NETWORKING & SYSTEM ADMINISTRATION LAB

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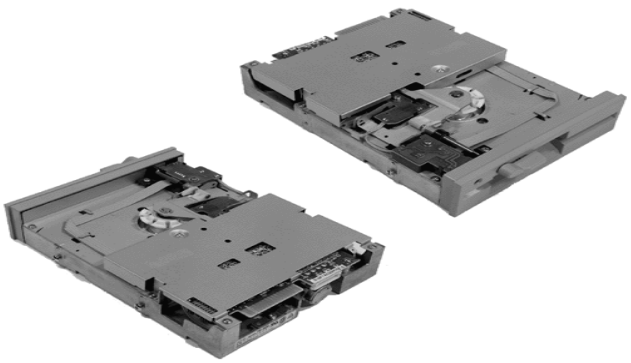
Aim

Familiarization of Hardware Components.

Componnts

1. **Complementary Metal Oxide Semiconductors (CMOS)**
   - CMOS really describes a chip technology that uses low power.
   - This technology was originally employed in the PC AT to store hardware configuration information in a non-volatile battery-powered memory chip
   - A three- or six-volt lithium battery powered the CMOS memory chip
   - CMOS technology is used in chips in almost all PCs to reduce power consumption

2. **5.25-Inch Floppy Drives**
   - The original PC disk drives stored 160 KB of data on a single-sided 5.25-inch disk
   - The total capacity then was (40 tracks) x (8 sectors) x (.5 KB), equaling 160 KB total capacity
   - The disks came in a plastic holder that provided the necessary mechanical support for inserting them into and removing them from the floppy disk drive
   - A paper sleeve protected the floppy media by covering the read-write window of the diskette.



3. Sound Cards

- the capability to create and record sound
- The original PC sound cards represented sounds with 8 bits of data. This did not give the best sound representation
- Sound cards soon evolved to 16-bit, 32-bit, 64-bit, and 128-bit capabilities.
- Typically, they have input jacks for microphone input, auxiliary input, and audio input that permit recording sounds at sampling rates varying from 5 kHz to 48 kHz
- Output jacks are provided for line output, rear speaker output (on three-dimensional soundcards), and amplified output.

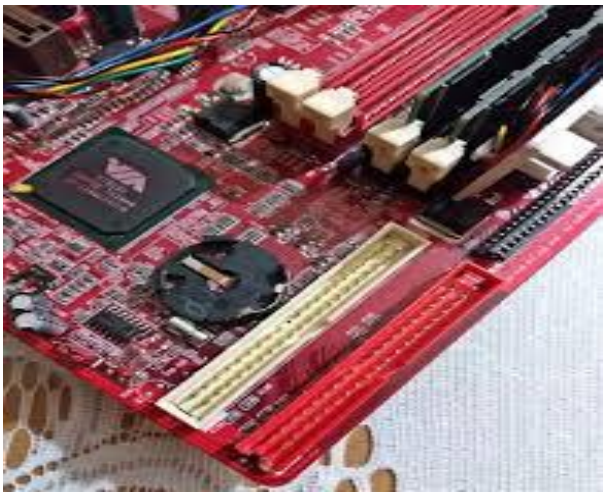
4. LAN Adapters

- A LAN provides an easy mechanism for sharing disk drives and exchanging data between PCs
- LAN connections bring high-speed Internet connectivity to the home
- The bad news with LANs is that, when problems occur, the PC looks like it was frozen using liquid nitrogen. Because the PC's operating system gives high priority to communication activities, it can become locked when the communications software connections disappear
- A LAN connection requires a LAN card in the PC, cabling to other PCs with LAN cards, and networking software installed in all interconnected PCs
- LAN cards are referred to as Network Interface Cards (NICs)
- Cable modems and Digital Subscriber Lines (DSL) connect into PCs using Ethernet LAN adapter cards
- LANs implement the electrical signaling on the LAN wiring and facilitate data transfer between equivalent NICs

5. **Hard Disk Drives (HDDs)**
   - rely on a spinning magnetic disk to read and write data
   - The speed this disk spins (and therefore, the speed we read/write data) is measured in Revolutions Per Minute (RPM)
   - HDDs are an inexpensive way to store large amounts of data.
   - It is a secondary storage device used to store data permanently

6. **Solid-State Drives (SSDs)**
   - a faster alternative to HDDs that use flash memory chips to store data
   - Since they do not rely on moving parts, they are faster, consume less power, and are more resiliant than their HDD counterpart
   - they are more expensive than HDDs and have a finite (limited) amount of times data can be written to them.
   - With an SSD, the device's operating system will boot up more rapidly, programs will load quicker and files can be saved faster.

7. **PATA/IDE**
   - a legacy technology that uses a large "ribbon style" connector
   - It is very slow by modern standards.
   - The connections for PATA devices were originally made using 40-conductor ribbon cables
   - PATA cables are only practical for use with internal drives



8. Random Access Memory(RAM)

- Random Access Memory (RAM) is your system's short-term data storage
- RAM stores the information your computer is actively using so that it can be accessed quickly
- It allows your computer to perform many of its everyday tasks, such as loading applications, browsing the internet, editing a spreadsheet, or experiencing the latest game
- The computer memory RAM is used to store any types of data for a short time. It means RAM memory is used for short-term data

9. Power Supply Unit(PSU)

- Power Supply Unit(PSU) converts the power provided from the outlet into usable power for the many parts inside the computer case
- It converts mains AC to low-voltage regulated DC power for the internal components of a computer
- Some power supplies have a manual switch for selecting input voltage, while others automatically adapt to the mains voltage

10. Motherboard

- It connects the CPU, memory, hard drives, optical drives, video card, sound card, and other ports and expansion cards directly or via cables
- It can be considered as the backbone of a computer.
- Motherboard supports a single type of CPU and few types of memories
- It provides a single socket for CPU, whereas for memory, normally one or more slots are available
- Motherboards provide ports to attach the floppy drive, hard drive, and optical drives via ribbon cables.
- Motherboard carries fans and a special port designed for power supply
- On the left side, motherboards carry a number of ports to connect the monitor, printer, mouse, keyboard, speaker, and network cables
- Motherboards also provide USB ports, which allow compatible devices to be connected in plug-in/plug-out fashion

11. Cooling Fan

- All the computer power generates heat, though – enough to disable the delicate electronics. A CPU cooling fan is necessary to dissipate that heat, and maintaining your computers' cooling systems can increase their lives and reduce the chance of damage to important business systems
- The basic thermodynamic principle behind CPU cooling is convection
- A hot object transfers some of that heat to the air molecules near its surface, cooling slightly in the process. If the air is moving, then these heated molecules will float away, allowing cooler air to replace them and absorb more heat
- Using a fan forces the air to move, providing a constant stream of cooler air to absorb heat from the object and significantly increasing the rate of cooling