Computer sizes and power

- Computers can be generally classified by size and power as follows, though there is considerable overlap:
- Personal computer: A small, single-user computer based on a microprocessor.
- Workstation: A powerful, single-user computer. A workstation is like a personal computer, but it has a more powerful microprocessor and, in general, a higher-quality monitor.
- Minicomputer: A multi-user computer capable of supporting up to hundreds of users simultaneously

- Mainframe: A powerful multi-user computer capable of supporting many hundreds or thousands of users simultaneously.

Supercomputer: An extremely fast computer that can perform hundreds of millions of instructions per second

Supercomputer and Mainframe

- Supercomputer is a broad term for one of the fastest computers currently available. Supercomputers are very expensive and are employed for specialized applications that require immense amounts of mathematical calculations (number crunching). For example, weather forecasting requires a supercomputer. Other uses of supercomputers scientific simulations, (animated) graphics, fluid dynamic calculations, nuclear energy research, electronic design, and analysis of geological data (e.g. in petrochemical prospecting). Perhaps the best known supercomputer manufacturer is Cray Research.

Mainframe was a term originally referring to the cabinet containing the central processor unit or "main frame" of a room-filling Stone Age batch machine. After the emergence of smaller "minicomputer" designs in the early 1970s, the traditional big iron machines were described as "mainframe computers" and eventually just as mainframes. Nowadays a Mainframe is a very large and expensive computer capable of supporting hundreds, or even thousands, of users simultaneously. The chief difference between a supercomputer and a mainframe is that a supercomputer channels all its power into executing a few programs as fast as possible, whereas a mainframe uses its power to execute many programs concurrently. In some ways, mainframes are more powerful than supercomputers because they support more simultaneous programs. But supercomputers can execute a single program faster than a mainframe. The distinction between small mainframes and minicomputers is vague, depending really on how the manufacturer wants to market its machines.

Minicomputer

- It is a midsize computer. In the past decade, the distinction between large minicomputers and small mainframes has blurred, however, as has the distinction between small minicomputers and workstations. But in general, a minicomputer is a multiprocessing system capable of supporting from up to 200 users simultaneously.
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Workstation

- It is a type of computer used for engineering applications (CAD/CAM), desktop publishing, software development, and other types of applications that require a moderate amount of computing power and relatively high quality graphics capabilities. Workstations generally come with a large, high-resolution graphics screen, at large amount of RAM, built-in network support, and a graphical user interface. Most workstations also have a mass storage device such as a disk drive, but a special type of workstation, called a diskless workstation, comes without a disk drive. The most common operating systems for workstations are UNIX and Windows NT. Like personal computers, most workstations are single-user computers. However, workstations are typically linked together to form a local-area network, although they can also be used as stand-alone systems

Personal computer:

- It can be defined as a small, relatively inexpensive computer designed for an individual user. In price, personal computers range anywhere from a few hundred pounds to over five thousand pounds. All are based on the microprocessor technology that enables manufacturers to put an entire CPU on one chip. Businesses use personal computers for word processing, accounting, desktop publishing, and for running spreadsheet and database management applications. At home, the most popular use for personal computers is for playing games and recently for surfing the Internet

Personal Computer

- Actual personal computers can be generally classified by size and chassis / case. The chassis or case is the metal frame that serves as the structural support for electronic components. Every computer system requires at least one chassis to house the circuit boards and wiring. The chassis also contains slots for expansion boards. If you want to insert more boards than there are slots, you will need an expansion chassis, which provides additional slots. There are two basic flavors of chassis designs–desktop models and tower models–but there are many variations on these two basic types. Then come the portable computers that are computers small enough to carry. Portable computers include notebook and subnotebook computers, hand-held computers, palmtops, and PDAs.

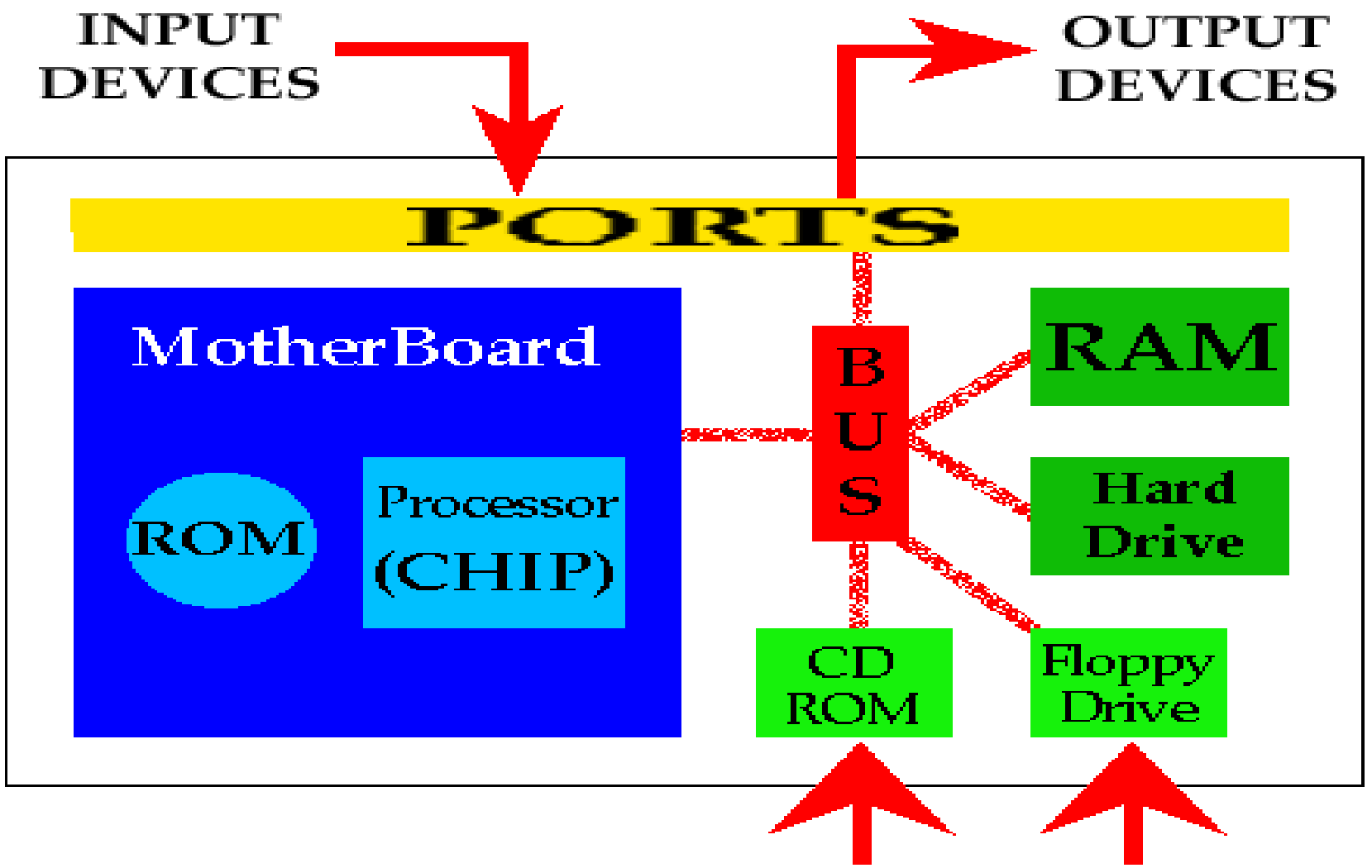
Memory and Storage

- Memory is also known as primary storage, primary memory, main storage, internal storage, main memory, and RAM (Random Access Memory); all these terms are used interchangeably by people in computer circles. Memory is the part of the computer that holds data and instructions for processing. Although closely associated with the central processing unit, memory is separate from it. Memory stores program instructions or data for only as long as the program they pertain to is in operation. Keeping these items in memory when the program is not running is not feasible for three reasons:
- Most types of memory only store items while the computer is turned on; data is destroyed when the machine is turned off.

If more than one program is running at once (often the case on large computers and sometimes on small computers), a single program can not lay exclusive claim to memory

The following table summarizes the characteristics of the various kinds of data storage in the storage hierarchy

Storage	Speed	Capacity	Relative Cost ($)	Permanent?
Registers	Fastest	Lowest	Highest	No
RAM	Very Fast	Low/Moderate	High	No
Floppy Disk	Very Slow	Low	Low	Yes
Hard Disk	Moderate	Very High	Very Low	Yes


INPUT
DEVICES
OUTPUT
DEVICES
PORTS
MotherBoard
ROM
Processor
(CHIP)
BUS
RAM
Hard
Drive
CD
ROM
Floppy
Drive