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medium (pi. media) — носитель; среда

capacity — емкость, объем (памяти); пропускная способность

media capacity — емкость носителя

data access time — время доступа к данным

per bit — на единицу информации

to transfer — передавать(ся), переносить(ся), пересылать(ся)

archival storage — архивное ЗУ, архивная память

to depend — зависеть, полагаться, рассчитывать на

to rotate — вращать(ся); чередовать(ся), сменять(ся)

reason — причина, основание, довод; обосновывать, делать вывод

solid-state device — твердотельный прибор

magnetic core — магнитный сердечник

bipolar semiconductor — биполярный полупроводник

metal-oxide semiconductor (MOS) — структура металл — оксид —

полупроводник

randomly — произвольно

random-access memory (RAM) — оперативное запоминающее

устройство (ОЗУ)

sound recording — звукозапись

to arrange — размещать, располагать, устанавливать, монтировать

tape device — ЗУ на магнитной ленте

to range — классифицировать, располагать в порядке; лежать

в диапазоне

magnetic disk storage — ЗУ на магнитном диске

moving-head device — устройство с двигающейся головкой

predominant — преобладающий, доминирующий

flexible — гибкий, настраиваемый, изменяемый

floppy (disk) — гибкий диск (дискета), ЗУ на гибком диске

to meet the demands — удовлетворять потребности

Text 2. STORAGE DEVICES

Storage media are classified as primary storage or secondary storage

on the basis of combinations of cost, capacity, and access time. The *cost*

of storage devices is expressed as the cost per bit of data stored. The most

common units of cost are cents, millicents (0.001 cents), and microcents

(0.000001 cents). The time required for the computer to locate and transfer

data to and from a storage medium is called the *access time* for that medium.

*Capacities* range from a few hundred bytes of primary storage for very small

computers to many billions of bytes of archival storage for very large computer

systems.

Memories may be classified as *electronic* or *electromechanical.* Electronic

memories have no moving mechanical parts, and data can be transferred

into and out of them at very high speeds. Electromechanical memories depend

upon moving mechanical parts for their operation, such as mechanisms for rotating magnetic tapes and disks. Their data access time is longer than is that of electronic memories; however, they cost less per bit stored and have larger capacities for data storage. For these reasons most computer systems use electronic memory for primary storage and electromechanical memory for secondary storage.

*Primary storage* has the least capacity and is the most expensive; however,

it has the fastest access time. The principal primary storage circuit elements

are solid-state devices: magnetic cores and semiconductors. For many

years magnetic cores were the principal elements used in digital computers

for primary storage. The two principal types of semiconductors used for

memory are bipolar and metal-oxide semiconductors (MOS). The former is

faster, the latter is more commonly used at present. Because data can be accessed

randomly, semiconductor memories are referred to as *random-access*

*memory*, or RAM.

There is a wide range of *secondary storage devices.* Typical hardware

devices are rotating electromechanical devices. Magnetic *tapes, disks, and*

*drums* are the secondary storage hardware most often used in computer systems

for sequential processing. Magnetic tape, which was invented by the

Germans during World War II for sound recording, is the oldest secondary

storage medium in common use. Data are recorded in the form of small magnetized

“dots” that can be arranged to represent coded patterns of bits.

Tape devices range from large-capacity, high-data-rate units used

with large data processing systems to *cassettes* and *cartridges* used with

small systems. Magnetic disk storage, introduced in the early 1960s, has

replaced magnetic tape as the main method of secondary storage. As contrasted

with magnetic tapes, magnetic disks can perform both sequential

and random processing. They are classified as moving-head, fixed-head,

or combination moving-head and fixed-head devices. Magnetic disks are

the predominant secondary storage media. They include flexible, or floppy

disks, called diskettes. The “floppies” were introduced by IBM in 1972 and

are still a popular storage medium to meet the demands of the microcomputer

market.