

# MAGNETIC STORAGE



MINISTERSTVO ŠKOLSTVÍ,  
MLÁDEŽE A TĚLOVÝCHOVY



OP Vzdělávání  
pro konkurenceschopnost

INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

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Magnetic storage devices store data by magnetizing particles on a disc or tape.

## **A Floppy Disc**

- Floppy discs are a type of storage media now thought to be obsolete. They are so named because the actual disk inside consisted of a thin plastic disk which was very floppy.
- The two most common types of floppy disks are 5.25 inch and 3.5 inch disks. Both have very small storage capacities by today's standards as well as slow data transfer speeds.

- As a result they are not used much anymore, and most new computers are not equipped with floppy disk drives.
- A floppy disc consists of a flexible sheet of plastic, coated with iron oxide – a magnetisable material. A floppy disc drive spins at 360 revolutions per minute (rpm), so it is relatively slow.



# A hard drive and a hard disk

- Technically, hard drives and hard disks are not the same.
- Hard drives consist of hard platters, the hard disk reader and writer head, the hard drive motor and the drive electronic.
- A hard disk is the storage medium itself.



- The hard drive was invented in mid-20<sup>th</sup> century. Its earliest versions were mainly used in computers and could only store around five megabytes of data. Now hard drives have applications in photography, videography and mobile computing and a hard drive that can store up to 1 terabyte or 1024 GB was developed.

## **Data storage mechanism**

- A hard drive spins at over 7,200 rpm and stores data on a stack of metal rotating disks called platters. The magnetic surface of hard platters in a hard drive is formatted into tracks (concentric circles) and sectors (parts of individual tracks) which can hold a fixed number of bytes.

- When data needs to be recorded, the hard disk platters rotate at great speeds and passes underneath the hard drive read/write head. The magnetic head produces a magnetic field which magnetizes the corresponding region where data is supposed to be stored. The average time required for the read/write head to move and find data is called seek time or access time. It is measured in milliseconds, most hard drives have a seek time of 7 to 10 milliseconds.

## **S.M.A.R.T.**

- Hard disks are equipped with a monitoring system called S.M.A.R.T. (self-monitoring, analysis and reporting technology). The aim of this system is to detect and report on various indicators of possible HD failures. Due to this technology, the administrator or PC user can predict possible hard disk failure and back up data in advance.



## **A portable external hard drive**

- External hard drives are connected to the USB or fire Wire port of the computer. They can be as small as a wallet but can have as much capacity as internal drives. They are typically used for backup or as secondary storage.



# Magnetic tapes and drive

- A tape drive reads and writes data on tapes. It is sequential-access, i. e. to get to a particular point on the tape; it must go through all the preceding points. Tapes can hold hundreds of gigabytes of data and are used for data collection, backup and archiving.



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