Macintosh: How To Get Simultaneous RGB and NTSC Output

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TOPIC ---

I'm trying to setup my Macintosh so it can simultaneously output an NTSC
video signal for cable TV and an RGB signal for an Electrohome projector.

I've been able to do this by tapping the RGB signal from the Macintosh and
feeding into a scan converter, but this creates a lot of interrupts on the
projector.

I've been looking at NTSC boards, like the one from TrueVision, but these
boards don't support simultaneous RGB output. What I need is a single
board that outputs both signals.

Here's what I've been doing:

```
_____   Red out
_____|_____   Green out
_____|_____|_____   Blue out
_____|_____|_____|_____   Sync out
         |     |     |     |
         |     |     |     |
         |_____|_____|_____|_____|           |
               |_____|_____|_____| RGB to    |
                     |_____|_____| NTSC       |___   NTSC out
                           |_____| converter  |
                                           |            |
```
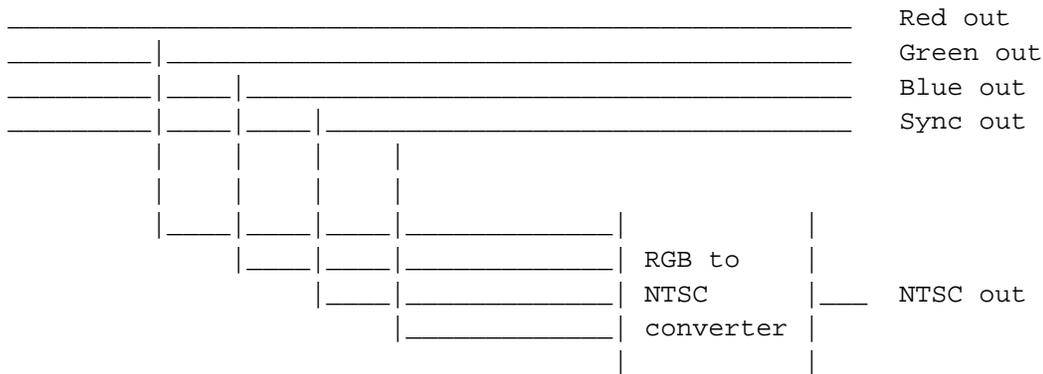
DISCUSSION ---

We doubt there is one video card available that provides simultaneous
Macintosh-style RGB (synchronization rate of around 31K) and NTSC signals
(synchronization rate of around 15K).

However, if your Electrohome projector is a multi-sync RGB monitor that has
NTSC sync timing, there are several options available. You can use a
TrueVision NuVista card and have its RGB signal timed to the NTSC sync

signal. Both the RGB signal and the composite signal are timed to the 15K
sync of the NTSC specification. If your Electrohome projector has the
ability to sync to NTSC timing, the Macintosh video output can go to the
Electrohome as RGB and as composite NTSC for TV devices.

Here's the schematic:

```
                              _____  Red out
                         | _____  Green out
                         | |_____  Blue out
                         | | |  _____  Sync out (NTSC timing)
                         | | | |
                         | | | |
  __R_____|           |__| | | |
  __G_____| RGB to    |____| | |
  __B_____| NTSC      |_____| |
  __Sync_____| converter |_____|
             |           |_____  NTSC out (Composite)
```
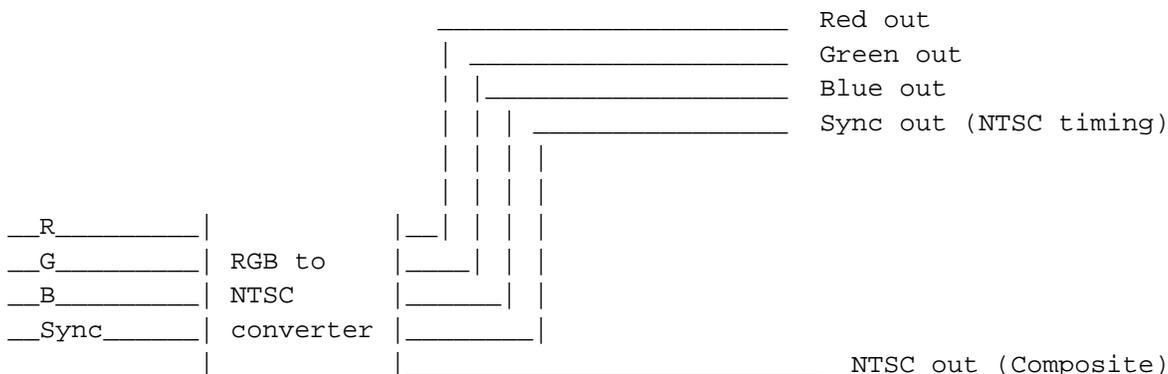
The converters discussed below use this approach to drive both a RGB device
and a NTSC device with the same video image simultaneously.

There are several cards that will work. The key is that the video card
must be able to produce the NTSC sync timing to drive the converter.

• The NuVista+ (newer) or NuVista (older) with VIDI/O Box

• Several RasterOps video cards with their Video Expander Box

• The Macintosh Display Card 4•8, Macintosh Display Card 8•24,
  and Macintosh Display Card 8•24 GC with either the VIDI/O
  or Video Expander

• Any cards listed as compatible with VIDI/O or Video Expander

RGB devices used in this situation must be able to sync to the 15K NTSC
timing produced by the video cards.

The TrueVision card has a variety of NuVista+ cables for connecting
different products, including BNC, S-Video, composite (RCA style), and so
on. The NuVista+ video card is like the VIDI/O Box on the Macintosh NuBus
card: the card doesn't need a separate converter box.

Cables for the VIDI/O Box and the Video Expander Box use standard RCA style
connectors for composite NTSC, standard S-Video connectors for the S-Video
NTSC, and individual BNC connectors for the NTSC RGB. Depending on what
you need, standard off-the-shelf cables may work, or you may need to create
custom cables.
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