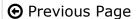


# Computer - Output Devices

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Following are some of the important output devices used in a computer.

**Monitors** 

**Graphic Plotter** 

Printer

# **Monitors**

Monitors, commonly called as Visual Display Unit (VDU), are the main output device of a computer. It forms images from tiny dots, called pixels that are arranged in a rectangular form. The sharpness of the image depends upon the number of pixels.

There are two kinds of viewing screen used for monitors.

Cathode-Ray Tube (CRT)

Flat-Panel Display

# Cathode-Ray Tube (CRT) Monitor

The CRT display is made up of small picture elements called pixels. The smaller the pixels, the better the image clarity or resolution. It takes more than one illuminated pixel to form a whole character, such as the letter 'e' in the word help.



A finite number of characters can be displayed on a screen at once. The screen can be divided into a series of character boxes - fixed location on the screen where a standard character can be placed. Most screens are capable of displaying 80 characters of data horizontally and 25 lines vertically.

There are some disadvantages of CRT -

Large in Size

High power consumption

# Flat-Panel Display Monitor

The flat-panel display refers to a class of video devices that have reduced volume, weight and power requirement in comparison to the CRT. You can hang them on walls or wear them on your wrists. Current uses of flat-panel displays include calculators, video games, monitors, laptop computer, and graphics display.



The flat-panel display is divided into two categories –

**Emissive Displays** – Emissive displays are devices that convert electrical energy into light. For example, plasma panel and LED (Light-Emitting Diodes).

**Non-Emissive Displays** — Non-emissive displays use optical effects to convert sunlight or light from some other source into graphics patterns. For example, LCD (Liquid-Crystal Device).

# **Printers**

Printer is an output device, which is used to print information on paper.

There are two types of printers -

**Impact Printers** 

Non-Impact Printers

# **Impact Printers**

Impact printers print the characters by striking them on the ribbon, which is then pressed on the paper.

Characteristics of Impact Printers are the following -

Very low consumable costs

Very noisy

Useful for bulk printing due to low cost

There is physical contact with the paper to produce an image

These printers are of two types –

Character printers

Line printers

#### **Character Printers**

Character printers are the printers which print one character at a time.

These are further divided into two types:

Dot Matrix Printer(DMP)

Daisy Wheel

#### **Dot Matrix Printer**

In the market, one of the most popular printers is Dot Matrix Printer. These printers are popular because of their ease of printing and economical price. Each character printed is in

the form of pattern of dots and head consists of a Matrix of Pins of size (5\*7, 7\*9, 9\*7 or 9\*9) which come out to form a character which is why it is called Dot Matrix Printer.



# **Advantages**

Inexpensive

Widely Used

Other language characters can be printed

# **Disadvantages**

Slow Speed

**Poor Quality** 

### **Daisy Wheel**

Head is lying on a wheel and pins corresponding to characters are like petals of Daisy (flower) which is why it is called Daisy Wheel Printer. These printers are generally used for word-processing in offices that require a few letters to be sent here and there with very nice quality.



## **Advantages**

More reliable than DMP

Better quality

Fonts of character can be easily changed

# Disadvantages

Slower than DMP

Noisy

More expensive than DMP

#### **Line Printers**

Line printers are the printers which print one line at a time.



These are of two types -

**Drum Printer** 

Chain Printer

#### **Drum Printer**

This printer is like a drum in shape hence it is called drum printer. The surface of the drum is divided into a number of tracks. Total tracks are equal to the size of the paper, i.e. for a paper width of 132 characters, drum will have 132 tracks. A character set is embossed on the track. Different character sets available in the market are 48 character set, 64 and 96 characters set. One rotation of drum prints one line. Drum printers are fast in speed and can print 300 to 2000 lines per minute.

#### **Advantages**

Very high speed

#### **Disadvantages**

Very expensive

Characters fonts cannot be changed

#### **Chain Printer**

In this printer, a chain of character sets is used, hence it is called Chain Printer. A standard character set may have 48, 64, or 96 characters.

#### **Advantages**

Character fonts can easily be changed.

Different languages can be used with the same printer.

### **Disadvantages**

Noisy

# Non-impact Printers

Non-impact printers print the characters without using the ribbon. These printers print a complete page at a time, thus they are also called as Page Printers.

These printers are of two types -

Laser Printers

**Inkjet Printers** 

#### **Characteristics of Non-impact Printers**

Faster than impact printers

They are not noisy

High quality

Supports many fonts and different character size

#### **Laser Printers**

These are non-impact page printers. They use laser lights to produce the dots needed to form the characters to be printed on a page.



# **Advantages**

Very high speed

Very high quality output

Good graphics quality

Supports many fonts and different character size

# **Disadvantages**

Expensive

Cannot be used to produce multiple copies of a document in a single printing

### **Inkjet Printers**

Inkjet printers are non-impact character printers based on a relatively new technology. They print characters by spraying small drops of ink onto paper. Inkjet printers produce high quality output with presentable features.



They make less noise because no hammering is done and these have many styles of printing modes available. Color printing is also possible. Some models of Inkjet printers can produce multiple copies of printing also.

#### **Advantages**

High quality printing

More reliable

# **Disadvantages**

Expensive as the cost per page is high

Slow as compared to laser printer

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