NET, IAS, State-SET (KSET, WBSET, MPSET, etc.), GATE, CUET, Olympiads etc. Output Devices

Another introductory topic is that of output devices such as a monitor, printer or plotter.

Plotter

A plotter is a device which uses a motor to move pens or drawing implements in tightly controlled horizontal and vertical motions on a piece of paper or film. The computer can control a plotter to combine on one piece of paper differing pen colors and text and pictures stored within the computer. Computer plotter can be purchased with flat table or flat bed configurations or in models which move the pen (s) back and forth with gears that also drive the paper movement at the same time.

Printer

The printer is probably the most common and useful output device attached to your computer. There are many types of modern computer printer with differing speeds and capabilities. The most common printer is the Dot

matrix printer which provides characters made up from tiny dots of ink on paper. Line printers (usually with Mainframe computers or Minicomputers) print entire lines of text in one sweep then move to the next line and are thus very fast. Ink jet printers produce characters made from individual dots of ink sprayed onto the paper.

The ink jet printer squirts individual dots of ink onto the paper to form letters or other characters. A high quality paper is necessary since the wet ink can smear if not carefully handled. Although with the most recent models, ordinary paper can also be used. The Colour print facility is also now standard with most inkjet printer.

Finally, laser printers use a rapidly scanning laser to sensitize a polished drum with an entire page of information quickly and look and work roughly like an office copier. The first two printers are classified as impact printers since something strikes the paper while the later two are non impact printers.

The laser and ink jet printers are becoming more popular due to rapid speed of printing and quiet mode of operation.

The laser printer is used for quickly producing one page of text at a time. In operation, the laser scans a polished drum with an image which is then dusted with dark toner particles

which stick to the exposed areas made sensitive by the laser. Paper is then placed in contact with the drum and the toner is transferred to the page and is finally fused with heat to “fix” or seal the toner particles to the page.

Of the Microcomputer printers, the Laser is the most expensive in terms of purchase price, maintenance cost and consumable cost.

Dot matrix printers are common and affordable alternatives for many small offices, home computer hobbyists or organizations with voluminous printing requirements (e. g. Statements of accounts for banks) . The Dot matrix is additionally designed for use with continuous flow paper, as well as typical single sheet paper.

Dot matrix usually operates in varying modes of draft and letter quality. In draft mode, the printer speed is faster, with draft quality. Letter quality is slower with higher quality.

Dot matrix printers produce letters via small pins which strike the ink ribbon and paper to produce print which can be jagged looking. Nine pin dot matrix printers produce somewhat rough looking letters while 24 pin dot matrix printers produce crisper, fully-formed letters. The Dot matrix printer strikes the paper through a ribbon to transfer ink to the printed page.

Connecting a printer via a cable to the computer is always done through one of two plugs (or interfaces) on the back of the computer. One type of interface (computer plug) is serial, the other called parallel.

The most commonly used interface for printers today is the parallel interface but serial interface printers do exist. What is the difference? Recall that there are eight bits (computer dots and dashes) to a byte (or computer word) . The serial interface has each bit sent one at a time to the printer-like men in single file at the supermarket checkout counter. The parallel interface sends all eight bits at once-like eight men all entering eight supermarket counters at once. Each interface is different, the printer manufacturer will tell you which interface to use, i.e. … Serial or parallel.

Frequently, modems or mouse devices use the serial interface leaving the printer to the parallel interface.

Monitors

We have talked about output to paper, next let’s briefly discuss output to a monitor or screen. The monitor is a television like device that the computer uses to communicate with you. The monitor or video display works much like your television-some older home computers still use a TV. An old term for a monitor is the cathode ray tube or CRT. Monitors differ in the sharpness or resolution they can display. On the low end of the resolution spectrum is the monochrome (single color) monitor frequently available in either green or amber screens. Next is the color RGB monitor (RGB stands for Red, Green and Blue) which displays low resolution color dots to make up an image.

Higher resolution is obtained with an EGA monitor (Enhanced Graphics Adapter) and still higher with a VGA (Video Graphics Array) Monitor and even higher with an SVGA (Super Video Graphics Array) Monitor.

Each monitor is matched to work with a circuit card located within the body of the computer. One way to upgrade a computer is to switch both the monitor and display/graphics circuit card to produce a sharper, more colorful image. The dots which make up all images on the monitor screen are called pixels. The smaller the pixels, the higher and sharper the image resolution.

Typically the monitor displays 80 columns (characters) by 25 rows (lines) of information. The initial SVGA cards could only display 16 colours. And then 256 colours. Now some SVGA card can display millions of colours.

Input & Output Devices

Certain devices can act as both input and output devices to the computer. Typical devices mentioned earlier are the disks (floppy and hard) .

Modem: Short for Modulator/Demodulator. A device to send and receive computer output over telephone lines.

The Computer Devices & Relationships

Casing & Motherboard

Where is your CPU kept? don't look for RAM near your mouse. Most of the components are internal, and kept inside a casing. This casing model can be Tower, minitower or desktop. Inside the casing, there is a power supply unit that takes in the power supplied from the public power supply and steps it down to supply the computer's needs. Also inside the casing is the motherboard, which is a large printed circuit board that all expansion boards plug into:

The motherboard contains the most essential parts of the computer such as the CPU, RAM, ROM, keyboard, speaker and power connections, and other assortment of important parts.

The expansion boards contain special circuits for the monitor (monitor card) , disk drives and mouse (multi Input/Output card) and other options such as modem and scanner.