Betreff: Re: C64 diagnostic harness
Von: Sven Petersen <sven@guitarsite.de>
Datum: 22.02.2020, 16:24
An: Per Bengtsson <per.bengtsson@hofnet.com>

Hi Per,

I have spent some time thinking how I can make the harness. I have decided to make one of the user port, one for the tape port and one for the keyboard. The reason is, that making cables is the most failure prone thing and the least fun. The IDC ribbon cable version is pretty easy to make and also usually without problems. All the interconnects are on the PCBs and should work without a problem. I have seen versions with two control port D-Subs on one pcb. That reduces the cabling, but has one major problem, that I have predicted: if the distance of the control ports on the C64 and on the control port PCB don't match very well, there is a excessive sideways force on the connectors, which is not good and leads to contact problems. Mark (Sawickipedia on Youtube) had such a problem. He had a know good CIA, the control ports work perfectly but the harness is reporting "bad". We discussed his problem and he tried to insert cables between the control ports and the PCB. Then the Diagnostic software was reporting "ok".

I have recently changed the keyboard dongle. It is not yet on github. The reason is as follows:

the keyboard dongle and the control port test 4066 on the user port PCB are producing the same connections on CIA1. On the UP PCB, the connection is switched and on the keyboard dongle the connections are permanent. So the test works, even when no 4066 are installed. The control port test tests just the connections on the keyboard dongles, but not the copper trace and emi filters and control port connectors. To test properly, you have to test two passes: one with and one without the keyboard dongle.

My idea is to switch off the connections on the keyboard dongle and switch on the connections for the control port and vice versa. You just need one more 4066 on the user port pcb and a ribbon cable between them (5 connections = 10 pins IDC connector). So in case, you want to make it from scratch, it is easy to implement. I have chosen an different approach, since people maybe want to keep the user port PCB as is and add two 4066 on the keyboard dongle, which are switched with a signal via a single cable from the cassette port PCB.

If you have questions, feel free to ask and building harnesses and selling them for a fair price is a good idea.

Mit freundlichen Grüßen/Kind regards
Sven Petersen

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Am 22.02.2020 um 14:04 schrieb Per Bengtsson:

> Guten Tag!
>
> I must start by saying how much I appreciate the work you do for the C64 community.
>
> I found your excellent version of the diagnostic harness on Guithub and was thinking of creating an own SMD version of it. Mainly for exercise reasons since I like working in Eagle and I learn something all the time while doing it. I also like putting the order at a board house and seeing the result when they finally show up.
> But there also seems to be a demand for these harnesses and they are hard to find, at least here in Sweden and all people can't build electronics so I thought I could make a few.
> SMD is usually both quicker and cheaper once you have a stencil and I'm also hoping to get the size down so that I could fit all the modules on one or two cheap PCBs without having to order hundreds.

> I have one question though which I hope you can answer.
> I find the 0 Ohm resistor R7 peculiar on a doublesided board since it only bridges pin 4 and 6 on the cassette connector. It's almost as if it was an optional bridge or a bridge where you might want to add some resistance in some cases.
> Is there a reason that you used a bridge instead of just tying the two pins together?
>
> Kind regards,
> Per