

## Chapter 2: Peripherals

# Revision Notes

### Data Input

- ❖ Keyboard
  - ⇒ QWERTY keyboard is the standard keyboard, named for the top row of letter keys.
  - ⇒ The QWERTY structure was chosen instead of ABCD to reduce typing speed and avoid crashing of typewriters!
- ❖ Pointing devices
  - ⇒ Mouse
  - ⇒ Touchpad: The user drags a finger over a sensitive surface
  - ⇒ Trackball: Similar to mouse. The user rotates a ball
  - ⇒ Joysticks and gaming controllers: Special controllers for games
  - ⇒ Graphics tablet: Usually used by designers and artists. The user draws on the surface with a special pen (called “Stylus”)
  - ⇒ Touch screen: The user touches the surface of the monitor to give input
- ❖ Reading Tools
  - ⇒ Optical mark readers
  - ⇒ Bar code readers: Used in supermarkets
  - ⇒ Radio frequency readers
  - ⇒ Optical Character Recognition, OCR is the technology of recognizing characters on a printer page, so they can be stored and edited electronically (e.g. in Microsoft Word)
- ❖ Digitizing devices
  - ⇒ Scanners: It can create a digital representation of a printed page
  - ⇒ Smart whiteboards: The text written on a school whiteboard can be stored in a digital format
  - ⇒ Digital cameras and camcorders: They can capture still images and video into digital data

### Data Output

- ❖ Display or Monitor
  - ⇒ The size of a display is measured by the length of the diagonal line across the screen. The unit is usually inches
  - ⇒ The resolution of the screen is the amount of pixels that can fit into a square inch on the monitor. Usually 96dpi (Dots Per Inch)
  - ⇒ The resolution can be described by the dimensions of the height and width of the screen in pixels. Eg 1024 x 768
  - ⇒ Color depth is the number of different colors that a pixel can have. 8bit screens can have 256 different colors, 16bit screens 65000 colors and so on. Most graphics professionals use 24bit monitors also called True Color Monitors

- ⇒ CRT (Cathode Ray Tube) is the technology used in old TVs and monitors.
- ⇒ LCD (Liquid Crystal Display) technology is used in modern monitors, notebook pc's, televisions and video projectors.
- ❖ Paper output
  - ⇒ Impact printers (line printers and dot matrix) form image by physically striking paper.
  - ⇒ Non-impact printers (like inkjet and laser) do not strike paper, but form image either by using a laser beam (laser printers) or by spraying ink on the paper (inkjet printers)
  - ⇒ Multifunction printers, MFP or all-in-one devices combine a printer, a scanner and other technologies in one device
- ❖ Audio output
  - ⇒ A sound card enables microphone input and speaker output for the PC.
  - ⇒ They usually include mixers and synthesizers to produce music
- ❖ Controlling other machines
  - ⇒ Computer output is used to control several machines, like robots, transportation, spacecrafts etc
  - ⇒ A Force Feedback Joystick can control a computer game and can produce vibration output as well

### Storage Devices

- ❖ Magnetic tape
  - ⇒ Can store massive amount of data in low cost
  - ⇒ It is a sequential-access medium (you need to spin the tape to the correct position to access data)
- ❖ Magnetic disk
  - ⇒ Stores data on a magnetic surface
  - ⇒ Random access capability
  - ⇒ Hard disks is used as a main storage device
  - ⇒ Floppies, ZIP and Jazz drives are removable magnetic media
- ❖ Optical discs
  - ⇒ A beam reflects on the disc aluminum surface
  - ⇒ A transparent layer protects the aluminum surface from damage and scratches
  - ⇒ Optical discs are slower than a hard disk
  - ⇒ A CD-ROM drive can read data from CDs
  - ⇒ A DVD-ROM can read data from CDs and DVDs
  - ⇒ A CD Recorder can read and write CDs. The recordable CD is called CD-R (Compact Disc Recordable)
  - ⇒ A DVD Recorder can read and write CDs and DVDs. The recordable DVD is called DVD-R (Digital Versatile Disc Recordable)
  - ⇒ Many optical disc drives can write and rewrite special discs, called Rewritable media. CD-RW is the rewritable CD and DVD-RW is the rewritable DVD

- ⇒ A DVD-RAM drive can read and write CDs and DVD-RAM discs, but not DVDs (Such as DVD video discs, DVD-R, DVD+R, DVD-RW)
- ❖ Flash memory is a special memory that can be written and erased rapidly. It doesn't include any physical moving parts and can be carried easily.
  - ⇒ USB Flash drives are a common example of flash memory. The drive connects with the computer via a USB port.
  - ⇒ Memory cards are used widely in digital photo cameras, camcorders, mobile phones and other devices.

### The Computer System

- ❖ The design of the system unit falls in any of the following categories:
  - ⇒ Tower
  - ⇒ Flat desktop
  - ⇒ Portable
- ❖ Ports and Slots are used to connect several devices with the computer. Ports that have been a standard for many years, are called legacy ports
  - ⇒ Serial port: for attaching devices that can send or receive data bit by bit.
  - ⇒ Parallel port: Usually for printers
  - ⇒ Keyboard and mouse ports
  - ⇒ Video ports: for connecting a monitor
  - ⇒ Microphone, speakers and other audio ports
  - ⇒ LAN or Ethernet port: for connecting a network cable
  - ⇒ USB or Universal Serial Bus port: The most common port nowadays that has almost replaced most of the other ports! USB interface supports Hot-Swap technology, where a device can be plugged or removed even when the computer is on, with no need to restart.
- ❖ Internal and External drives
  - ⇒ Internal disc drives are placed in bays inside the system unit
  - ⇒ Hard disks are usually internal
  - ⇒ External drives (hard discs, CD-ROMs, DVD-ROMs, floppy drives etc) connect with a USB or a Firewire cable and they are slower than internal hard disks
  - ⇒ CD-ROMs, DVD-ROMs, floppy discs, jazz drives have removable media. The media can be removed from the drives.
- ❖ The PC Open architecture allows the user to remove and replace any of the computer components with bare hands.