

## Practical 3

**AIM:-** To prepare flow to computer start up procedures.

### Procedure:

- The startup sequence**
- From the moment you press the power button, a whirlwind of tasks happen inside your computer.
- Let's have a look at each of the components and systems that work together to start up your computer.

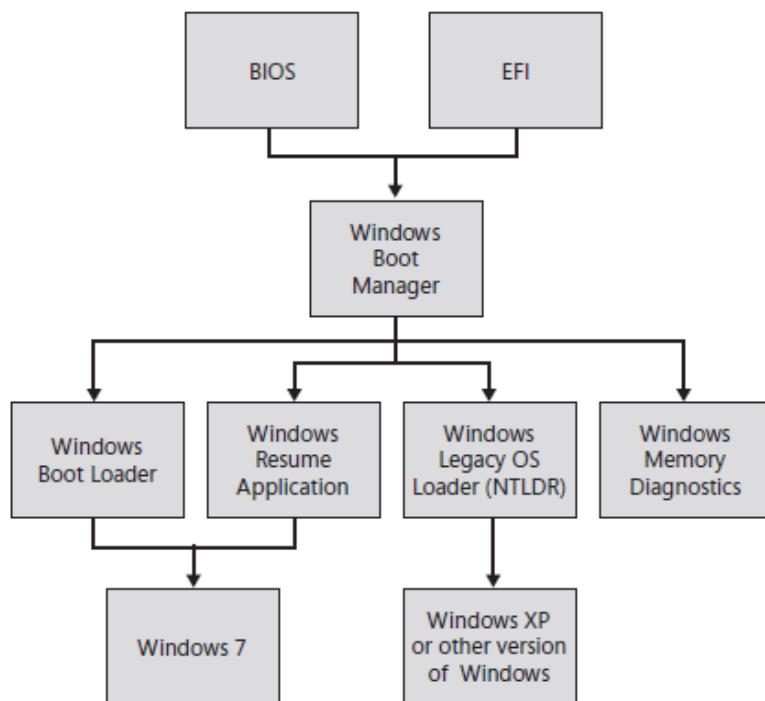


FIGURE 3.1 THE STARTUP SEQUENCE

**CPU:-**

- The CPU, or central processing unit, is a large chip inside the computer.
- This is the brains of the computer: it controls everything.
- It works by reading instructions and data from the random access memory (RAM), performing an instruction, and then writing the data back to RAM.
- Some of the instructions may involve other components like the hard drive, but the CPU is in control.



FIGURE 3.2 CPU

 **RAM:-**

RAM temporarily stores data while your computer is running.

- RAM is both readable and writable. You can add, change, and delete data stored in RAM.
- It is volatile. When the computer is switched off, all the data stored in RAM is lost.
- It is fast.



FIGURE 3.3 RAM

**ROM:-**

- ROM stands for read-only memory. It is a chip containing data installed by the manufacturer that is not typically replaced or upgraded. It stores the BIOS.
- ROM is read-only. It is usually programmed by the computer manufacturer, and cannot be changed or overwritten. (There is a process for overwriting the ROM, called “flashing” it, but it’s difficult and can lead to a completely broken and unrecoverable computer.)
- ROM is non-volatile memory, which means it does not need power to keep the data inside it.
- It is fast.



FIGURE 3.4 ROM

**Hard Disk Drive:-**

- The hard drive (sometimes called the hard disk) is the main storage device in your computer.
- Like RAM, it can be added to and changed, and like ROM it is non-volatile, but it is slow.
- If you have files and folders on your computer, are stored on the hard drive.
- The operating system is also stored on the hard drive.



FIGURE 3.5 HARD DISK DRIVE

**BIOS:-**

- BIOS stands for Basic Input Output System.
- The BIOS is stored in the ROM. It contains all the basic code for controlling your computer hardware (such as keyboards, mice, monitors and hard drives).
- After the startup sequence is complete, and control has gone to the operating system, the BIOS does very little.
- When you start up your computer, you may see a black screen displaying “Press F2 for Setup”. This is the BIOS.
- By pressing F2, you enter a setup screen where you can change where the BIOS loads the operating system from.
- The operating system is normally stored on the hard drive, but you can load an operating system from a USB drive or a CD instead.

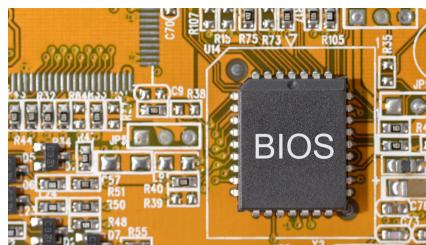


FIGURE 3.6 BIOS

**Startup sequence:-**

So, how are these components used in the startup sequence?

- The CPU starts and fetches instructions into RAM from the BIOS, which is stored in the ROM.
- The BIOS starts the monitor and keyboard, and does some basic checks to make sure the computer is working properly. For example, it will look for the RAM.
- The BIOS then starts the boot sequence. It will look for the operating system.
- If you don't change any of the settings, the BIOS will fetch the operating system from the hard drive and load it into the RAM.
- The BIOS then transfers control to the operating system.

That's a lot of information and acronyms!

Hopefully, this step has helped you understand what happens underneath the bonnet of a computer when you turn it on. Once you know this sequence, you can create some really fun lesson plans based on it...