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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