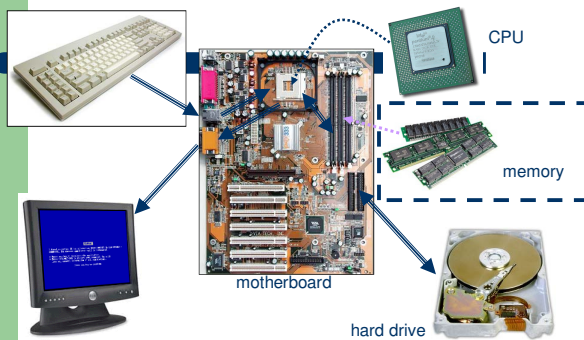


Lecture 2 : Introduction To Computer System

Memory
Software

Hardware Organization



2

غير مطلوبة فقط للفهم

Primary Memory

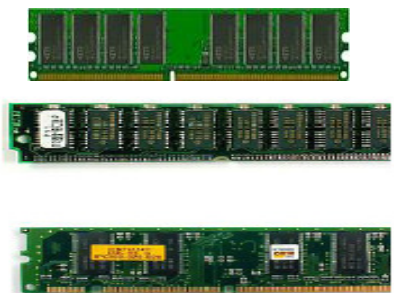
- Memory (fast, expensive, short-term memory): Enables a computer to store, at least temporarily, data, programs, and intermediate results.
- Two general parts:
 1. RAM
 2. ROM

3

Know How Computer Memory Is Measured

- Bit
 - All computers work on a binary numbering system, i.e. they process data in one's or zero's. This 1 or 0 level of storage is called a bit.
- Byte
 - A byte consists of eight bits.
- Kilobyte
 - A kilobyte (KB) consists of 1024 bytes.
- Megabyte
 - A megabyte (MB) consists of 1024 kilobytes.
- Gigabyte
 - A gigabyte (GB) consists of 1024 megabytes.

RAM (Main Memory)



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RAM (Main Memory)



- its a primary storage or random access memory (RAM).
- it temporarily holds data and programs for use during processing (volatile)
- Any information stored in RAM is lost when the computer is turned off.
- RAM is the memory that the computer uses to temporarily store the information as it is being processed. The more information being processed the more RAM the computer needs.
- RAM consists of locations or cells. Each cell has a unique address which distinguishes it from other cells.

6

ROM: Read Only Memory

ROM is part of memory

- Programmed at manufacturing time
- Its contents cannot be changed by users
- It is a permanent store

Q: Mention some examples of ROM?

A: (PROM & EPROM)

7

Other Kind of Memory

- **PROM**: Programmable Read Only Memory.
- **EPROM**: Erasable Programmable Read Only Memory
- Cache Memory
- Registers: not part of the main memory.

Q : Registers are part of " " ?

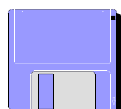
8

Secondary Storage

❑ Stores data and programs permanently: its retained after the power is turned off

❑ Examples

- Hard Drive (Hard Disk)
Located outside the CPU, but most often contained in the system cabinet
- Floppy Disk
- Optical Laser Discs
❖ CD-ROM, CD-RW, and DVD



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Kinds of Disk Drives



10

Common Secondary Media


- **Diskettes**
 - Data represented as magnetic spots on removable flexible plastic disks
 - Most common size is 3 1/2 inches, in a rigid plastic case
 - Disk drive holds the diskette, reads or retrieves the data and writes or stores data



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Common Secondary Media

- **Hard drive**
 - Data is represented magnetically as with diskettes
 - Normally more than one rigid platter in a sealed unit
 - These disks are not removable
 - Significantly more capacity and faster operating than diskettes



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Optical Laser Discs

- CD ROM & DVD's
 - Data is represented as pits and lands
 - Some kinds are read only (CD-ROM) and some kinds are rewritable (CD-RW)
 - Significantly more capacity and faster operating than diskettes



14 DVD: Digital Video Disk

Common Secondary Media

Disk size	Amount of storage	Approximate printed 8.5 x 11 inch pages
5.25 low density	360 Kb	180 pages
3.5 low density	720 Kb	360 pages
5.25 high density	1.2 Mb	600 pages
3.5 high density	1.44 Mb	720 pages
CD	700 MB	a small library
DVD	8.5 GB	a feature length movie

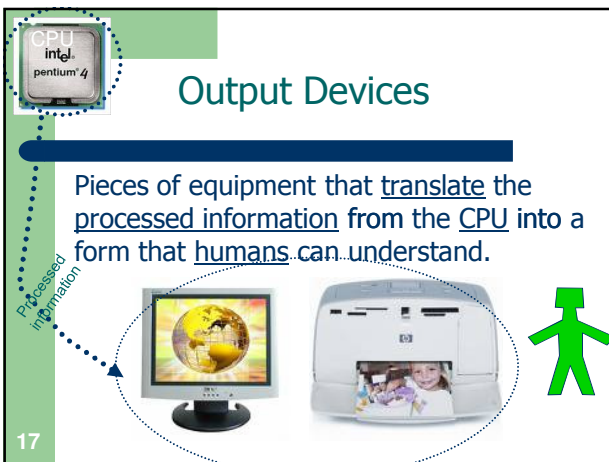
Common Secondary Media

- tapes
- Panasonic's LS120 3.5 inch diskettes
- Iomega's Zip & Jazz disks
- VCR tape (Video Cassette Recorder)
- Flash USB disks
- MMC (Multi Media Card)
- SD



15





- ### Output Devices
- Monitors
 - Printers
 - Dot matrix printers
 - Ink jet printers
 - Laser printers
 - Sound Blasters (Sound Card By Creative Lab)
 - Controlling other devices
- 18

Software

The instructions that tell the computer what to do

1. Application Software - helps end-users perform general purpose tasks
2. System Software - enables application software to interact with the computer

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System Software

The most important
System Software
is the
Operating System

Examples of operating systems:
Windows XP, DOS, Apple, UNIX



System Software

- The software that controls everything that happens in a computer.
- Background software, manages the computer's internal resources

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Resources examples : CPU, RAM , I/O devices, ...

All hardware and software are under the control of the operating system.

Among other things, **the operating system:**

1. Determines how valuable RAM is allotted to programs.
2. Performs tasks related to file management.
3. Sets priorities for handling tasks.
4. Manages the flow of instructions, data and information **to and from** the processor (CPU).

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Examples of Microcomputer Operating System Software

- **DOS** - original standard for IBM compatibles
- **Windows** - a graphical operating environment
 - Windows VISTA, XP, millennium, 2000, 98, and 95

23 Continue ...

Examples of Microcomputer Operating System Software Cont.

- **Windows NT** - for powerful workstations & networks
- **OS/2** - competitor to Windows 2000
- **Macintosh** Operating System
- **Unix** - originally for minicomputers, now used on microcomputers and Internet servers

Question: List some examples of operating systems ?



Application Software

PackagedCustom


- Packaged - "off the shelf", pre-written programs (General purpose)
- Custom - written for an organization's specific purpose (Special purpose)

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Application Software – Basic Tools

- Word processors-- **example: Microsoft word**
- Spreadsheets-- **example: Microsoft Excel**
- Database managers-- **example: Microsoft Access**
- Graphics-- **example: Photoshop**

26 **Spreadsheets:** Computer software that allows the user to enter columns and rows of numbers in a accounting book like format.



We finished lecture 2

Do you have any question

