Storage Devices:
* Primary Devices - directly linked with processor, for processing data.

- Processor
  \[\text{Speed} \rightarrow \text{Cost} \]
  \[\text{high} \rightarrow \text{high} \]
  \[\text{low} \rightarrow \text{low} \]

  \[
  \begin{array}{c}
  \text{RAM} \\
  \text{SRAM - Static RAM - uses high voltage} \\
  \text{(No refreshing req.)} \\
  \text{DRAM - Dynamic RAM - uses lower voltage} \\
  \text{data automatically loaded from memory capacitors and transistors.}
  \end{array}
  \]

- SRAM can be used as cache, faster than DRAM.

- ROM:
  - Masked ROM - data written, cannot be changed (permanent)
  - PROM - manufactured with data written (programmable)
  - EPROM - data can be erased by UV rays, cannot be changed (non-erasable)
  - EROM - data can be erased by UV rays, can be changed (erasable)

- FROM - data stored in remote systems, electrically connected (Speed N)

- FROM - blocks can be removed (Speed N)
Windows 2000 (Windows NT 5.0)
- appeal small business & professional use
- functions as a web server
- more stable than NT/98 (less crash)
- had 4 products:
  - W. 2000 Server (small-medium business)
  - W. 2000 Professional (individuals)
  - W. 2000 Advanced Server (large business, database
  - W. 2000 Datacenter Server (large database)
- installed better support for 5.1
- security from 5.0
- USB support
- online transfer
  
Windows 2000 vs. Windows NT
- in 2000
- several features
- less crash
- both GUI
- based on 32-bit oriented

Windows Architecture

Executive Services

- Process
- Memory
- I/O
- File

Hardware Abstract Layer

User Interface
- Application Service
LibreOffice (Latest - 4.1)
- Office Suite, freeware
  - for many OS
Features:
- Freeware
  - support large no. of files include .doc etc
  - open source software (hand-developed)
  - secure, as tested by open source experts
  - simple yet powerful interface

LibreOffice Writer - (like MS Word)
- word processors - tables, letters, documents etc
  - auto-correction, automatic spell checking
  - headers etc

LibreOffice Calc - (like MS Excel)
- analysing your data & present final output
  - charts & analysis tool
  - easy to enter complex formulas
  - SQL & Oracle Compatible
  - 2D & 3D Graphics

LibreOffice Impress - (like MS PowerPoint)
- creating effective multimedia presentations
  - special effects
  - professional presentations

→ MS-DOS

* Internal Commands *

01 Dir - see available files & directories
  → DIR C:\path

02 Type - allows user to see contents of file
  → TYPE [drive:][path] filename

03 Del - to delete files from computer
  → DEL [drive:][path] filename

04 Md & Mdird - create new directories
  → MD C:\path or MDIR C:\path

05 Cd - to switch directories
  → CD [. .. ]
  \→ to parent directory

06 Copy - copy from one source to other
  → COPY C:\--- C:\---

07 Rd & Rdmdir - removing directory
  → RMDIR [drive:][path]

08 Ver - displays version
  → VER
0. Date - Look to change current date
   ⇒ DATE

1. Time - View & edit computer's time.
   ⇒ TIME
   → By default, "System32".

2. Path - Specify location where MS-DOS looks when using command.
   ⇒ PATH  C:\----

3. Cls - allows user to clear complete screen.
   ⇒CLS
   → (ctrl+c)

4. Break - enable or disable breaking capability of command.
   ⇒ Break "CON:0"?

5. Set - change or put a string to variable.
   ⇒ SET [variable = [string]]

   ⇒ EXIT

* External Commands -

7. Append - similar to path. Used to open files as if they were in current directories.
   ⇒ APPEND  C:\----