

Re: ISA Bus termination question

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On Apr 22, 11:05 am, Matt <metal...@xxxxxxxxxx> wrote:

We were having an issue with a system that uses an ISA bus locking up once every few hours. After a lot of work, we narrowed the issue down to bus termination or lack thereof. After throwing some terminator resistors on the ISA Bus the system runs fine for weeks. Great, problem solved. My current task is figuring out how having no termination caused the system to lock up after a few hours. I started probing the clock, address lines, and data lines on the bus with and without the termination. When there is no termination, there is a larger overshoot and undershoot on the rising and falling edge respectively however the delta of the termination vs. no termination is less than a volt. I was hoping to see something a bit more drastic but I am unsure what the threshold is on the overshoot/undershoot voltages. Also, for grins, I did a FFT on the BCLK signal (8.333MHz) and I noticed that the unterminated signal had well defined even harmonics. The terminated signal had some noise around the even harmonics but they were no where near as structured. I should also point out the the odd harmonics on the terminated signal had a more narrow band.

There are obvious differences in the terminated and unterminated signals, but nothing that really stands out as the problem causing the issue. Is there something else I should look at?

Thank you

I worked on a PC-104 (ISA) project 2 years ago. We used a commercial PC. I developed one board (various interfaces and video) while a fellow engineer developed another board (with a 2-channel servo motor controller). His was 16-bit ISA and mine was 8-bit. Both used FPGAs to decode the ISA control signals. One problem we had was noise from his board getting on the reset line quite often -- resetting the system every few minutes. A simple RC filter on the reset line fixed that problem.

Another problem we had was my 8-bit board was (initially) ignoring the BALE signal. I had to re-write my FPGA code to accomodate the 16-bit

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signals (including BALE), even though my board was 8-bit.

Hopefully one of those 2 bits of info help.

Tom P.

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