

**Bootstrap:**

Normally, when we turn on our computer or reboot it, it simply needs an initial program to run. This initial program is called the bootstrap. So, this program must initialize all the aspects of the system like from CPU registers to device controllers and the contents of main memory, and finally the OS.

To do this job the bootstrap program basically finds the operating system kernel on disk and then loads the kernel into memory and after this, it jumps to the initial address to begin the operating-system execution.

**Why bootstrap is stored in Read-only Memory ROM?**

For most of today's computer bootstrap is stored in Read Only Memory (ROM).

1. This location is good for storage because this place doesn't require initialization and moreover location here is fixed so that processor can start executing when powered up or reset.
2. ROM is basically read-only memory and hence it cannot be affected by the computer virus.
3. ROM is faster to access than other types of memory, such as hard drives or network storage, as it is stored directly on the motherboard of the computer. This can improve the performance of the system.

**Master Boot Record:**

The **MBR (Master Boot Record)** is a small but critical section of a storage device (like a hard drive or SSD) used to manage how the operating system and files are stored and accessed. It is located at the very first sector of a storage device which is also called boot sector and has the following functions:

**Functions of the MBR:**

1. **Boot Loader:**
  - The MBR contains the boot loader, a small program responsible for starting the operating system. It loads the OS from the partition marked as bootable.
2. **Partition Table:**
  - It stores information about the partitions on the disk, such as their size and location, which helps the OS manage and access the partitions.
3. **Disk Signature:**
  - It includes a unique identifier for the disk, used to differentiate it from other drives in the system.