

COMPUTER GRAPHICS

C Version

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Introduction

Computer Graphics is an art of drawing pictures, lines, charts etc. using computers with the help of Programming language.

Computer Graphics is made up of number of pixels. Pixel is the smallest graphical picture or unit represented on the computer screen.

Basically there are two types of Computer graphics namely

- **Interactive Computer Graphics**
- **Non-Interactive Computer Graphics**

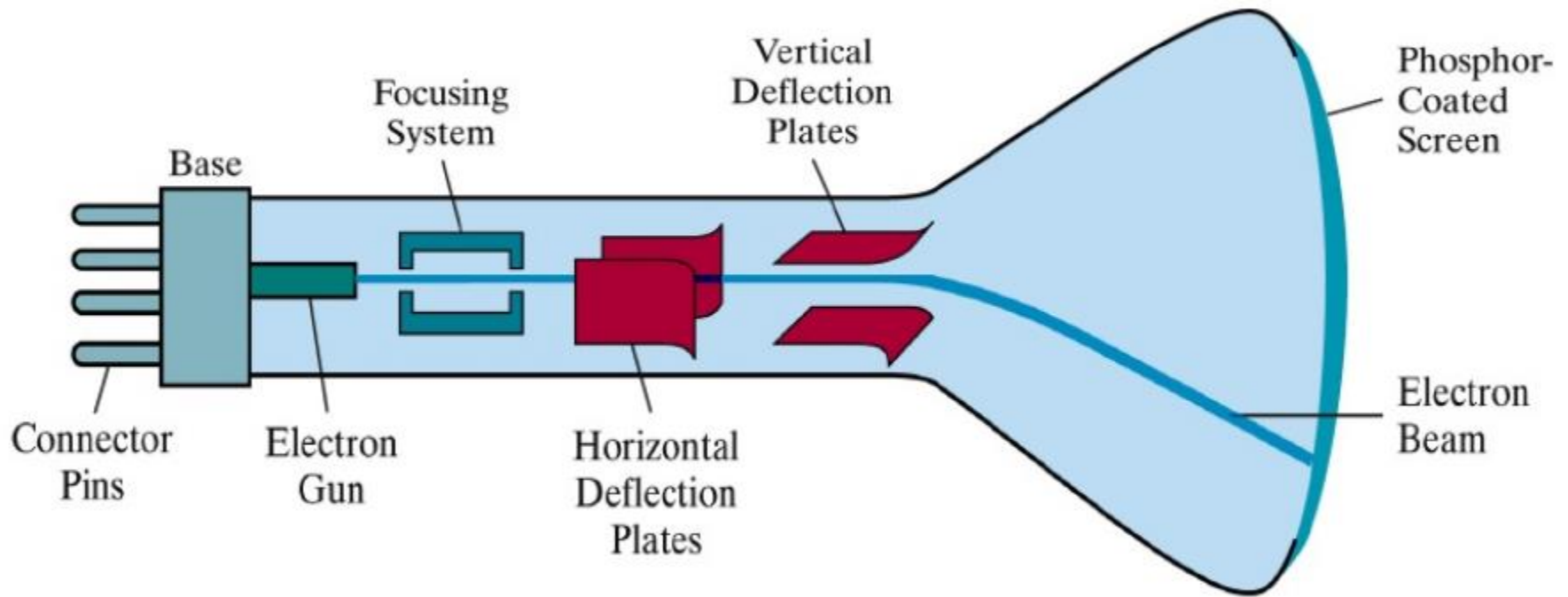
- Computer Aided Design:
Buildings, Aircraft, spacecraft, textiles etc., (s/w package).
- Presentation Graphics:
Bar charts, pie charts, Line Charts (relationship)
- Computer Arts:
Fine Arts, Commercial Arts(logo)
- Entertainment:
Motion Picture
- Education and Training
- Visualization

Overview of Graphic systems:

- A **monitor** or **display** (sometimes called a **visual display unit**) is an electronic visual display for computers.
- The first computer monitors used Cathode ray tubes (CRTs), which was the dominant technology until they were replaced by LCD monitors in the 21st Century.

Cathode ray tube Monitors

- Cathode ray tube is used .
- Beam penetrates on phosphor – coated screen. Picture is drawn as per the intensity of light.
- Electron beam is taken back over same points to make picture glowing .This CRT is called Refresh CRT.



Cathode ray tube

- The primary components of an electron gun in a CRT are the heated metal cathode and control grid.
- Heat is supplied to the cathode by directing a current through a coil of wire called the filament.
- The intensity of the electron beam is controlled by setting voltage levels on the control grid.
- The amount of light emitted by the phosphor coating depends on the no. of electrons striking the screen.
- Electrostatic focusing is commonly used in television and computer graphics monitors.

- Additional focusing hardware is used in high-precision system to keep the beam in focus at all screen positions.
- Focusing deflection of the electron beam can be controlled either with electric field or with magnetic fields.
- Two pairs of coils are used with the coils in each pair mounted on opposite sides of the neck of the CRT envelope.
- One pair for top to bottom of the neck.
- Another pair is for opposite sides of the neck(horizontal and vertical)

- The maximum no of points that can be displayed without overlap on a CRT is referred to as the resolution.
- The resolution of a CRT is dependent on the type of phosphor, the intensity to be displayed and the focusing and deflection system.
- The high quality system is 1280by1024 with higher resolutions available on the many system.
- **Aspect ratio:** This number gives the ratio of vertical points to horizontal points necessary to produce equal length lines in both direction on the screen.
- **Persistence:** How long they continue to emit light after the CRT beam is removed.