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System 7.5: QuickDraw GX Graphics Overview (2/95)

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TOPIC -----

This article provides an overview of how graphics are handled by QuickDraw GX.

DISCUSSION -----

Introduction

The QuickDraw GX Graphics engine delivers powerful geometric resources to any Macintosh application. With QuickDraw GX as a building block, software developers can revise and enhance applications more quickly.

The built-in, system-level graphics resources provide applications with sophisticated easy-to-implement graphics and type functionality. Because much of the graphic manipulation overhead is handled by QuickDraw GX, many applications may eventually be significantly smaller in size (if they are targeted for markets where QuickDraw GX is assumed to be a part of the system).

Overview

QuickDraw GX is a geometric-based, resolution and device-independent graphics system. Images are described by geometric structures such as points, lines, and curves. These geometric structures are defined by a fixed-point coordinate system.

The coordinate system does not assume what metric (for example, inches or millimeters) defines the spacing in the system. Therefore, the images can be drawn to any resolution device, such as a monitor or printer, because the graphics system makes no assumptions about spacing.

An analogy to this situation is the difference between screen (bitmapped) and TrueType fonts. Both fonts contain information about how to draw characters on the screen. However, screen fonts are best shown at their predefined point size

on a 72-dot-per-inch (dpi) output device. Attempting to change the font size or draw to a different resolution device can result in rough-edged characters. This problem does not happen with TrueType fonts because they are based on curves.

QuickDraw GX was designed with various output devices in mind. It supports raster, PostScript™, and vector (for example, plotter) devices. There are also many built-in features, such as halftones and dithering, to produce the best image for an output device.

All data structures are private, so that the graphics, line layout, and printing software and hardware on which they run can evolve without disrupting existing applications. Thus, any changes to data structures within QuickDraw GX must be made through a procedural call.

These QuickDraw GX features resolve many of the limitations with QuickDraw. QuickDraw is a bit image, resolution-dependent graphic system. Since many applications write directly to the data structures, there have been numerous compatibility issues. In addition, support for PostScript was added on after QuickDraw was designed, and there is no built-in support for vector devices. Nor are there any special graphic functions such as dithering.

However, QuickDraw GX does not replace QuickDraw. They work side by side. Thus, even if you have QuickDraw GX installed, old QuickDraw applications still work. Graphic calls are routed to the correct part of the graphics system, and both QuickDraw and QuickDraw GX applications can run concurrently.

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15 Feb 1995 - Reviewed for technical accuracy, revised System 7.5 keyword.
09 Dec 1994 - Added keyword and made several minor technical updates.

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