
Subject: STEbus projects

Posted by [beb](#) on Sun, 31 Jan 2021 14:05:25 GMT

[View Forum Message](#) <> [Reply to Message](#)

Hi everybody,

around 20 years ago, I worked a lot on STEbus systems for my company. We were mainly making specific PLC for transportation and automation. STEbus was often seen as a "low-cost" version of VME (still alive nowadays by the way).

For those who don't know STEbus, a few interesting things to know :

- 8 bits only
- maximum 5 MB/s bandwidth
- 1 MB memory addressing space
- 4 KB I/O addressing space
- fully asynchronous, with handshake for slow peripherals
- compatible with Z80, 6502, 6809, 68K, 8086, 80188, 8052, etc...

I always preferred STEbus to ECB because it was not "Z80-centric", but everything a question of taste :d

Officially, STEbus (also known as IEEE-1000) is not used anymore, official reason being that it was replaced by ISA and PC/104. Like ECB, STEbus is however still extremely interesting to use as it is simple to implement (a little less than ECB, however, because of the handshake lines, which requires only a 74LS74 to operate)

As I started to dig back in my designs - some are still in MS/DOS Proteus CAD format :lol: - I also found that IEEE and IEC were still selling the STEbus specifications, asking 250 euros for it 8o

Right now, I am working on a 5 slots STEbus backplane, a universal FPGA board able to run as a Bus Master and Bus Slave, and also a Raspberry Bus Master interface. I plan to share everything on the wiki of course when I will have made enough progress (I work on the 3 designs in parallel)

If there is enough interest about it, I propose to create a specific entry on the wiki, as I have a lot of things to share that would be of interest for others (I also have the IEEE specification, but because of the copyright, I can not share it, but I can answer to questions about STEbus)

Interest for STEbus projects(total votes: 4)

Yes 4/(100%)

No 0/(0%)

Subject: Re: STEbus projects
Posted by [beb](#) on Sun, 31 Jan 2021 18:34:34 GMT
[View Forum Message](#) <> [Reply to Message](#)

Forgot to add the picture of the first version of the backplane PCB
I am still working on the power connector (not happy with this model of Phoenix) and I will also probably add decoupling capacitors on power supply of each slot

File Attachments

1) [STE_backplane_4.jpg](#), downloaded 858 times

Subject: Re: STEbus projects
Posted by [b1ackma1er](#) on Mon, 01 Feb 2021 09:01:49 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi,

Always nice to see something new - good luck.

If there are any open source STEbus cards out there it would be great to post links them for people to look at.

Recommend adding reset button connector, on-board reset button and maybe even a cpu-clock connector for front panel Mhz display bling.

Cheers Phil.

Subject: Re: STEbus projects
Posted by [just4fun](#) on Mon, 01 Feb 2021 15:29:33 GMT
[View Forum Message](#) <> [Reply to Message](#)

This is really interesting.
Sometimes I thing to do "something" with a real bus, instead of my usual "minimal" SBC, so wondering about which bus to use...

Subject: Re: STEbus projects
Posted by [beb](#) on Mon, 01 Feb 2021 19:02:25 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi Phil,

thank you for your feedback.

Honestly, I have never heard about "open source" STEbus boards - except the ones I am working one right now :lol:

However, I have some datasheets from Arcom with the schematics within, that I can share (but I have no idea of what copyright applies to them, even if Arcom stopped making them since 2000)

I like your proposal about the reset button, but I have to check back the specification, as I remember that there are some strange constraints for this signal.

Benoit

Subject: Re: STEbus projects

Posted by [beb](#) on Tue, 02 Feb 2021 19:48:04 GMT

[View Forum Message](#) <> [Reply to Message](#)

Here are two technical references from ARCOM with the board schematics, showing how a STEbus interface is built.

And a link to the Wikipedia page dedicated to STEbus (I am currently in the process of correcting the page as there is a lot of missing / incorrect information). I plan to make it a reference to STEbus as the IEEE-1000 document is copyrighted, so I can not distribute it.

Benoit

File Attachments

1) [ST-RELAY16.pdf](#), downloaded 392 times

2) [ST-SER4.pdf](#), downloaded 414 times
