microprocessor, central processor, and "the brains of the computer."

Computer monitors or hard drives are sometimes *very incorrectly* referred to as the CPU, but those pieces of hardware serve entirely different purposes and are in no way the same thing as the CPU.

3. Random Access Memory (RAM)



Random Access Memory, or RAM (pronounced as *ramm*), is the physical hardware inside a computer that temporarily stores data, serving as the computer's "working" memory.

Additional RAM allows a computer to work with more information at the same time, which usually has a considerable effect on total system performance.

Some popular manufacturers of RAM include Kingston, PNY, Crucial, and CORSAIR.

4. Power Supply Unit (PSU)



The power supply unit is the piece of hardware that converts the power provided from the outlet into usable power for the many parts inside the computer case.

It converts the alternating current from your wall outlet into a continuous form of power called direct current that the computer components require. It also regulates overheating by controlling voltage, which might change automatically or manually depending on the power supply.

The power supply is a crucial piece because, without it, the rest of the internal hardware can't function. Motherboards, cases, and power supplies all come in different sizes called form factors. All three must be compatible to work properly together.

CoolMax, CORSAIR, and Ultra are the most popular PSU makers but most are included with a computer purchase, so you only deal manufacturers when you replace the PSU.

5. Video card



The video card is an expansion card that allows the computer to send graphical information to a video display device such as a monitor, TV, or projector.

Some other names for a video card include *graphics card*, *graphics adapter*, *display adapter*, *video adapter*, *video controller*, and *add-in boards* (AIBs).

A staggering number of companies manufacture video cards, but almost every one includes a graphics processing unit (GPU) from either NVIDIA Corporation or AMD.

A video card is a piece of computer hardware that's rectangular in shape with numerous contacts on the bottom of the card and one or more ports on the side for connection to video displays and other devices.

The video card installs in an expansion slot on the motherboard. While most video cards are of the PCIe format, they come in other formats as well, including PCI and AGP. These additional formats are older standards and don't communicate with the CPU and other components as quickly as PCIe.

In a desktop, since the motherboard, case, and expansion cards are designed with compatibility in mind, the side of the video card fits just outside the back of the case when installed, making its ports (e.g., HDMI, DVI, or VGA) available for use.

6. Hard Disk Drive (HDD)



The hard disk drive is the main, and usually most substantial, data storage hardware device in a computer. The operating system, software titles, and most other files are stored in the hard disk drive.

The hard drive is sometimes referred to as the "C drive" because Microsoft Windows, by default, designates the "C" drive letter to the primary partition on the primary hard drive in a computer.

While this isn't a technically correct term to use, it is still prevalent. For example, some computers have multiple drive letters (e.g., C, D, and E) representing areas across one or more hard drives. The hard disk drive also goes by the name HDD (its abbreviation), hard drive, hard disk, magnetic hard drive, mechanical hard drive, fixed drive, fixed disk, and fixed disk drive.

Regardless of what it's called, the primary hard drive typically contains the root folder of the operating system used.

7. Solid-State Drive (SSD)



Solid state refers to electronic circuitry that is built entirely of semiconductors. The term was originally used to define those electronics, such as a transistor radio that used semiconductors rather than vacuum tubes in its construction.

Most electronics today are built around semiconductors and chips. A solid state drive uses, as its primary storage medium, semiconductors rather than the magnetic platters of a conventional hard drive.

8. Optical disk drive



Optical drives retrieve and/or store data on optical discs like CDs, DVDs, and BDs (Blu-ray discs), any of which hold *much* more information than previously available portable media options like the floppy disk.

The optical drive normally goes by other names like a *disc drive*, *ODD* (abbreviation), *CD drive*, *DVD drive*, or *BD drive*.

Some popular optical disc drive makers include LG, ASUS, Memorex, and NEC. In fact, one of these companies probably manufactured your computer or other device's optical drive, even though you never see their name anywhere on the drive itself.