



## Lecture 5

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تقنيات وتركيب الحاسوب – المرحلة الاولى



# Memory System

Auxiliary storage devices are also useful in transferring data or programs from one computer to another.

They also function as backup devices which allows backup of the valuable information that we are working on. So, even if by some accident our computer crashes and the data in it is in unrecoverable mode, we can restore it from your backups.

The most common types of auxiliary storage devices are floppy disks, hard disks, magnetic tapes and magnetic disks.

# Memory System

## *Sequential and Random Auxiliary Storage Devices*

*Based on the type of data access, sequential and random, auxiliary storage devices can be classified as sequential access media and random media.*

*In case of sequential access media, data stored in media can only be read in sequence.*

*To get to a particular point on media, we have to go through all the preceding points. Magnetic tapes are examples of sequential access media.*

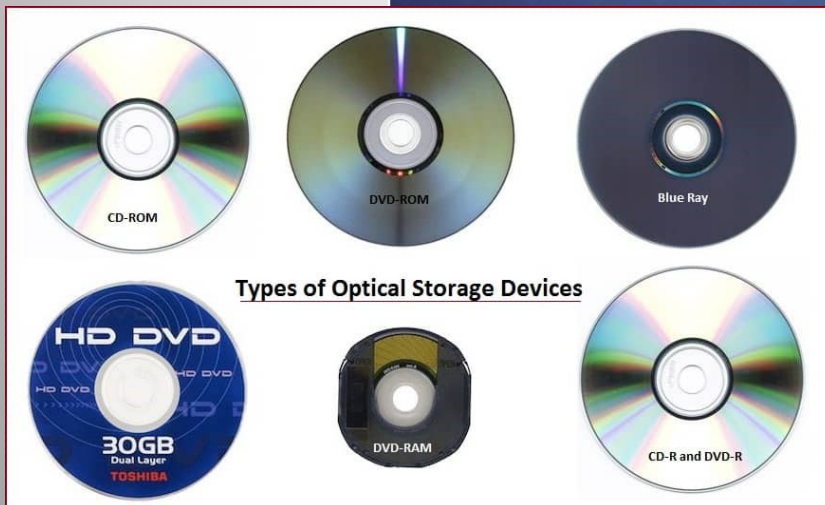
*In contrast, disks are random access media, also called direct access media, because a disk drive can access any point at random without passing through intervening points. Other examples of direct access media are magnetic disks, optical disks, etc.*

# Memory System



**Magnetic Tapes - Sequential Storage Devices**

# Memory System



*Random Auxiliary  
Storage Devices*

# Memory System

## Floppy Disk

Floppy disk is a soft magnetic disk. It is called floppy because it flops if we wave it. The data on the floppy disk is organized in terms of tracks and sectors.

Unlike most of the hard disks, floppy disks are portable because these can be removed from a disk drive.

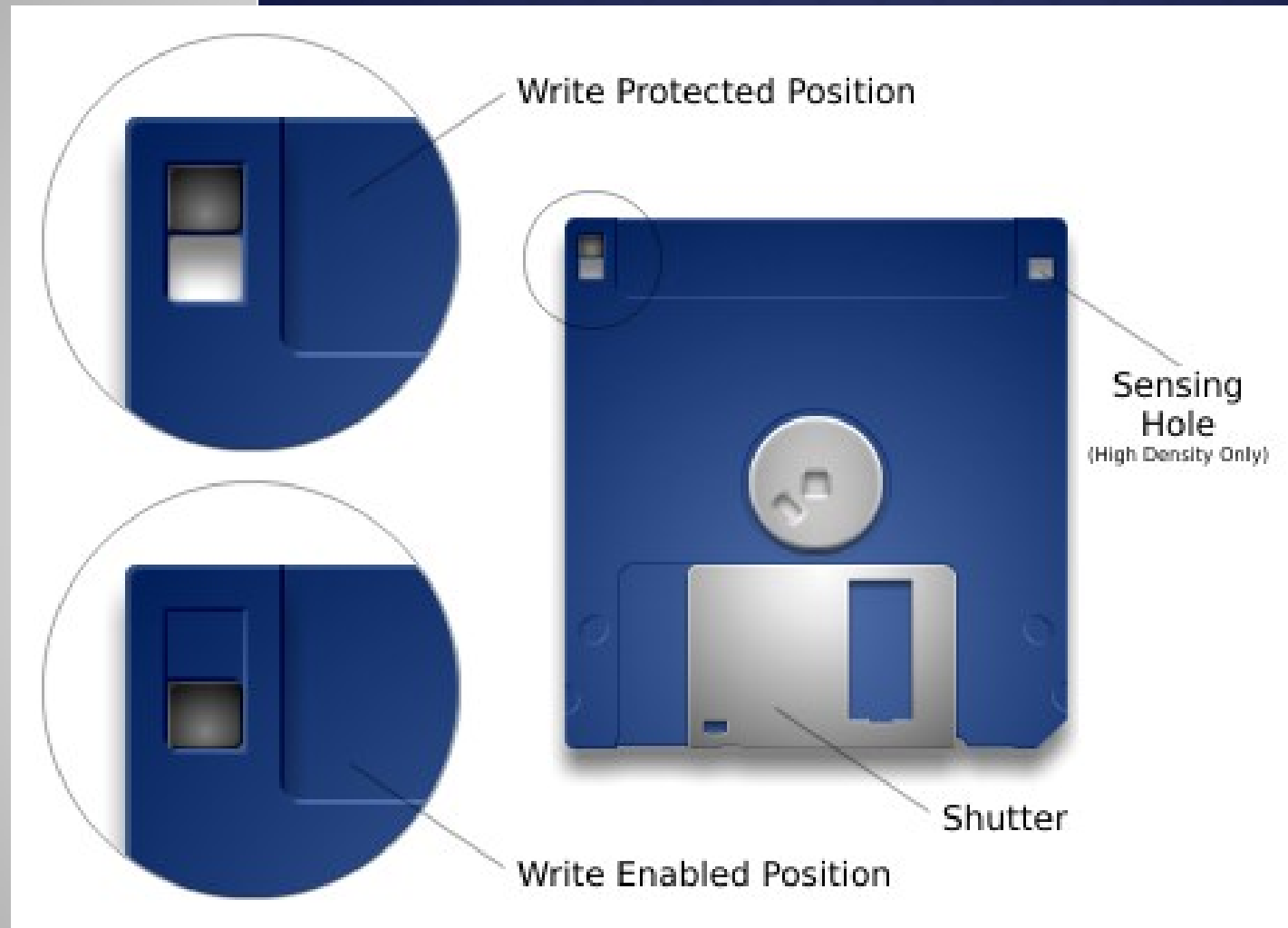
for floppy disks are called floppy drives. Floppy disks are slower to access than hard disks and have less storage capacity but are less expensive and are portable.

There are two basic sizes of a floppy, namely  $5\frac{1}{4}$  inch and  $3\frac{1}{2}$  inch.

$5\frac{1}{4}$  inch : This type of floppy is generally capable of storing between 100K and 1.2MB of data. The most common sizes are 360K and 1.2MB.

$3\frac{1}{2}$  inch : Despite their small size, these floppies have a large storage capacity than their cousins - from 400K to 1.4MB of data.

# Memory System



# Memory System

## Optical Disk

An optical disc is an electronic data storage medium that can be written to and read using a low-powered laser beam. Optical disk can store much more data, i.e. up to 6 GB. There are three basic types of optical disks namely, CD-ROM, WORM and Erasable.

**CD-ROM :** Like audio CDs, CD-ROMs come with data already encoded onto them. The data is permanent and can be read any number of times but CD-ROMs cannot be modified.



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## WORM :

This term stands for “Write Once, Read Many” with a WORM disk drive. One can write data only once onto a WORM disk. After that, the disk behaves just like a CD-ROM.

## Erasable :

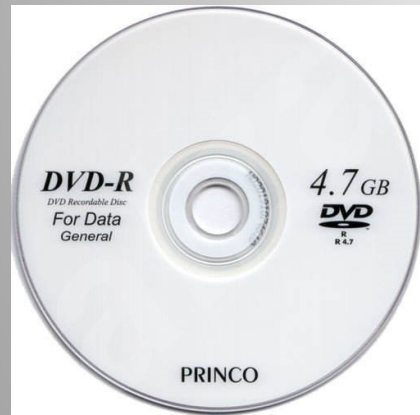
Optical disks that can be erased and loaded with new data are just like magnetic disks. These are often referred to as EO (Erasable Optical) disks.

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## CD-ROM

CD-ROM stands for “Compact Disc Read Only Memory”, and CD-ROM comes in the “Random Access” category’s devices. These types of disc can capable to store almost 800 MB of digital data. These data can’t discard by mistaken.



## DVD-ROM

DVD-ROM stands for “Digital Versatile Disc - Read Only Memory”, and it also comes in the “Random Access” category’s devices. DVD-ROM discs can store data up to 4.7 GB, but Dual Layer DVD device’s storage capacity is double. These types of disc are used to store ultra quality video.

# Memory System



## Blue Ray

Blue Ray discs are totally replaced by DVDs, because these discs are capable to hold data up to 25-50 GB, as well as double layer Blue Rays discs can store double data. Due to high storage capacity, Blue Ray discs are used to store HD (High Definition) videos.



## HD DVD

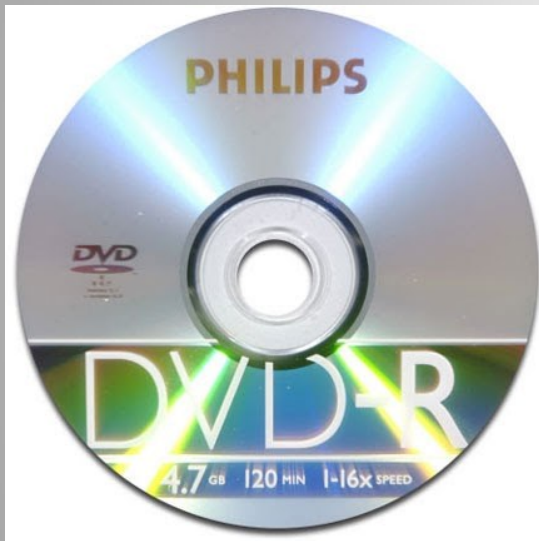
HD DVD stands for “High Density DVD”, and these devices are capable to store data up to 15 GB (Dual Layer HD DVDS have [storage capacity](#) double). High-Density DVD discs are also used to hold HD Videos.

# Memory System

## DVD-RAM

DVD-RAM stands for “DVD-Random Access Memory”, and it is able to Re-Write data. DVD-RAM are available in market like as floppy-disc style case. These types of discs have storage capacity of data similar to DVD (up to 4.7 GB).

DVD-RAM devices are used in several Camcorders such as “Video Recording Cameras”, and it can be used for data back-up and archiving.



# Memory System

## Recordable Optical Devices

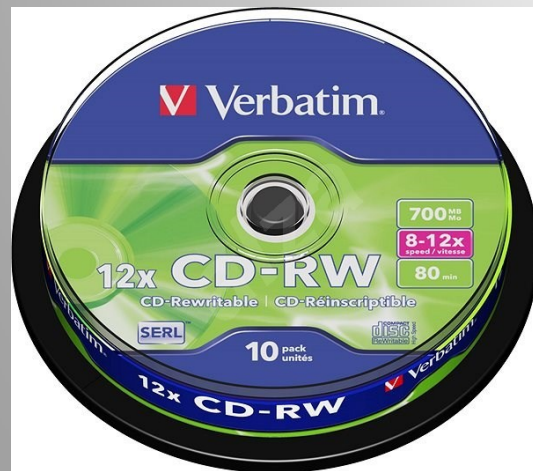
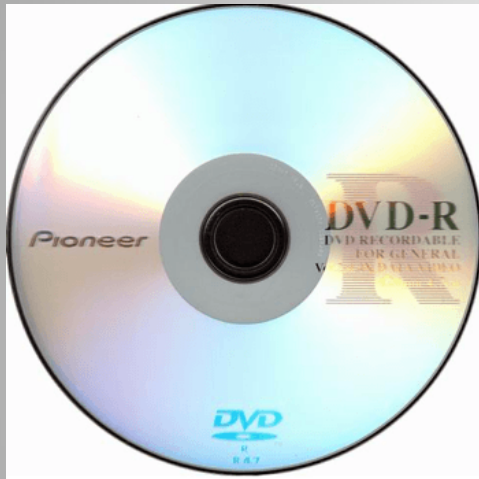
There are two types of discs such as “CD-R and DVD-R” and “CD-RW and DVD-RW”.

### CD-R & DVD-R

Full form of (CD-R & DVD-R) is “CD-Recordable and DVD Recordable”, and they are able to burn data on to them, but not easy to delete data. Users can add any type of data, but they can't discard added data or re-use fully disc.

### CD-RW & DVD-RW

CD-RW & DVD-RW stands for “CD-Re Writable and DVD-Re Writable”, and they are capable to burn data similar (CD-R and DVD-R) onto them. Users can also delete and Re-Used data.



# Memory System

## Advantages of Optical Storage Devices

It is capable to store vast amount of data.

Affordable price

It can be recycled (Re-used).

It has ultra data stability.

Countable/uncountable storage units

Best Durability, Transport-ability, and archiving.

## Disadvantages Optical Storage Devices

Some traditional PCs are not able to read these disks.

It is getting trouble while recycling.

# Memory System

## Hard Disk

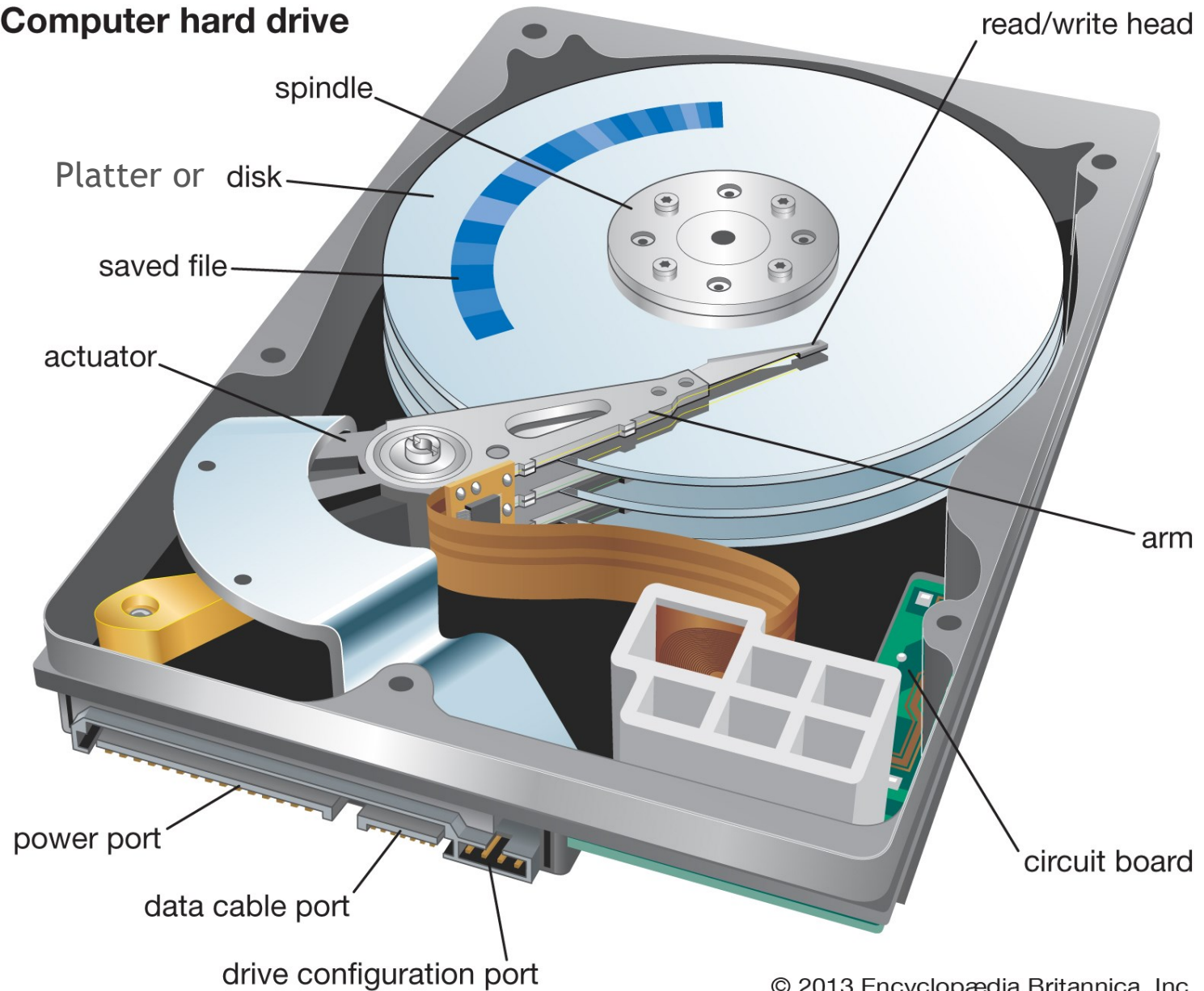
Hard disk is a magnetic disk on which computer data can be stored. Hard disks hold more data and are faster than floppy disks.

A single hard disk usually consists of several platters. Each platter requires two read/write heads, one for each side.

All the read/write heads are attached to a single access arm so that they cannot move independently. Each platter has the same number of tracks. A track location that cuts across all platters is called a cylinder. For example, a typical 84 MB hard disk for a PC might have two platters (four sides) and 1,053 cylinders.

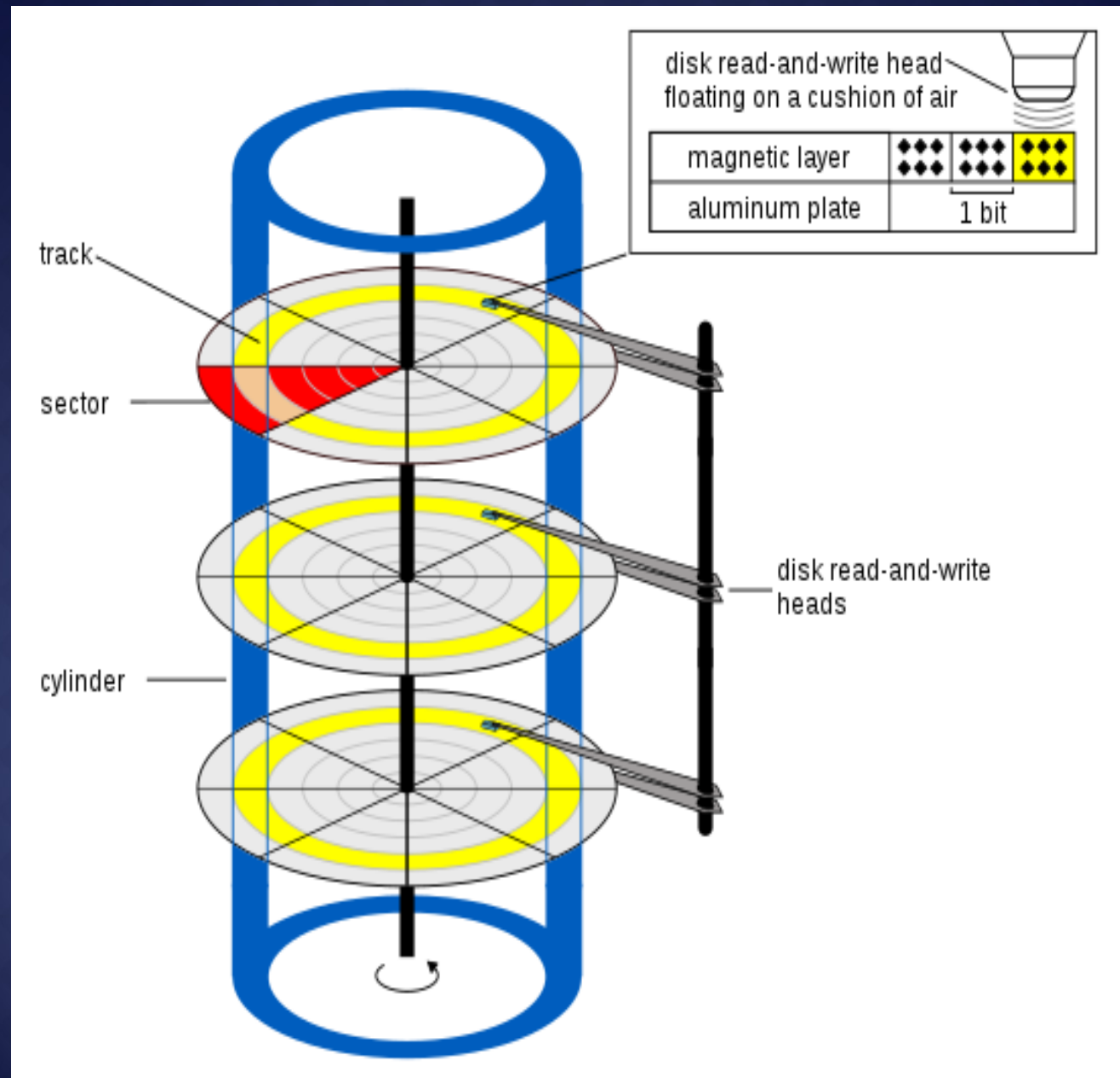
# Memory System

## Computer hard drive





# Memory System



# CD - DVD Drivers For Laptop



# USB CD Drivers External



# CD Drivers For Desktop



# CD Drivers For Desktop

