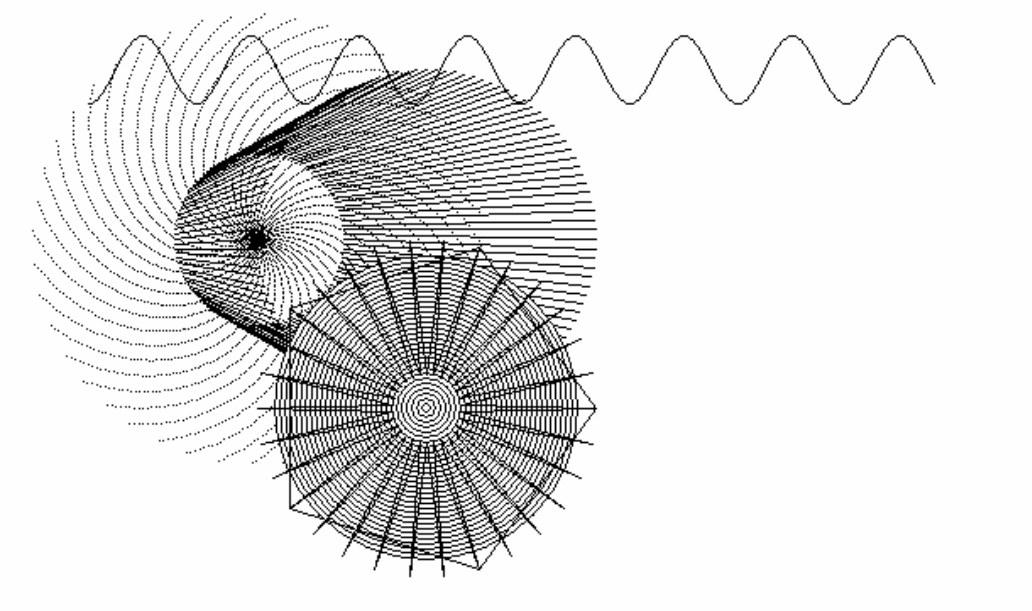

RASTER AND VECTOR GRAPHICS

Computer graphics, in a great simplification, can be divided into two types:

1) raster graphics, also called bitmap, pixel, point graphics
2) vector graphics called object-oriented.

Raster graphics - the image is built from a rectangular grid of points (pixels). Scaling bitmap drawings usually results in loss of quality. This graphic has the greatest application in digital photography.

Popular formats are: BMP, JPG, TIFF, PNG GIF, PCX, PNG, RAW
Popular graphic programs: Paint, Photoshop, Gimp.

Vector graphics - uses graphic objects called primitives such as: points, lines, curves described by mathematical parameters. The main advantage of this graphics is the lossless change in image size without distortions.

Popular formats are: SVG, CDR, EPS, WMF - cilparty
Popular graphic programs: Corel Draw, Sodipodi, Inscape, Adobe Ilustrator, 3DS

LIST OF PROGRAMS FOR BITMAP GRAPHICS

Free: CinePaint, DigiKam, GIMP, GimPhoto, GIMPshop ,GNU Paint, GrafX2, GraphicsMagick, ImageJ, ImageMagick, KolourPaint, Krita, LiveQuartz, MyPaint, Pencil, Pinta, Pixen, Rawstudio, RawTherapee, Seashore, Shotwell, Tile Studio, Tux Paint, UFRaw, XPaint, ArtRage Starter Edition, Artweaver, Brush Strokes Image Editor, Chasys Draw IES, FastStone Image Viewer, Fatpaint, Fotografix, IrfanView, Paint.NET, Picasa, Picnik, Pixia, Project Dogwaffle , TwistedBrush Open Studio, Xnview

Commercial: Ability Photopaint, ACD Canvas, Adobe Fireworks, Adobe Photoshop, Adobe Photoshop Lightroom, Adobe Photoshop Elements, Autodesk SketchBook Pro, Aperture, ArtRage, Bibble, CodedColor, Corel Painter, Corel Painter Essentials, Corel PaintShop Pro, Corel Photo-Paint, Cosmigo Pro Motion, Color It!, GraphicConverter, Helicon Filter, LiveQuartz, LView Pro, Manga Studio, Microsoft Office Picture Manager, Microsoft Paint, Naked Light, NeoPaint, OpenCanvas, Photogenics, PhotoLine, Photo Mechanic, PhotoPerfect, PicMaster, Pictor Paint, PixBuilder Photo Editor, Pixel, Pixelmator, Portrait Professional, Project Dogwaffle, Serif Photoplus, TVPaint, TwistedBrush Pro Studio, HDR PhotoStudio, Ulead Photo, Ultimate Paint, Zoner Photo Studio

LIST OF PROGRAMS FOR VECTOR GRAPHICS

Free: Cenon, Dia, Inkscape, Kontur, NodeBox, OpenOffice.org Draw, Sketch, Sodipodi Synfig, Tgif, Xara Xtreme for Linux, Xfig

Commercial: ACD Canvas, Adobe Illustrator, Adobe Flash, Adobe FreeHand, Artstream, Artworks CorelDRAW, ConceptDraw, DrawWell, EazyDraw, Elgorithms MagicTracer, iDraw, iGrafx Designer, Intaglio, Jasc WebDraw, Jfig, Kai Power Tools, Metafile Companion, Microsoft Expression Graphic Designer, Microsoft Expression Interactive Designer, Mayura Draw, OmniGraffle, PDF FLY, Real-DRAW, Satori Paint, Serif DrawPlus, SignBlazer, SmartDraw, Stone Software Create, Vector Effects, WinFIG for Windows, Xaos Tools, Xara Xtreme

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Even before the first computers were built, the importance of image as a means of fast and precise information transmission was appreciated. A drawing created with the help of electronic devices immediately found a mass of applications. Just mention CAD (Computer Aided Design). The CAD system made it possible to design machines, means of transport, architecture (with the possibility of viewing the designed buildings at any angle and from different points of view and in different lighting conditions), and even fabric patterns or electronic circuits. Using the drawing method as a criterion, it is possible to roughly divide computer graphics into two categories - point graphics, called "bitmap", "pixel" or "raster" graphics and vector graphics. Figures in vector graphics are created using graphic primitives (segments, triangles, circles, etc.) and using curves and parametric mathematical equations. In fact, the visualization of the work presented on the monitor screen or on the paper of the printer as a last resort is always a set of points. Therefore, the logical structure is important here, not the physical structure of the created graphics. In vector drawing, each element is treated as an object, where individual objects can be merged (grouped) and disconnected (grouped), and the position of the element is determined only by the coordinates of the beginning and end of the vector. This does not deform the image when changing its size or performing other geometric transformations, as is unfortunately the case in bitmap graphics. In vector graphics there is no concept of a point ("dot") and that's why it is so difficult for novice users to make their own drawings using this technique. Computer graphics are used for many purposes. It is very important to be able to generate presentation graphics, all kinds of visualization of measurement results in the form of graphs, linear, column, circular, two- and three-dimensional. Graphs are used in many areas of life, in the economy, banking, military, for scientific and administrative purposes, in the development of publications (DTP), and finally for didactic purposes, e.g. in teaching mathematics, physics, chemistry, geography, etc. The graphs can be used in a variety of ways. Computer graphics is an important tool in the operation and use of information systems. It can be used to create models that visualize various complex physical, chemical and biological processes. It is used in medicine, economic sciences, statistics, topography, etc., etc. One could mention for a long time and it would be difficult to find a field in which it would not be used, not to mention computer games or websites or artistic applications, in visual arts and culture. This would not be possible without a set of methods and algorithms in graphical programming language environments. Most high-level languages allow

you to create programs in graphical mode and support the devices needed to generate images (monitors, printers, plotters) and to input data. The resulting image is the result of an algorithm that organizes the points of the graphic window according to specific rules, including mathematical formulas and the use of specific geometric transformations.

CHARACTER GRAPHICS

This is the oldest type of graphics when graphic modes have not yet been invented and printing was done with impact printers operating as typewriters. Primitive drawings were created from characters (letters, numbers, special characters).