PowerBook: Video Out Scan Rates (4/95)

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TOPIC --

What are the Horizontal and Vertical scanning frequencies for the PowerBook
family computers which support video output?

DISCUSSION --

The video output port supports 8-bit video output (512 KB of non-expandable
VRAM) for 256 colors on Apple 12-inch, 13-inch, and 16-inch RGB monitors; and
4-bit video with 16 shades of gray on the Apple Portrait Display. VGA and SVGA
modes are supported with appropriate adapter cables. The video controller
emulates a NuBus card in slot $E, so the video output system appears to software
as a standard video card.

An adapter cable included with the computer allows users to attach a standard
Apple video cable. The external video interface is enabled by attaching a
monitor and restarting the computer. To connect a VGA monitor to the Macintosh
video port, an adapter cable is required. Third-party cable vendors should have
these cables available for purchase.

During the boot process, ROM code tests the monitor sense lines and activates
the video output system if a recognized monitor is attached. If no monitor is
found, the video output system is deactivated to conserve power. Because the
video output circuitry consumes additional power, Apple recommends that
customers use the AC adapter when using an external monitor.

• Video Scan Rates:

Monitor	Resolution			Dot clock
.	Width (pixels)	Height (pixels)	Depth (bits)	(MHz)
12-inch RGB	512	384	8	15.6672
13-inch RGB	640	480	8	30.2400
VGA	640	480	8	25.1750
SVGA	800	600	8	36.000
Portrait	640	870	4	57.2832
16-inch RGB	832	624	8	57.2832

The AudioVision 14 Display is also compatible.

In normal operation the video output circuitry acts like a second monitor to

extend the user's desktop. Alternatively, the user can select video mirroring
mode, in which the external monitor mirrors the internal LCD. In mirror mode,
software blanks the edges of the larger screen to match the horizontal and
vertical pixel resolution of the smaller screen.

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