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Macintosh: Scan Rates for Monitors (2/95)

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TOPIC -----

This article contains a list of scan rates of Macintosh monitors. Here are two terms you need to understand when reading the tables:

Scan Rates

The scan rate is the time it takes a monitor's electron gun to move across one line of the screen or repeat one entire screen. These values are known as the horizontal and vertical scan rates, respectively. The monitor scan rate is the number of times a screen is redrawn each second. Computer display scan rates differ from standard video scan rates.

Interlaced versus Non-Interlaced Scans

Apple monitors use a non-interlaced, or progressive, scan. Interlacing is a technique used on character-based displays to create solid character text. It is also used on home television sets (the dominant standard in the United States being NTSC). Using alternate scan lines, the monitor performs high-speed retraces to create the illusion that the monitor has twice as many lines as it does. A major drawback of interlaced displays is their tendency to noticeably flicker thin horizontal lines, lines that are frequently used on the Macintosh interface.

The non-interlaced format used on Apple Macintosh monitors means that the horizontal and vertical scan rates are timed to cause the display electron guns to produce even progressively horizontal scans. The non-interlaced scan format helps prevent the flickering that you can see on some types of monitors.

DISCUSSION -----

Scan rates for Macintosh monitors:

	Vertical (Hz)	Horizontal (KHz)
	-----	-----
Built-in monitors:		
. Macintosh 128K	60.15	22.25
. Macintosh 512K	"	"
. Macintosh 512Ke	"	"

. Macintosh Plus	"	"
. Macintosh SE	"	"
. Macintosh SE/30	"	"
. Macintosh Classic	"	"
. Macintosh Classic II	"	"
. Macintosh Color Classic	"	24.48
. Macintosh LC 520	66.7	35

Apple and Macintosh Monitors:

. Apple 21-in. Color Display	75	68.7
. Apple Two-Page Monitor	75	68.7
. Apple 16-in. Color Display	75	50.0
. Apple Portrait Display	75	68.9
. Apple AudioVision 14 Display	66.7	35
. Macintosh (14-in.) Color Display	66.7	35
. Basic (14-in.) Color Monitor	59.94	31.5
. Performa Plus Display	66.7	35
. Performa Display	66.7	35
. 13-in. AppleColor High-Res RGB Monitor	66.7	35
. 12-in. Apple High-Res Monochrome Monitor	66.7	35

Multiple Scan Monitors:

Apple Macintosh multiple scan monitors let users customize and adjust the size and position of the displayed image.

. Apple Multiple Scan 15 display				
. Mode	Resolution	Vertical	Horizontal	
. ----	-----	-----	-----	
. VGA	640x480	60.0	31.77	
. Macintosh	640x480	66.7	35.0	
. SVGA	800x600	72.0	48.1	
. SVGA	800x600	60.0	37.9	
. Macintosh	832x624	75.0	49.7	
. 1024x768	1024x768	70.0	56.5	

. Apple Multiple Scan 17 display				
. Mode	Resolution	Vertical	Horizontal	
. ----	-----	-----	-----	
. VGA	640x480	59.95	31.47	
. Macintosh	640x480	66.7	35.0	
. VESA	640x480	75.0	37.5	
. VESA	800x600	75.0	46.9	
. SVGA	800x600	55.98	35.16	
. 800x600	800x600	60.0	37.8	
. Macintosh	832x624	75.0	49.73	
. Macintosh	1024x768	75.0	60.2	
. 1024x768	1024x768	60.0	48.3	

. Apple Multiple Scan 20 display				
. Mode	Resolution	Vertical	Horizontal	

.	-----	-----	-----	-----
.	VGA	640x480	59.95	31.47
.	Macintosh	640x480	66.7	35.0
.	VESA	640x480	75.0	37.5
.	VESA	800x600	75.0	46.9
.	Macintosh	832x624	75.0	49.73
.	Macintosh	1024x768	74.93	60.24
.	VESA	1024x768	75.0	60.02
.	Macintosh	1152x870	75.0	68.7
.	VESA	1280x1024	75.0	79.98

In some cases, it may be necessary to reset the display settings of a multiple scan monitor to their factory defaults.

To reset these monitors, hold down Control button (which has the circle symbol above it), while pressing the Reset button (which has the triangle symbol).

Most of the time, just pressing the Reset button resets the display settings. However, pressing Control-Reset resets the CPU inside the Multiple Scan 17 Display and Multiple Scan 20 Display.

Article Change History

21 Feb 1995 - Added keyword; added additional information.

23 Nov 1994 - Added Multiple Scan 15 and 17 Displays.

31 Mar 1994 - Added information on new products.

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