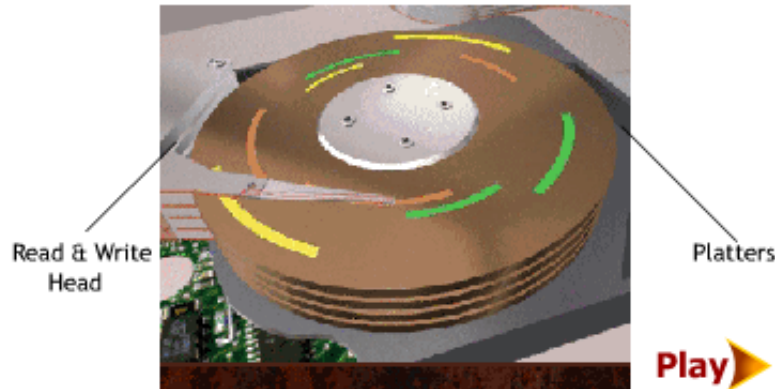


Magnetic Hard Disk

A Hard Disk is the major device used by the computer to save the software or the Information inside the computer. The data is stored permanently. It acts as a memory, i.e. it remembers what you want it to, and it can give it back when you need it. A hard drive is the most common mass storage device. Hard Disks are the most common storage device of the present day Microcomputers. It is also called as the Winchester Disk or even Fixed Disk Drive.

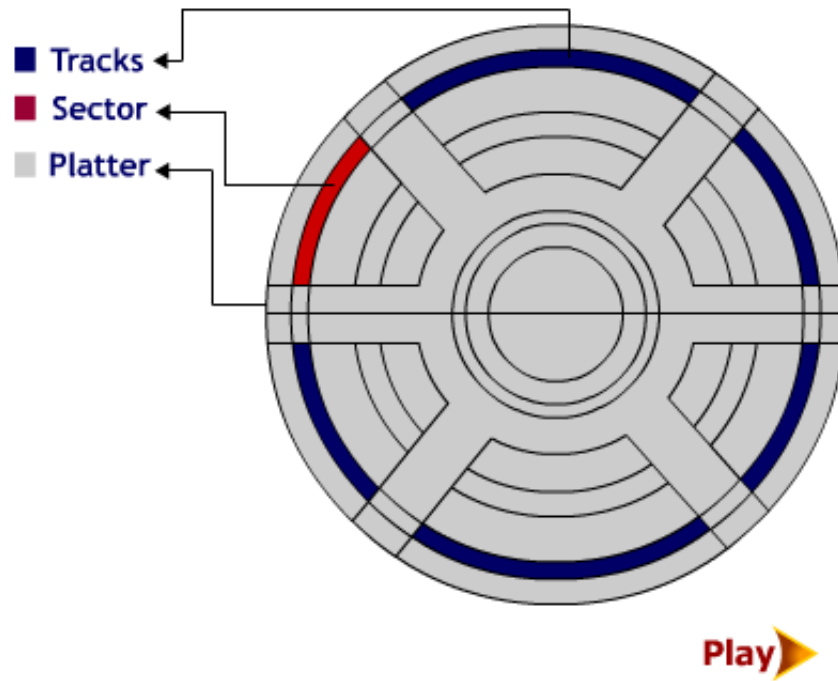


Components of Hard Disk

Magnetic Hard Disks are smooth metal Plates coated on both sides with a thin film of Magnetic material. It uses electromagnets to store data. Negative and positive charges represent the 0s and 1s, of the binary code. A set of such magnetic plates are fixed to a spindle one below the other to make up a disk pack. The Disk pack is mounted on a disk drive.

Platter

A Platter is one of the circular individual metal data storage disks within a hard disk drive. The information is recorded on the rotating disks by magnetic heads. The surface of the disks' magnetic head is used to store the information. The read and write heads read from and write to the disk. The Platters and the read/write heads are enclosed in the airtight sealed case. You can always read and write over data that is already present in it. The information will stay on the disk until it is written over. Remember never to put magnets near the computer.



Tracks

The band of Information is called as Tracks.

Sectors

The Tracks on the disk surface are divided into invisible segments known as Sectors. Sector is a subdivision of a track on a magnetic disk. The computer records data on the disk one sector at a time. the sector is actually the smallest addressable portion of the Track; each sector has a unique address that contains the Track location and the sector number.

Size and Capacity

The Hard Disk's **Size** depends upon the disk platter's diameter. There are many different platter sizes, such as:- 5 ½, 3 ½, 2 ½ inch etc. The 3 ½ inch size Platter is common with PCs and 2 ½ inch with Laptop or Portable computers.

The number of bytes or characters it can hold measures the **Capacity** of Hard disk. It can store huge amount of data and the capacity ranges from 20 Megabytes to 2.1 - 4.1 gigabytes are now-a-days a common part of Pentium Computers. An average RPM (Rotations Per Minute) of 3,600 leads to the faster access of data.

To connect a hard disk to a microcomputer, a hard disk controller card must be installed on the motherboard. This card includes circuitry that serves as an interface between the motherboard and the hard disk.

Note:- *It is possible to have more than one hard disk inside your computer. In this case the main disk is called **Master**, and the second is called **Slave**.*

Functioning

When the computer starts up, it uses the BIOS to identify the hard drive. It then searches the boot block, the first section of the hard drive, which contains the initial start up files for the operating system. The operating system then works with the controller to send and to receive data from the

drive. It uses an individual address for each piece of data.

The hard drive is constantly moving. As soon as the computer is turned on, the platter begins turning at thousands of rotations per minute (rpm).

When the computer is turned off, it needs to be shut down correctly. This is done using the computer's shut down features, to store any data remaining in memory. Otherwise, the hard drive will stop immediately, and will therefore be at risk for not functioning. This can cause the hard drive to deteriorate faster, or the heads to crash into the platters.

The data to be stored is moved from RAM with the software signals to the hard disk. The Hard Disk circuits translate the data into voltage fluctuations, which in turn controls disks moving parts. Some of the moving parts control the motor that spins metal-coated Platters. The other signals received, move the Read/Write head, to read or write data on to the Platters. All these magnetic disks store data instructions and information.