Macintosh: RGB-To-NTSC Video Conversion Options

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TOPIC ---

I work at a TV station and am researching the best solution for recording 24-bit images from my Macintosh IIcx to videotape. I am interested in the Display Card 8/24 GC as a solution.

I have also considered the RasterOps 364 board that lets the Macintosh display real-time, 24-bit images on the Macintosh monitor from a video source. However, I do not know if this card offers the ability to record Macintosh video onto tape.

I am aware that the cards from Orange Micro, TrueVision, and Mass Micro may also be solutions. However I am not familiar with these cards and their features. If you can provide me with any info (or an opinion) I would appreciate it.

DISCUSSION ---

There are three approaches to placing Macintosh images into the NTSC world:

- A video card with onboard NTSC output. RasterOps, SuperMac, Orange Micro, Computer Friends, Mass Micro, and others make Macintosh video cards that provide NTSC output directly from the cards.

- An RGB-to-NTSC converter box. RasterOps and ComputerVideo make RGB-to-NTSC converter boxes that work with Apple's color video cards, both the new ones and the original 8-bit video cards. RasterOps' converter also works with their 208, 264, 364, and 16PC cards. TrueVision also provides a RGB-to-NTSC converter box for their video cards. However, it does not work with the Apple video cards.

- A scan converter. RGB Spectrum builds a scan converter that works with most Macintosh 640x480 video cards.

The card providing onboard NTSC output must have all the necessary circuitry built on the NuBus video card. These are the simplest to install and use. There are connections on the cards for connecting the NTSC video signal coming

from the card directly to the NTSC destination device. This usually uses an RCA-type phono-plug-to-phono-plug connection. The various cards provide a variety of features, from only video out to video overlay to frame grabbing to special video effects.

Note: In this article, the reference to frame grabbing indicates the ability to grab a frame of video in 1/30 of second. Scanning indicates the need for more time to acquire the image. This generally requires using a video camera for input, because most freeze-frame images are not usable for source material. The issue concerns the lack of video sync during freeze-frame mode.

There is currently one RGB to NTSC converter box available. Tech Comm has not been able to test this box, so we are unable to provide additional details. However, it appears that it should work correctly with the new video cards when the correct cable is used. It does work with the older 8-bit Macintosh color video cards when used with the interlace utility Apple has made available. The box is from ComputerVideo and is called Video NTSC Encoder.

RasterOps has announced The RasterOps Video Expander box, which is listed as compatible with the new Apple video cards. The RasterOps box provides both composite and S-Video (for S-VHS, HiBand 8mm and ED Beta) output signals. This converter also requires the correct cable to be used. Again, Tech Comm has not had the opportunity to test this card with the new video cards. Beyond the conversion to NTSC, these converter boxes do not provide any additional features to the video card that is used. These boxes require the signal coming from the cards to be in the NTSC interlaced mode.

For the finest conversion of RGB to NTSC, a scan converter is required. They are far more expensive than the converters mentioned above. Scan converters are used to create the highest-quality broadcast image. Scan converters not only convert the RGB signal to NTSC, they also eliminate the flicker associated with horizontal single-pixel lines and provide aspect-ratio conversion, color-bar generation, video transitions, freeze frame, and video mixing--all at the best available quality. The scan converters take the high scan rate RGB signal directly from the video cards, convert it to a digital frame buffer, do their functions digitally, and reconvert the image in an analog NTSC signal. This lets you do a function similar to Apple's 8-bit convolution on 24-bit images.

The RasterOps 364 does not provide NTSC video output without the use of the Video Expander box. In this respect, it is the same as the Display Card 8/24 GC. The frame grabbing ability and the live video on the Macintosh RGB display, however, do set it apart from the Display Card 8/24 GC. The 364 card does not provide the ability to overlay computer graphics on top of the live video. The live video window can be placed on top of a graphic background. None of the background will be seen through the live video image. The live video window is resizable.

The NuVista cards from TrueVision also provide frame grabbing from a video source. To lay the image back to videotape, the TrueVision VIDI/O converter box is required. The NuVista are not designed to provide live video images on the Macintosh RGB screen. Instead they provide the ability to overlay the Macintosh graphics on top of the video image. This composited image must be

viewed on an NTSC screen.

Mass Micro provides a two-card set, the ColorSpace III and ColorSpace F/X cards. The ColorSpace III provides NTSC output of a Macintosh 8-bit image. It can also overlay the Macintosh graphics on top of video fed into the card. This composited image will appear on the NTSC device. Limited, non-real-time scanning can be accomplished. With the addition of the F/X card, a variety of video special effects can be achieved with the video signal being sent to the Macintosh.

The video image can be compressed, stretched, flipped, and so on in real time for use in the NTSC world. The F/X card can also frame grab from the incoming video in 24-bits. With the ColorSpace IIi and F/X cards the single-pixel line flicker problem is addressed. They do not use convolution as Apple does. Rather, they have devised their own method of addressing this NTSC issue.

The Orange Micro Personal Vision card offers frame grabbing and the ability to display incoming video on the Macintosh RGB screen. The Personal Vision card does not have an NTSC video output on the card. This cards relates most to the RasterOps 364 card. However, we don't know of any RGB-to-NTSC converter box for the Personal Vision card.

Some of the video cards that have onboard NTSC video output also offer the ability to overlay the Macintosh graphics on top of incoming video to provide a composite image at the NTSC output. This feature needs to be checked for any card being considered for combining video sources with Macintosh graphics.

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