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Macintosh IIfx: PageMaker and Video Card ROM Problem/Solution

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TOPIC -----

PageMaker users using the Macintosh IIfx with a Portrait Display Video Card or Two-Page Monochrome Monitor Video Card have been reporting display problems: incorrect character and word spacing, incorrect registration of line breaks between the screen and printed output, and reduced performance. Certain versions of the video card ROMs exhibit the problem while other versions don't. As a result, switching between a "good" card and the built-in video on a Macintosh IIfx yields different results on the screen.

DISCUSSION -----

Here's the solution of the Aldus PageMaker/video card problem. The problem relates to the configuration information carried in the video card ROM (and the video portion of the Macintosh IIfx CPU ROM) and the way QuickDraw and PageMaker use this information. Each display in a Macintosh II carries a fixed-point representation of the horizontal and vertical pixel resolution in dots-per-inch. Because QuickDraw is an integer-based drawing system, it does not attempt to scale its object rendering to match this reported screen resolution. Instead, it assumes 72.0 dpi, which is the nominal resolution for the classic Macintosh and the 12-inch, high-resolution monitors.

The video software specifications (which also apply to third-party developers) have been updated to recommend that video configuration ROMs reflect the true screen resolution of the displays it supports. Although 32-Bit QuickDraw continues to ignore the resolution fields, all video hardware released since 32-Bit QuickDraw introduction includes appropriate resolution information; specifically, 80.0 dpi for the Portrait Display and 77 dpi for the Two-Page Monochrome Monitor. This applies to a post-introduction revision of the Portrait Display and Two-Page Monochrome Monitor Video Cards and to the Macintosh IIfx built-in video software.

The problem is that PageMaker uses these resolution fields to scale font width tables for screen display based on a traditional low-memory global. This global is updated by the QuickDraw setup code to reflect the screen resolution of the main screen (the screen with the menu bar). The line-spacing problems happen because PageMaker scales the font widths, while QuickDraw and the Font Manager do not. The problems are not directly related to the video hardware or the CPU ROMs.

Solution

Upgrade to PageMaker 4.0, which takes into account QuickDraw's behavior with screen fonts. The problem described in this article applies only to PageMaker versions earlier than 4.0.

Other Notes

Many applications that run on both Color QuickDraw and Classic QuickDraw machines look at a collection of low-memory globals to determine system configuration. Although every effort has been made to keep these low-memory globals compatible with their original intent, many of them have become obsolete in a multiscreen/multidepth world. It is likely that other applications may display similar problems, particularly those programs with highly customized code for printing or other device-independent imaging.

Affected Revisions

All 68000-based Macintoshes (Plus, SE, and Portable) always report 72.0 dpi resolution and should not exhibit any problems.

Macintosh II Video Card: always reports 72.0 dpi

Macintosh II High-Resolution Video Card: always reports 72.0 dpi

Macintosh Monochrome Video Card: always reports 72.0 dpi

Macintosh SE/30 Built-In Video: always reports 72.0 dpi

Macintosh II Portrait Display Card:

- ROM Part 341-0699: reports 72.0 dpi on the Portrait Display and Two-Page Monochrome Monitor
- ROM Part 341-0732 (current): reports 80.0 dpi on the Portrait Display, 77.0 dpi on the Two-Page Monochrome Monitor

Macintosh II Two-Page Monochrome Monitor Card:

- ROM Part 341-#### (all previous versions): reports 72.0 dpi on the Portrait Display and Two-Page Monochrome Monitor
- ROM Part 341-0727 (current): reports 80.0 dpi on the Portrait Display, 77.0 dpi on the Two-Page Monochrome Monitor

Macintosh IIci Built-In Video: reports 80.0 dpi on the Portrait Display, 72.0 dpi on all other displays.

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