Subject: DSKY V3?
Posted by lynchaj on Mon, 29 Mar 2021 14:47:31 GMT
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https://www.retrobrewcomputers.org/doku.php?id=builderpages: speed3ple:dsky

I thought we were still on DSKY V2 but I see there is a page on the wiki for DSKY V3. Does anyone know if there was a new version of DSKY made? If so, where are the files and wiki page, etc.?

A version of DSKY which could work with the latest version of SBC V2 including the PPIDE interface seems possible and would be a great idea. I think all the pins are there but some are now inverted so it would need some corresponding inverters to return the signal to what the old DSKY was expecting.

Thoughts? Ideas?

Subject: Re: DSKY V3?
Posted by danwerner on Tue, 30 Mar 2021 14:21:26 GMT
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A re-spin of the DSKY is not a bad idea. If I were to do it again, I think I would use Cherry MX keys/caps rather than the harder to find tact switches/caps and would likely use a max7219 seven seg display module rather than the display driver that I used. This would lead to easier to source parts and I think would have a better overall build quality.

What do you think?   Perhaps I will try to throw together a board this week.

Dan Werner

Subject: Re: DSKY V3?
Posted by lynchaj on Tue, 30 Mar 2021 16:16:05 GMT
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I really liked DSKY when it came out. I think its a great idea and deserves a respin to update it. It was cool to be able to type in commands and control the SBC. Actually I wish it had more functionality like break-points and single step too. Not sure how that would work but neat any way.

Now that the SBC V2 has moved away from the old PPI interface to PPIDE I think if DSKY could use the PPIDE instead it wouldn't get left behind.

For the upcoming Z80 PPIDE board project (Z80 MBC) my plan is to have both legacy PPI and PPIDE connectors on the board so people can use older DSKYs, PPIDEs, PPISDs, and all the

peripherals that were designed for SBC PPI interface in addition to just plugging in a CFIDE adapter board. There were several PPI peripherals as I recall.

Subject: Re: DSKY V3?
Posted by danwerner on Thu, 01 Apr 2021 15:53:27 GMT
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This was just thrown together, and I have not built a prototype, but what do you think of this??   It is not software or hardware compatible with the original, but it is much more I/O efficient and uses more modern parts.   The Cherry MX switches, Keycaps and the MAX7219 display module should all be easily obtainable.
Dan Werner

File Attachments
1) NextGenDSKY_PCB.pdf, downloaded 387 times
2) NextGenDSKY_Schematic.pdf, downloaded 373 times

Subject: Re: DSKY V3?
Posted by lynchaj on Thu, 01 Apr 2021 19:06:59 GMT
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Hi Dan,
I can sort of visualize the new DSKY from the schematics and PCB but would you please post a 3D image? Thanks

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Subject: Re: DSKY V3?
Posted by danwerner on Thu, 01 Apr 2021 20:32:28 GMT
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Due to the library I am using, this is not an awesome view, but . . .

I think I will order a couple of PCBs, and then post some pictures of it once constructed.

Dan

File Attachments
1) Capture.JPG, downloaded 1066 times

Subject: Re: DSKY V3?
Posted by lynchaj on Thu, 01 Apr 2021 22:08:11 GMT
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Thanks

Subject: Re: DSKY V3?
Posted by Wayne W on Fri, 16 Apr 2021 23:12:22 GMT
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I would love to see a new DSKY that is compatible with the new PPIDE port. RomWBW
continues to support the DSKY and I even overhauled the DSKY code not too long ago.

The one challenge I have is that there does not seem to be any good way to auto-sense the
existence of the DSKY. This means a custom ROM is required. Is there any way to enhance the
DSKY to allow it to be probed for existence?

Thanks,

Wayne

Subject: Re: DSKY V3?
Posted by danwerner on Sat, 17 Apr 2021 22:05:36 GMT
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It would not be impossible to add in a way for the DSKY to be auto detected. . . . There are two
open input pins on the 74LS148(u2) decoder that is used to scan the keyboard matrix.   Today
they are both tied to low, BUT . . . If we tied them to the LED output from the 74LS138(U1), you
could toggle that output and then look for a corresponding input from the row decoder.   Seems
like a pretty simple change.

I do have the PCBs in and am building up a prototype now. I think for the next run I want to make
three changes . . .

 #1 I currently had five of the max7219 seven segment modules in stock, and I noticed when
building that there are at least three different pinouts of those modules. So I think a jumper block
would be appropriate so that almost any of the cheap pre-made modules will work.

 #2 Seems like there should be a connector on the new DSKY that is compatible with the old SBC
without making a custom cable.   The new DSKY only needs 8 bits (4 in/4 out) and the new
connector was designed to reflect this, but it might also be good to have the original connector on
the board as well.   I think a pass through connector would also be useful so that the rest of the
ports can be used by other hardware.

 #3   Wire up the LED output to the bit 6 and 7 inputs of the decoder to allow hardware detection

Subject: Re: DSKY V3?
Posted by danwerner on Mon, 19 Apr 2021 16:00:27 GMT
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So . . . the prototype version of the new DSKY has proven one thing VERY clearly . . . that I am a moron. :)

It is going to need a bit of work if the display section is to work, so in addition to the above items, fixing the display output is also necessary.

Subject: Re: DSKY V3?
Posted by danwerner on Tue, 20 Apr 2021 13:23:11 GMT
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I took some time to look at the PPIDE, and I think there is a way to allow them to coexist on the same port -- but it is going to take a pretty significant redesign.   I think I am going to go back and rework the entire idea to see if I can get something that would work.

Subject: Re: DSKY V3?
Posted by danwerner on Fri, 25 Jun 2021 23:04:45 GMT
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Looks like we are very close to a final DSKY revision.   It is really more like a total rework of the board rather than a re-spin, and I think will end up working quite a bit better. The new version can be used on the same port with a PPIDE or PPISD and utilizes an Intel 8279 chip to scan the keyboard and multiplex the LEDs so it is pretty easy to interface with.

Below is a picture of the latest prototype working with Andrew's Z80MBC stack of boards. I am also attaching the current schematic and PCB layouts. I will be ordering the final PCBs this weekend, so hopefully I can post pictures of the board with the final keyboard layout in a week or so.

The keycaps that I used are just some CherryMX compatible keycaps with a DSA profile that I found on Amazon, then drilled and filled in the windows for the LED shine through (obviously my drilling jig needs more work, but not terrible for a first attempt). It would also be possible to order custom shine-through keycaps, but I have not ventured into that territory yet.

Hopefully I can get a wiki page setup in the next few days.

Dan Werner

Subject: Re: DSKY V3?
Posted by danwerner on Fri, 25 Jun 2021 23:18:07 GMT
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Here are a few other pictures of other keycaps.

https://flashquark.com/product/translucent-dsa-keycaps/ (Clear -- I don't really care for the clear ones as the LEDs are too bright. I think that the other colors might be OK though)

https://flashquark.com/product-category/keycaps/oem-keys/mix able/ (white)

the keycaps in the original picture are from here:
 https://www.amazon.com/gp/product/B08T64C41K/ref=ppx_yo_dt_b
_search_asin_title?ie=UTF8&psc=1

Subject: Re: DSKY V3?
Posted by lynchaj on Mon, 05 Jul 2021 12:02:07 GMT
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Built and tested DSKY next generation with Z80 MBC. Wow, it works great and looks cool as heck! Ordered my key caps so hopefully this week I'll have it completed. Awesome project! Thanks!

Andrew Lynch

PS, even with all the LEDs the DSKY ng is self-powered from the PPI interface cable (keep it short) so no external power supply is needed. I had one prepared because I expected it would be

needed but happily it works fine without one. I did notice a small voltage drop across the PPI cable of about a 0.1 volt so VCC is about 4.9x instead of 5.0x on the MBC backplane

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Subject: Re: DSKY V3?
Posted by lynchaj on Fri, 09 Jul 2021 14:16:58 GMT
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DSKY ng with key caps installed

Black PCB, red keys, yellow backlight LEDs, glowing red 7 segment LED displays... Its the DSKY Darth Vader edition! ;-)

Great project Dan, congratulations!

Thanks, Andrew Lynch

PS, ROMWBW supports DSKY ng!

Subject: Re: DSKY V3?
Posted by danwerner on Tue, 13 Jul 2021 18:21:39 GMT
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I think we have the final version of the DSKYng ready to go. I have updated the wiki with a new DSKYng page and there is work being done to get full support for the DSKYng into RomWBW now.   I have a couple left from the final prototype run . . . if anyone wants one, let me know and I will send them out for $10 each (basically cost of shipping). Please reach out to me via e-mail first as I only have 2 left and do not really plan on ordering more in the near future (If someone else wants to order more,feel free, the gerbers are on the wiki).

Special thanks to Andrew Lynch, Wayne Warthen, and John Coffman for their assistance during the design, build and testing.

Subject: Re: DSKY V3?
Posted by edzard on Tue, 13 Jul 2021 19:17:00 GMT
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Looks amazing!

Nice work guys!

Best regards,

Edzard

Subject: Re: DSKY V3?
Posted by drj113 on Wed, 11 Sep 2024 01:34:19 GMT
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Sorry to resurrect an old thread.

I have been extending RomWBW to support my STD bus ecosystem - with great success so far :)

One of my cards is based on a prolog 7303 display/keyboard card - it has been modified to allow the use of a 16x2 LCD display.

I would love to enable the DSKY functionality. In order to achieve this, I have written a card driver that supports the DSKY keyboard and display routines, but the one thing I can not figure out is apart from enabling DSKY functionality in my specific configuration file, how do i get RomWBW to 'boot' into dbgmon? Is that how it is used?

My original goal was that with DSKY enabled, assuming the card was detected on startup, it would take control instead of the serial routines. But I can't see how to achieve that.

Subject: Re: DSKY V3?
Posted by phil_g on Thu, 12 Sep 2024 19:20:11 GMT
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Sorry this has gone over my head, DSKY as in Apollo? a replica?