

Re: Video overlay generator

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- *From:* panteltje@xxxxxxxxxx
 - *Date:* Wed, 15 Aug 2007 08:46:36 -0700
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On 15 aug, 14:34, Frank Raffaeli <SNIPrf_man_frT...@xxxxxxxxxx> wrote:

On Aug 15, 2:14 am, Andreas <bloodd...@xxxxxxxxxx> wrote:

On 13 Aug, 15:32, bloodd...@xxxxxxxxxx wrote:

Hi!

Im starting a design process for a utility that needs to implement a video overlay generator. Previously we've been using the "classic"

STV5730-chip for text-overlay but since this IC is quite outdated and

hard to get hands on we've decided to implement our own overlay generator.

The reason for this is that we want to be able to display graphical

items (such as a customer logo) and also because we need delegate

control of synchronization signals.

The video signal is CVBS in/out and could be either PAL or NTSC.

We've thought of using these three major parts to implement the

design: a video decoder (f.e. Texas Instruments TVP5150) that feeds a

digital video stream into a FPGA (f.e. Xilinx's Spartan 3), that performs blending between the digital video stream and a "overlay

buffer" that gets generated from a microcontroller, and

finally into a video encoder (f.e. Analog Devices ADV7171).

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I would really appreciate some feedback or input to this solution if someone out there has done something similar.

Should I count with a noticeable video quality loss due to the AD -> DA conversion?

Our application has some specific requirements, f.e. there is a frame counter that has to be updated each frame which probably will require us to implement a character generator inside the FPGA.

Do you think this is a viable solution – is there any existing ICs that will do some or most of this work for me?

Best regards,
Andreas Eriksson

No suggestions?

Best regards,
Andreas Eriksson

Most of the loss will be in the chroma-luma separation. If you can somehow overlay a simple color graphic by replacing the video with the overlay (like an OSD), then you can pass-through the CVBS and only change the signal where the overlay is.

The reason video / audio decoders are going out of style is because now they're all custom ASICs. Even for analog signals.

Frank

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Yes, this is very possible, I have done it with some simple analog switches (HC4053).

In case of color, you also need to insert the right chroma phase, that means in PAL

that you need to phase lock a 4.43 MHz xtal and get the H/2 info too, apart

from the H PLL and V sync.

And, depending on how you create the chroma phase, also 2 90 degrees shifted apart

modulators.

It is all low power analog stuff, could easily fit on one board, if the graphics is fixed

(for example a logo) you could clock from an EPROM (via a PLL locked clock to H), or else use SRAM and provide some processor on with an interface

to update the SRAM.

The digital crude way would be to digitize, add you graphics, and make analog

again, using a high end PC for enough speed to do it in real time.

Both methods likely require some programming knowledge too.

What method depends on quality required and power available, knowledge of video

basics.... time, money.... what not.