

Issues with the VCU118 board purchased by Deep Space Technologies

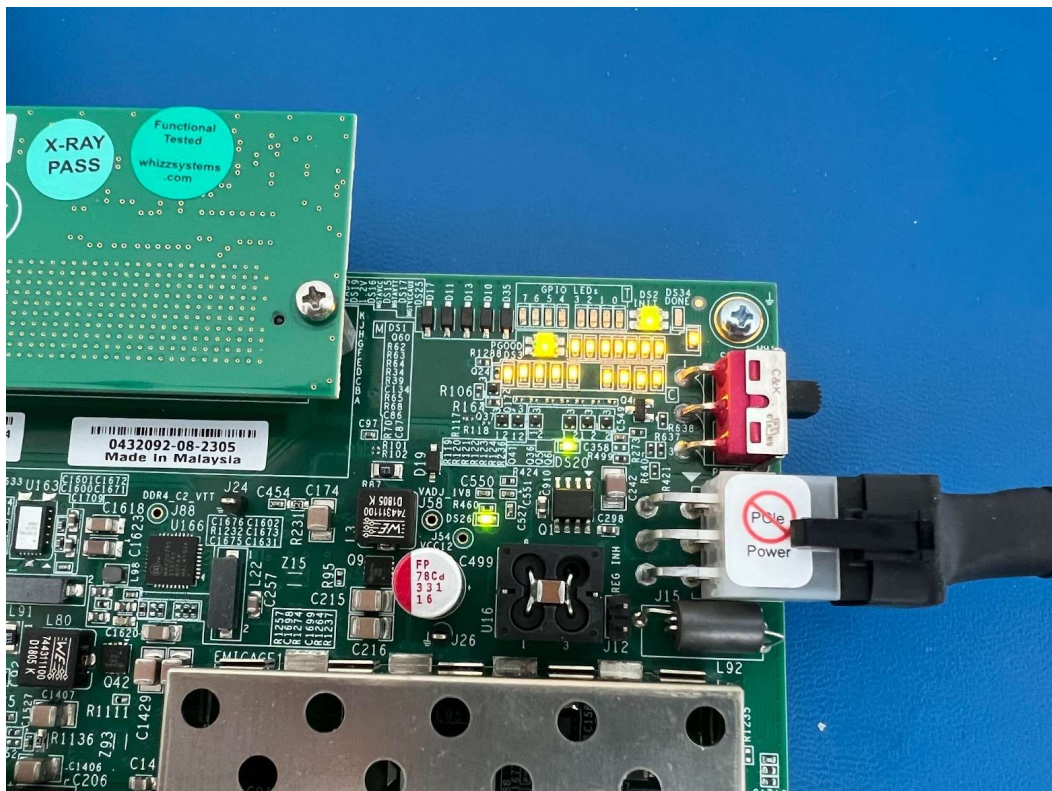
Symptoms: The connection to the System Controller does not seem to work properly. It does show up in the device manager although differently from the documentation, but when I try to run the system controller UI it says it can't connect to the serial port. The FPGA interface appears to be working, at least in part. When I run the BIT tests, some pass and some fail. If I disconnect J4, nothing changes. If I disconnect J106, everything fails.

Details: I went through [69737 - Virtex UltraScale+ FPGA VCU118 Evaluation Kit - Board Debug Checklist \(xilinx.com\)](#).

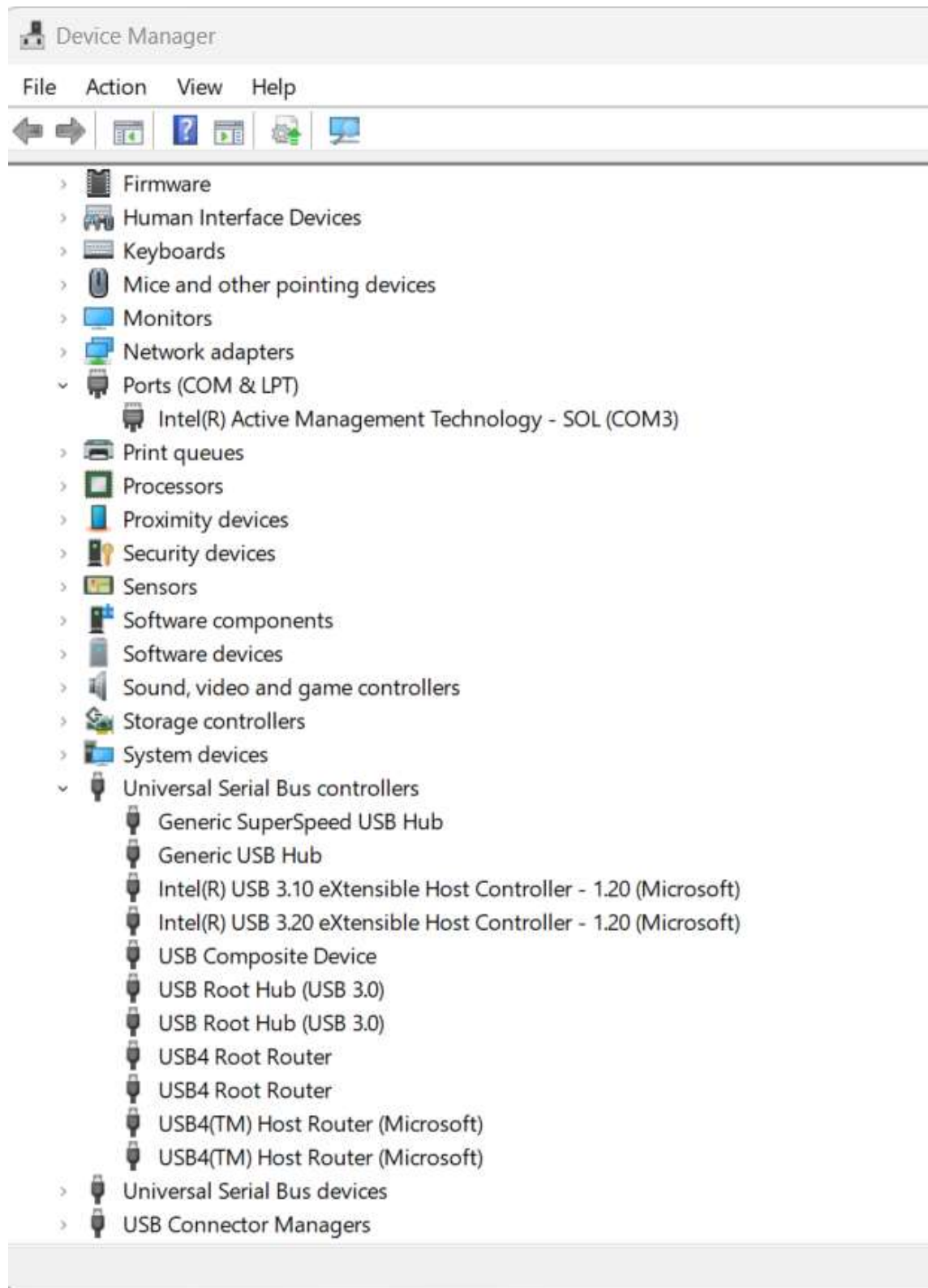
Switch settings are as shown in the first and second table. Note that the MSB of SW16 is labeled as system controller enable and is shown as Off - is that correct? I see no documentation of that anywhere. Ditto SW15

Jumpers appear correct except that I cannot find J29.

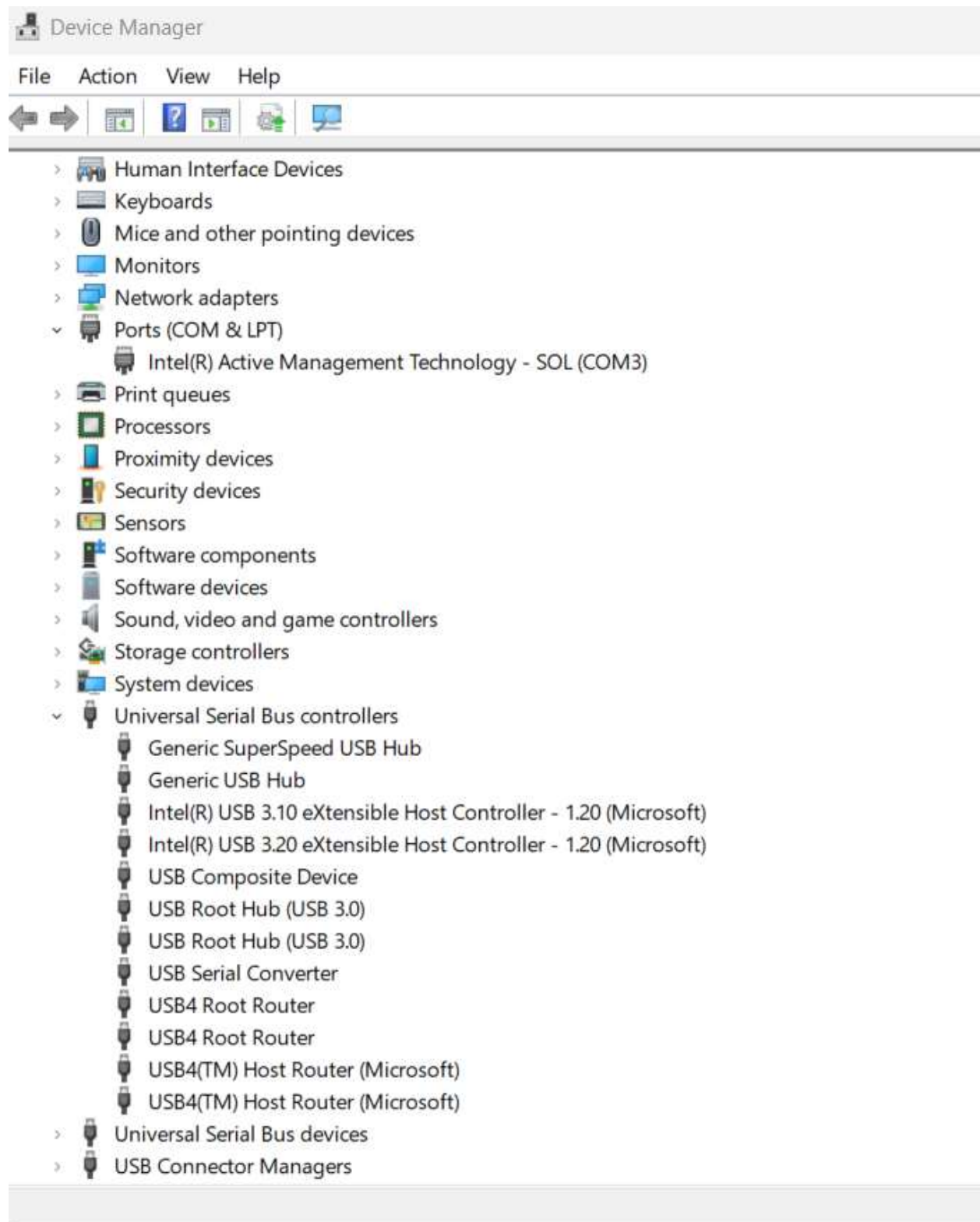
LEDs - I cannot find labels corresponding to all the listed leds but DS2, DS3, DS20 and DS26 are lit as well as many others. I have attached a photo. The blue DS34 LED also lights up during tests.



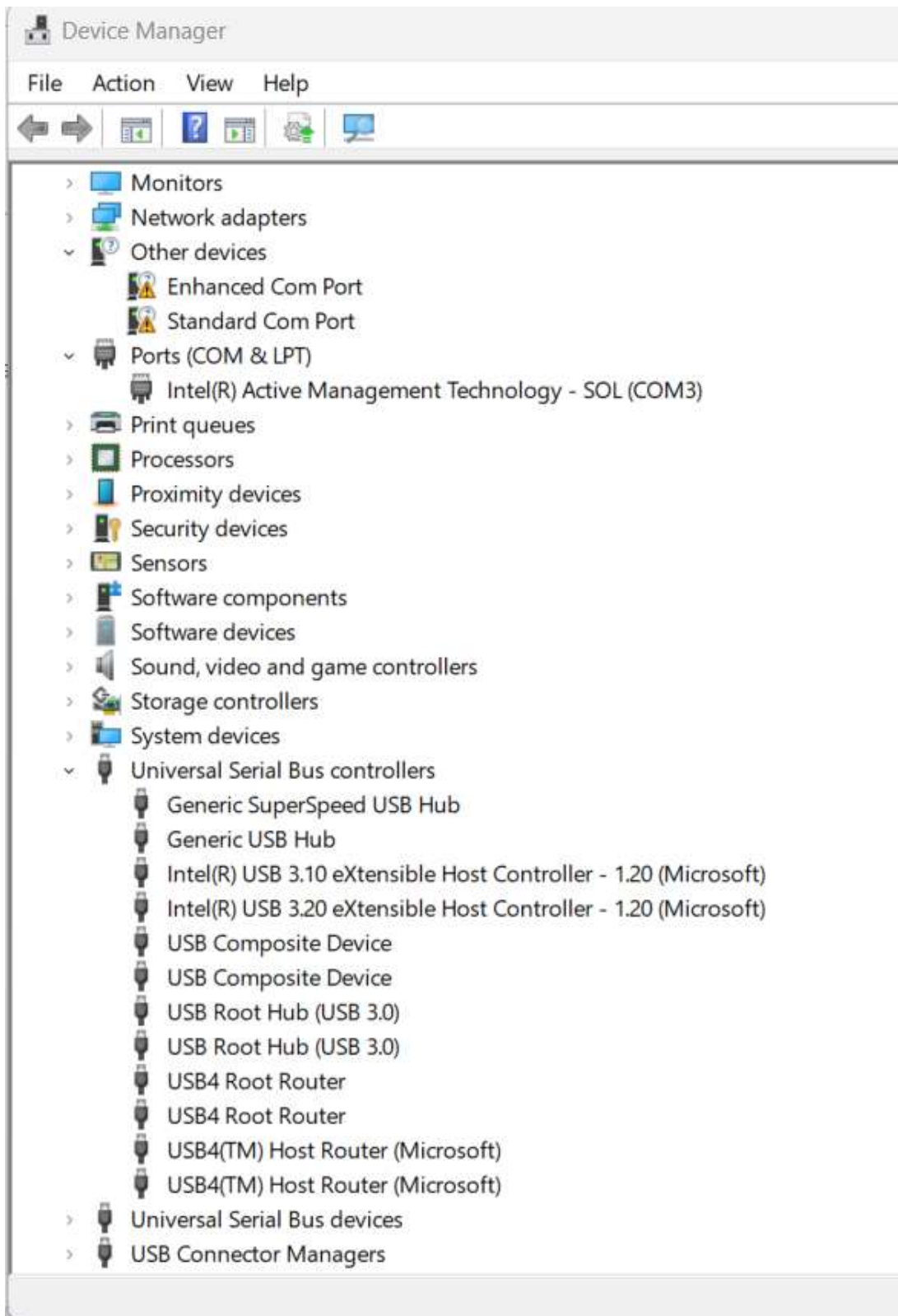
Cables and Drivers - Without the CP210x drivers and before plugging in the cables to J4 and J106, the device manager looks like the following:



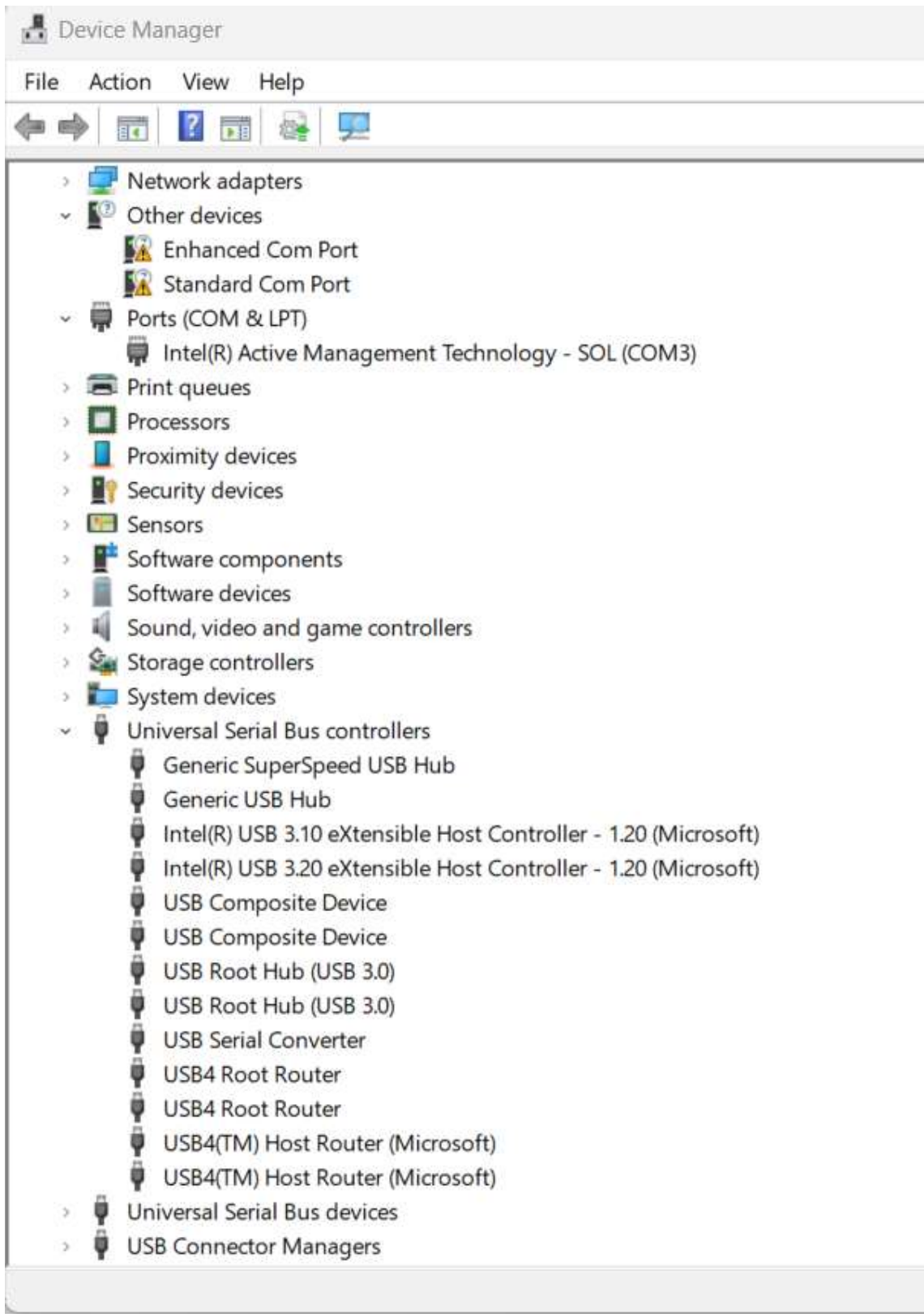
If I connect J106 to the PC I see an additional USB Serial Converter in the USB Serial Bus controllers listing:



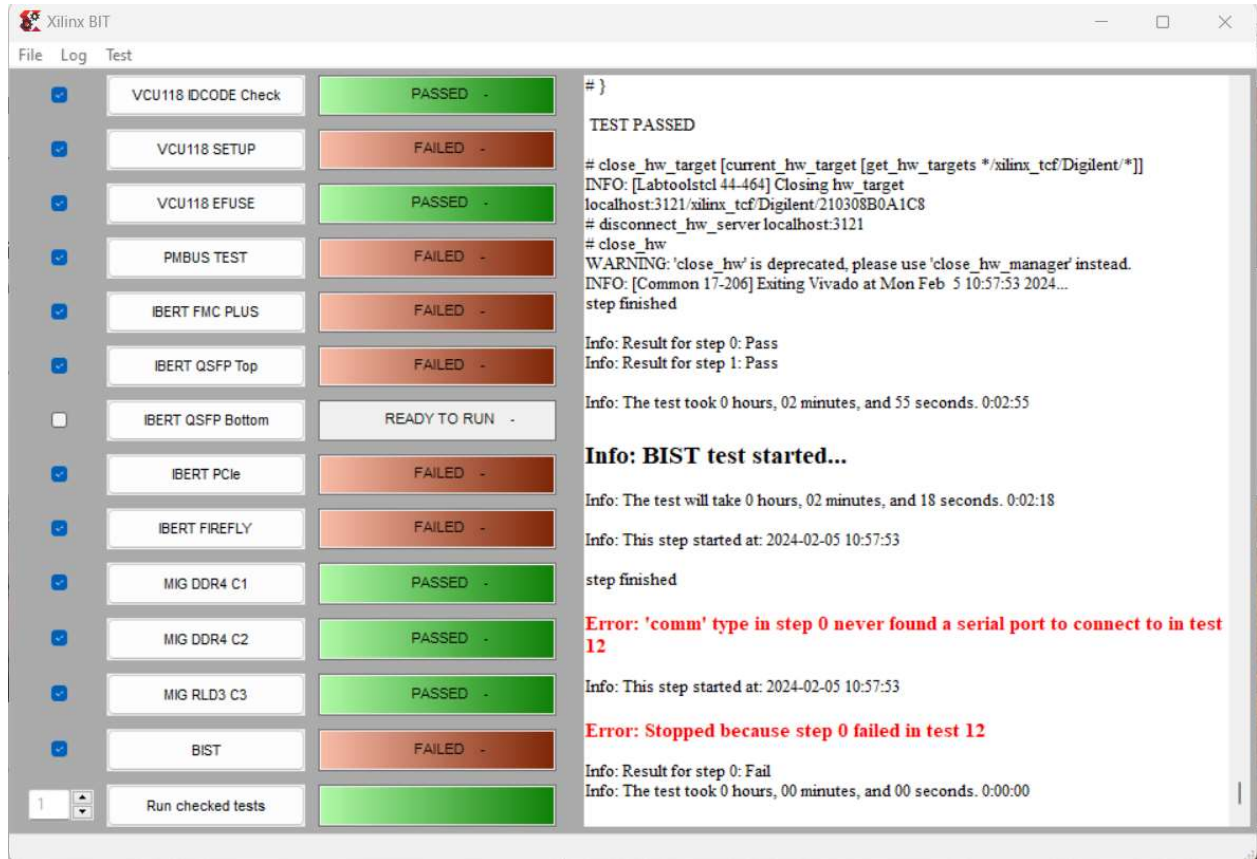
If I disconnect that and connect J4 to the PC, I see a second Composite Device (but no Serial Converter) and I see two Other Devices, an Enhanced Com Port and a Standard Com Port.



If I connect both J106 and J4 I see a combination of the two.



At this point, without any CP210x drivers from Silicon Labs loaded, I can run the BIT test with the default 12 tests checked and 5 of them will pass. Of the 7 that fail, 3 failed with “never found a serial port to connect to” and the 4 IBERT tests failed because it never found a regular expression in a log file. See screenshot for passing/failing tests.



If I disconnect J4 I get the same test BIT results. If I disconnect J106, everything fails.

I download the CP210x_Universal_Windows_Drivers, which per the release notes is for Windows 11. If I installed the “silabser.inf” file, the Universal Serial Bus controller list stays the same but the two “Other Devices” disappear and two new Silicon Labs devices appear under

“Ports (Com & LPT)”. Note they say “dual” ports.



The diagram in [69737 - Virtex UltraScale+ FPGA VCU118 Evaluation Kit - Board Debug Checklist \(xilinx.com\)](#) shows one composite device and two serial converters, but what I see are

two composite devices and one serial converter. From unplugging cables I see that one composite device and the two Silicon Labs ports are connected with J4, and the lone serial converter is associated with J106. When I run the BIT test the same tests pass and fail, and again disconnecting J4 does nothing while disconnecting J106 makes everything fail.