Macintosh II: Video Overview (3 of 3) (2/95)

Revised: 2/14/95
Security: Everyone

Macintosh II: Video Overview (3 of 3) (2/95)

==========

Article Created: 10 May 1988
Article Reviewed/Updated: 14 February 1995

TOPIC ----------

This is the last part of a three-part article describing how the Macintosh II produces video.

DISCUSSION ----------

Color Burst

A reference signal by which color signal values can be determined. The phase of a color signal in relation to the color burst signal indicates hue. This is located on the trailing edge of the horizontal video signal and is known as a back porch.

Chrominance

The 3.58MHz subcarrier that contains the signal for color value of each pixel:

Red signal: 90 degrees out of phase
Green signal: 0 degrees out of phase
Blue signal: 180 degrees out of phase

The red, green, and blue signals (RGB) can vary in hue depending on their phase with the sync signal. A variation in signal magnitude increases or decreases the intensity of the color.

Macintosh II Video Modes Revisited

• RGB RS343 compatible is an RGB video signal with separate TTL sync. It is timed by a 30.24 MHz oscillator. 1 volt signal. 75 ohm terminated. An analog standard level sync is available on green.

• RGB RS170 interlaced is an RGB video signal with sync. It is timed by a

12.2727 MHz oscillator. Its horizontal signals are alternately spaced in relation to the vertical blanking period. The electron beam moves down from the left corner to the right and from the bottom right corner to the top, to begin again in the center or the corner of the screen. In this way, there are twice the of number rows than are being displayed in each frame. Each row follows a slightly slanted path. One begins at the top left corner and slants downward, while the other begins from the top and center. These interlaced lines provide a greater number of images to the eye, to compensate for a slow refresh time.

In the RS170 mode, the sync signal has been combined with the green signal. A television or similar monitor could take advantage of this signal in black and white only.

Picture Quality

Bandwidth is the signal width. It describes how much information is being delivered. The higher the bandwidth, the more video information that can be delivered and displayed by a monitor.

Pixel size is the size of the phosphor dots on the screen. It determines the precision in which the video information can be duplicated.

Dot pitch is pixel size.

Scan rate is the time period in which the electron gun moves across one line of the screen or repeats one entire screen. These values are known as the horizontal and vertical sync periods, respectively.

Grill pitch is the width of the lines in the color mask used to block the color electron beams. It is usually measured at the phosphor positions, and is synonymous with dot pitch.

Pin cushion is a display effect of warping or curved display screens.

Convergence is beam position accuracy. Color systems require exact accuracy of beams, both for position and speed, to properly produce the desired colors from their phosphors.

Article Change History:
14 Feb 1995 - Reviewed for technical accuracy, revised formatting.

Support Information Services

Tech Info Library Article Number:671