# BOOTING PROCESS

It is the process which is initiated once the computer system starts and executes small set of instruction present in the ROM which will set up system hardware by testing them and load the operating system so that computer system can carry out further task.

## **Initiating the boot process**

The boot process focuses on successful running both hardware and software.

This is controlled by BIOS or software stored on flash memory chip found in the motherboard that enables information to be processed through the computers input and output system.

When a computer is powered on, the only thing it can do is read ROM or nonvolatile memory that is used for permanent storage making the computer function slower.

Loading of bios simply means more set of instruction present on the rom is loaded into the computer memory and the CPU executes those instructions. The POST means checking all the hardware by the help of BIOS ensuring there is no problem. If there is an issue, there would be a feedback either by paused beeping or by pause on the screen of the computer. The next stop would be loading of the operating system, system configuration is accomplished, system utilities are loaded and user authentication goes on and on.

BIOS is a lightweight it will just load the bootloader which can load the complex set of libraries required for loading the operating system.

Bios cannot directly load the heavy weighted set of instruction responsible for loading the operating system. The purpose of BIOS is just to check whether the hardware is working well.

When you turn on the computer a wide array of process and task occur in the brief span of time before the desktop appears. This routine is referred to as the computer booting precess and is critical to ensure that the computer functions efficiently.

It is possible to breakdown the booting process using highly detailed analytical methodology.

During POST, each device included on the boot list loads its own unique BIOS. During this process the hardware being rooted communicates directly with the mother board. The bios process can be thought of as paving roads between various destination within the computer.

## **Power On Self-Test (POST)**

After the power is activated the pc moves onto the post stage. This is a small computer program within the BIOS used to evaluate hardware and ensure that this physical parts are not experiencing any setbacks. Post can easily detect problem from all the hardware components including the processor or the central processing unit, monitor, power supply, hard drive motherboard, Ram memory modules video card system fan.

The booting process consist of steps which include putting the power on. It only step which is initiated by the computer user and enebles the supply of power to the internal hardware the computer from an external source. When the power reaches the CPU the code found inside the RAM is executed and the booting process is officially launched both the ROM and the CPU are located on the motherboard. The mother board acts as the interphase between the computer power supply and the computer hardware.

The CPU cannot function without electricity.

The POST is a specific routine initiated immediately after the power is on. It is designed to ensure all internal hardware is fully operational and capable of continuation of the boot process.

In the event that the process fails the OS can never be loaded.

If POST process is not successful, the computer cannot process step.

## **Visual Display of Boot process.**

If no errors have been detected in the computer thus far, it will show specific detail pertaining to the boot process on the monitor. The information consist of the manufacturer and revision of the of the BIOS.

BIOS software, processor specs, the drives detected and the mount RAM or volatile memory used for temporary storage that reads and writes data making the computer acts faster.

## **Regulating a boot Device.**

The BIOS software is virtually used throughout the entire process and has continued to cause the pc to respond in a particular way. The following software is important as it regulates communication that that is processed between deferent components of the computer. BIOS also regulates how different hardware respond to one another.

It attempts to access the first available storage address in the first setor of the bootdisk or hard disk that runs the operating system. The storage address are typically ordered chronologically and are accessed in the particular sequence that is used.

## THE BOOT LOADER

The boot manager is a small program that places the operating system of a computer into a memory or RAM. It focuses on loading starting the boot time task and processes found within the operating system. After the BIOS software identifies a particular storage address in the boot disk, it will apply the boot loader.

After the BIOS has completed the BIOS is ready to begin launching the operating system. An OS is a software abbreviation that provides a platform for the computer’s most fundamental and basic functions. It is impossible for majority of users to interact with hardware without an OS. The next step for the bios is the loading of the operating system. BIOS is responsible for transferring the OS into the computer RAM for its original storage and the hardware.

Regardless of the OS the computer uses the process of launching within the context of a computer relatively similar.

## **Transferring of control**

Once the bootloader has successfully placed the PC into memory, the operating system seizes control from the boot process. The operating system will finalize any remaining task left such as executing pre-configured startup routines. The moment that there are no more task to be completed, a visual with content will be displayed on the monitor. The antiviruses are not started during the coastal imaging. After the OS takes over other utilities take control.

## **CMOS**

Also referred to as volatile RAM. Complementary Metal Oxides (CMOS) it is an onboard battery powered semi-conductor chip inside computers that stores information. This information ranges from system time to the system hardware setting of a computer.

## Types of Booting

The booting process of switching on a computer can be divided into the following process;

1. Cold booting – when the user switches on a computer after it has been powered off completely.
2. Warm booting - when the user restarts the computer it is also referred to as the soft boot.