

ChipWhisperer CW340 "Luna Board" - Xilinx Kintex Ultrascale Target Board

NewAE Technology Inc.

Revision Summary

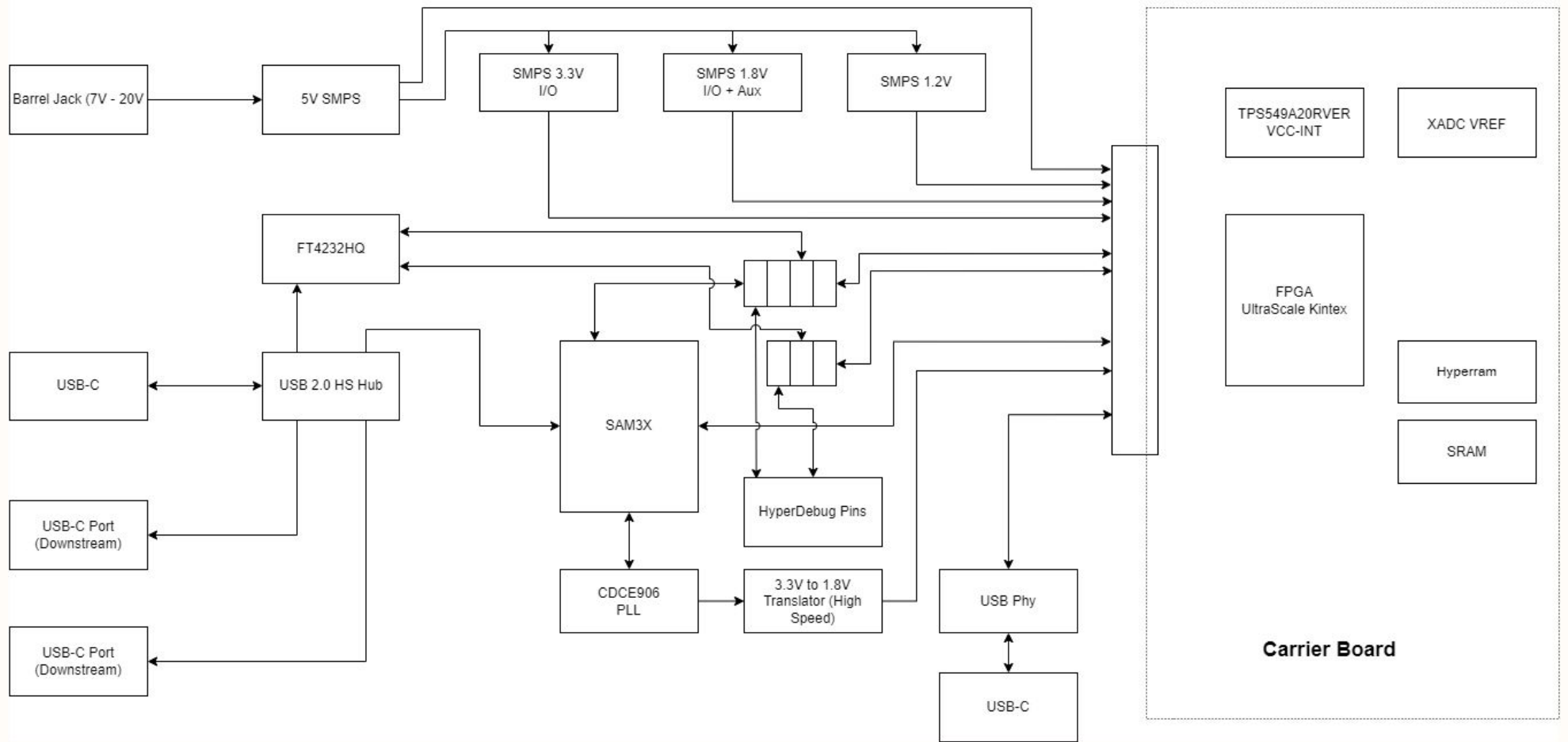
- 00: Ultra-alpha.
- 02: Test version.
- 03: First Beta
- 04: RC
 - * Add HD connections, including reset
 - * Fix VCCINT led
 - * Add PLL2 header & selection
- 05: Production
 - * R187 - 3.3V from HD board instead

Known Issues / Mods

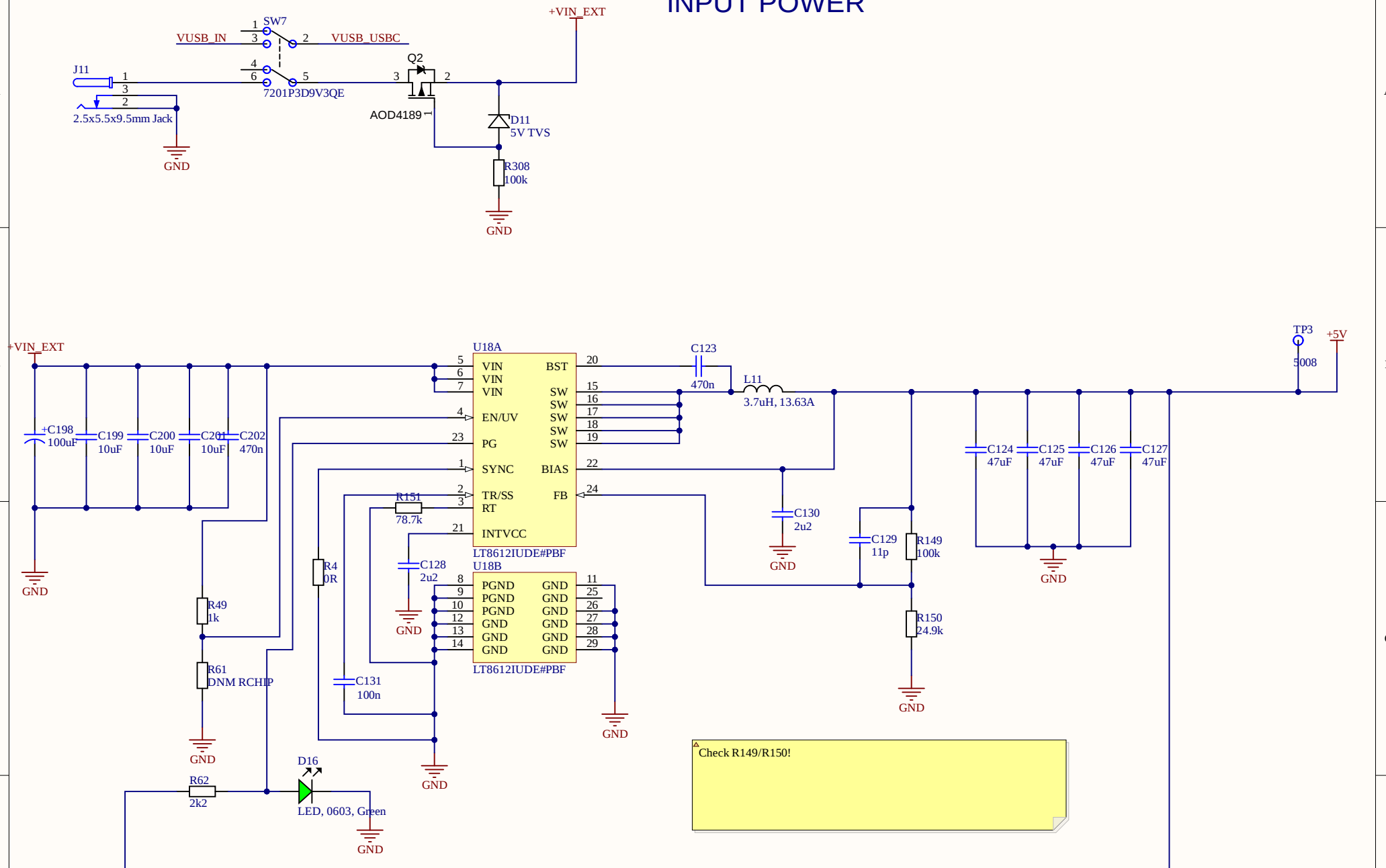
- on 05:
- * Add pull-down on Q24/Q25 using 10K
 - * Change R260/R261 to 33 Ohm.

Title: Luna Board - The Cover Sheet		
Rev: 05	Project: CW340 .	
Date: 2023-07-20	Time: 12:37:55 PM	Sheet 1 of 31
File: CW340_Cover_Page.SchDoc		Copyright © NewAE Technology Inc. NewAE.com

Block Diagram



INPUT POWER



Based on design from
<https://webench.ti.com/appinfo/webench/scripts/SDP.cgi?ID=9C49F428E2C4FF82>

Title: **5V Regulator**

Approved: Yes

Rev: 05

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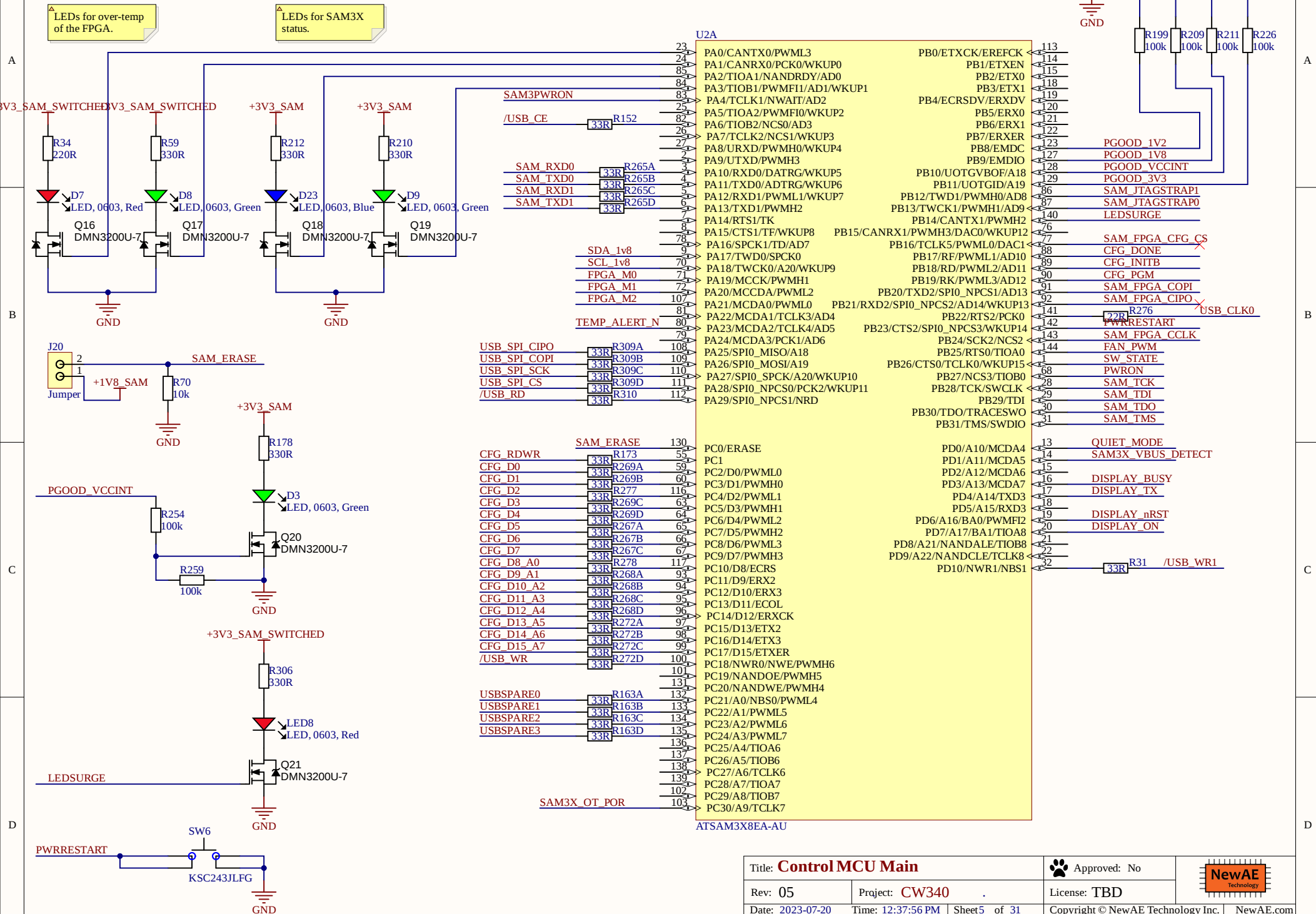
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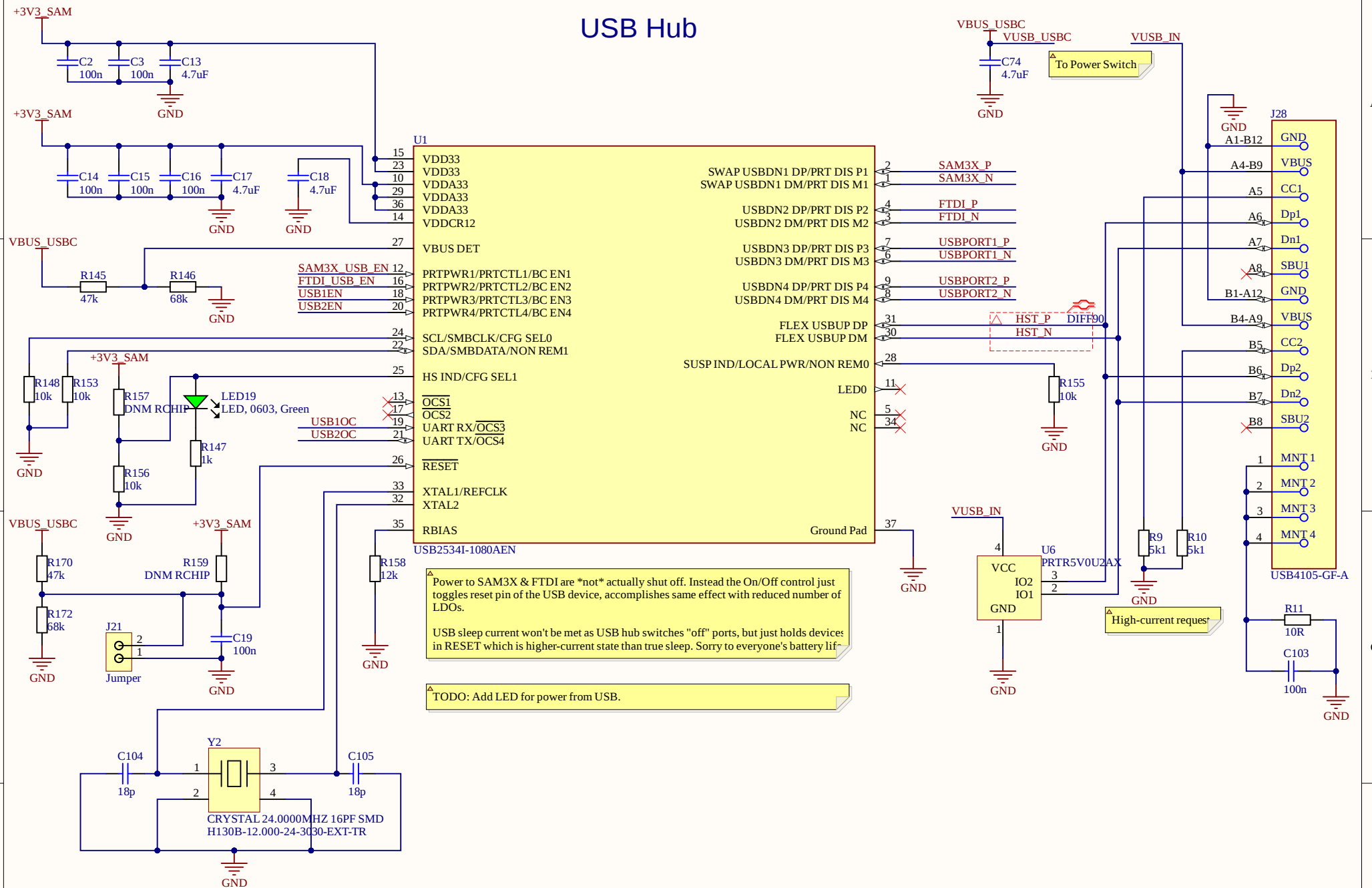
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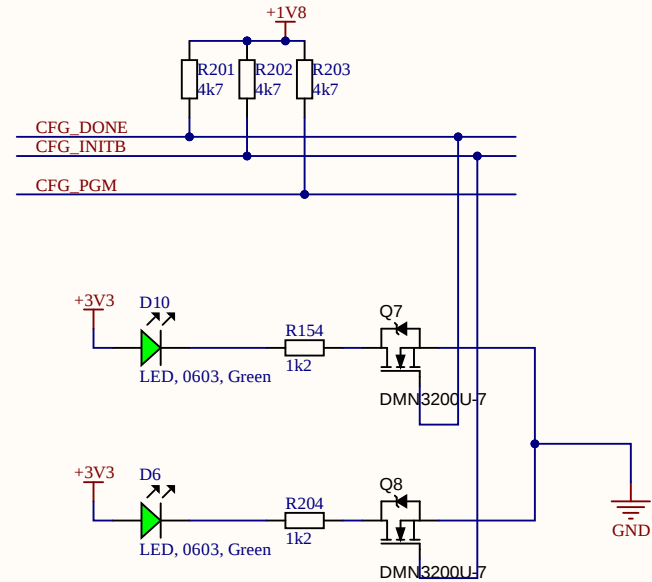
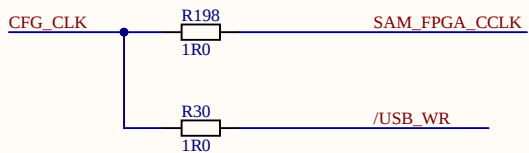
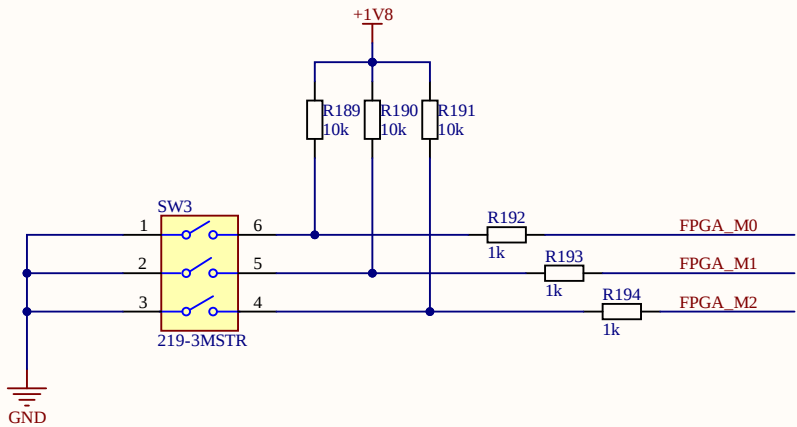


SAM3X CPU



USB Hub

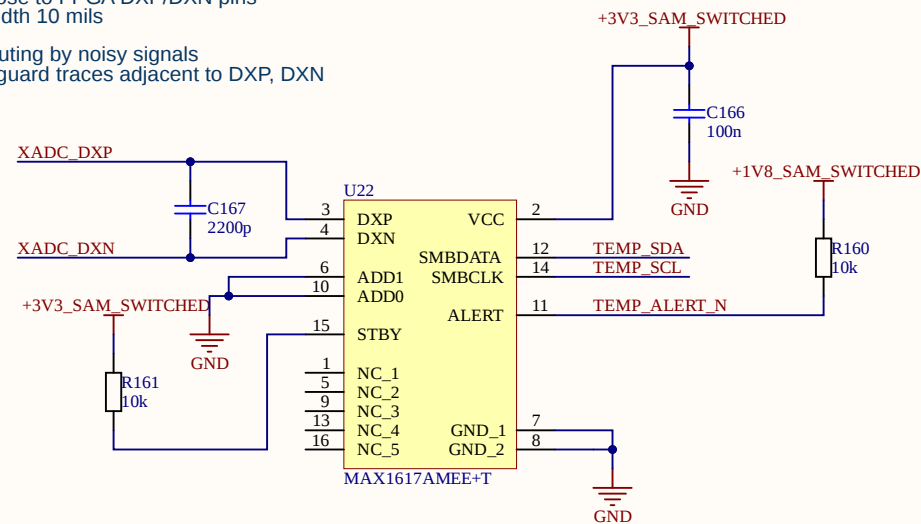




Thermal Diode Temp Sensor

Place close to FPGA DXP/DXN pins
Trace width 10 mils

Avoid routing by noisy signals
Include guard traces adjacent to DXP, DXN

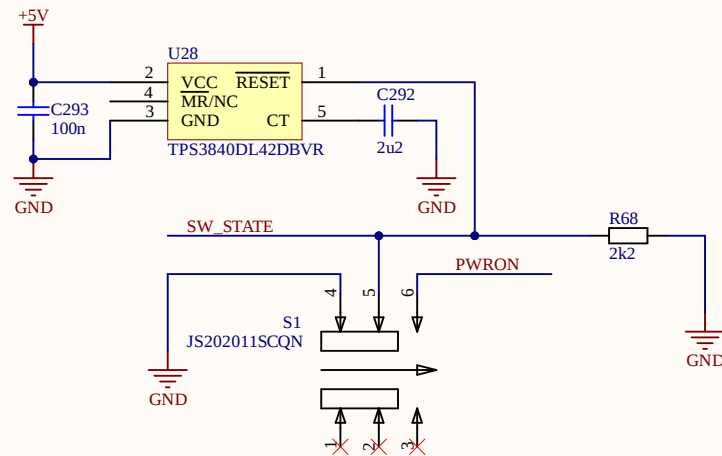
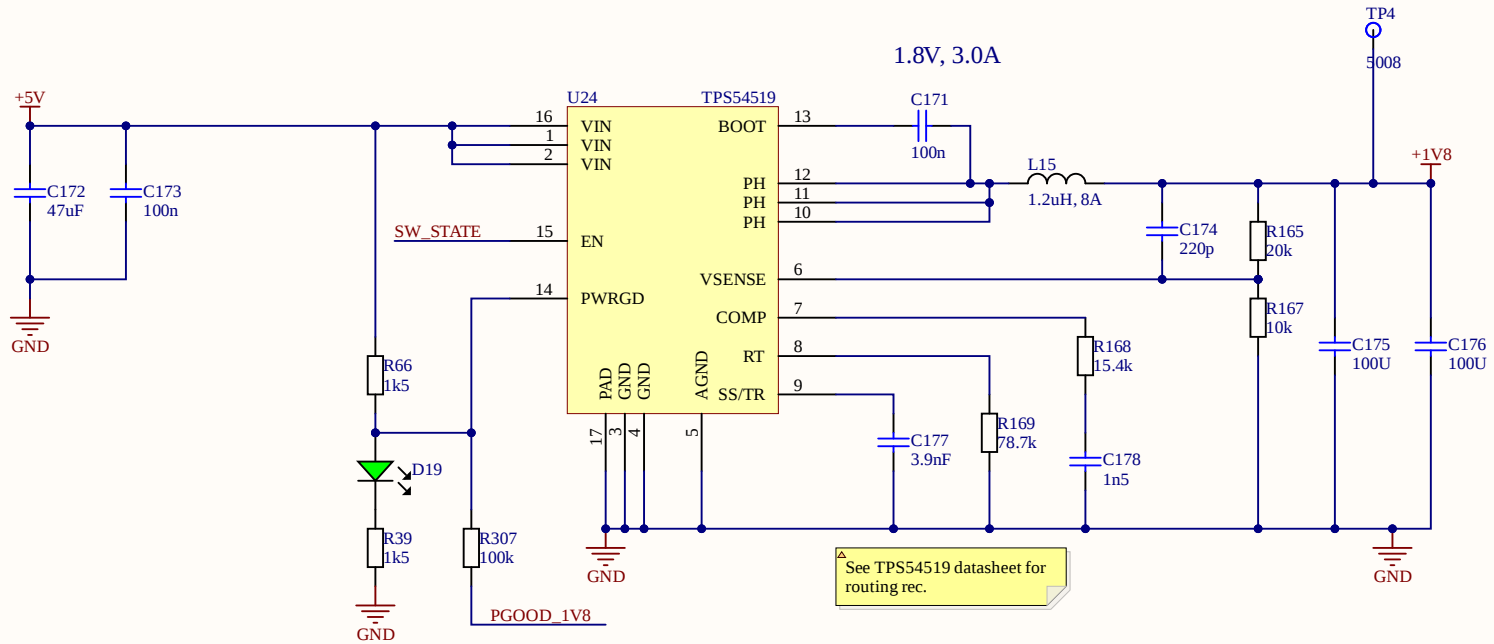


I2C Address = 0x18

Temperature diode ideality factor = 1.010

Temperature diode series resistance = 2

Title: FPGA - Thermal + XADC			 Approved: Yes		
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File: CW340_FPGA_XADC_SchDoc					



Title: **VCC-AUX/VCC-IO SMPS**

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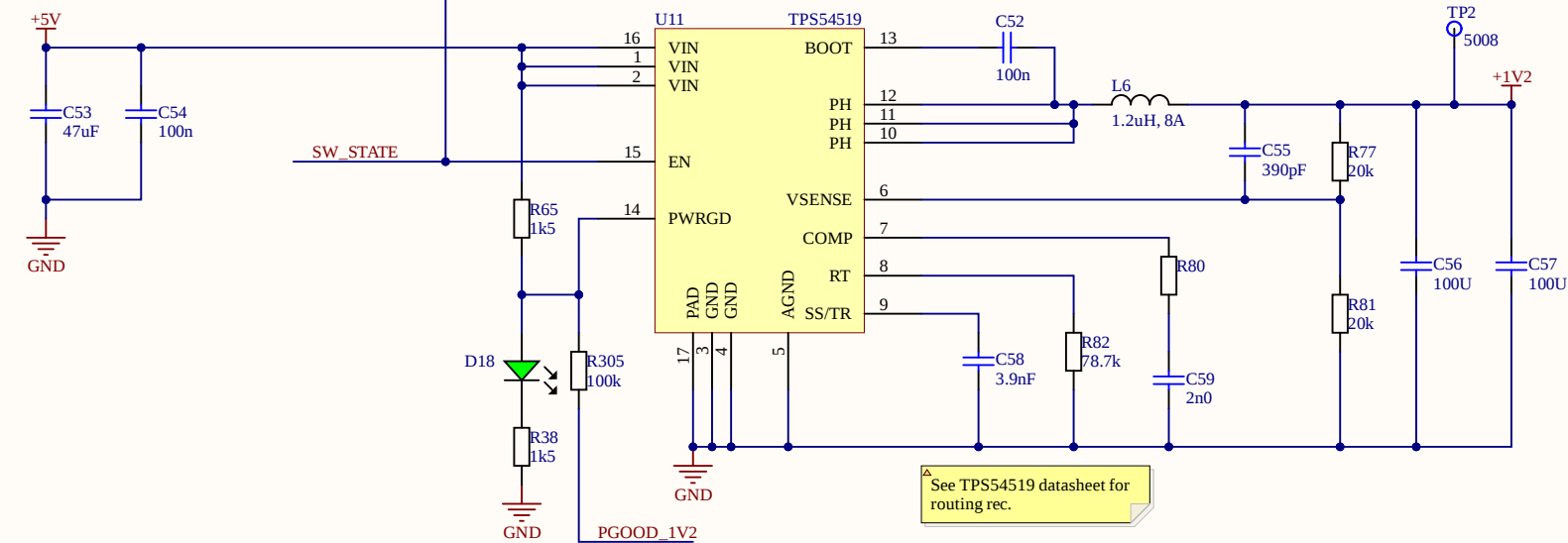
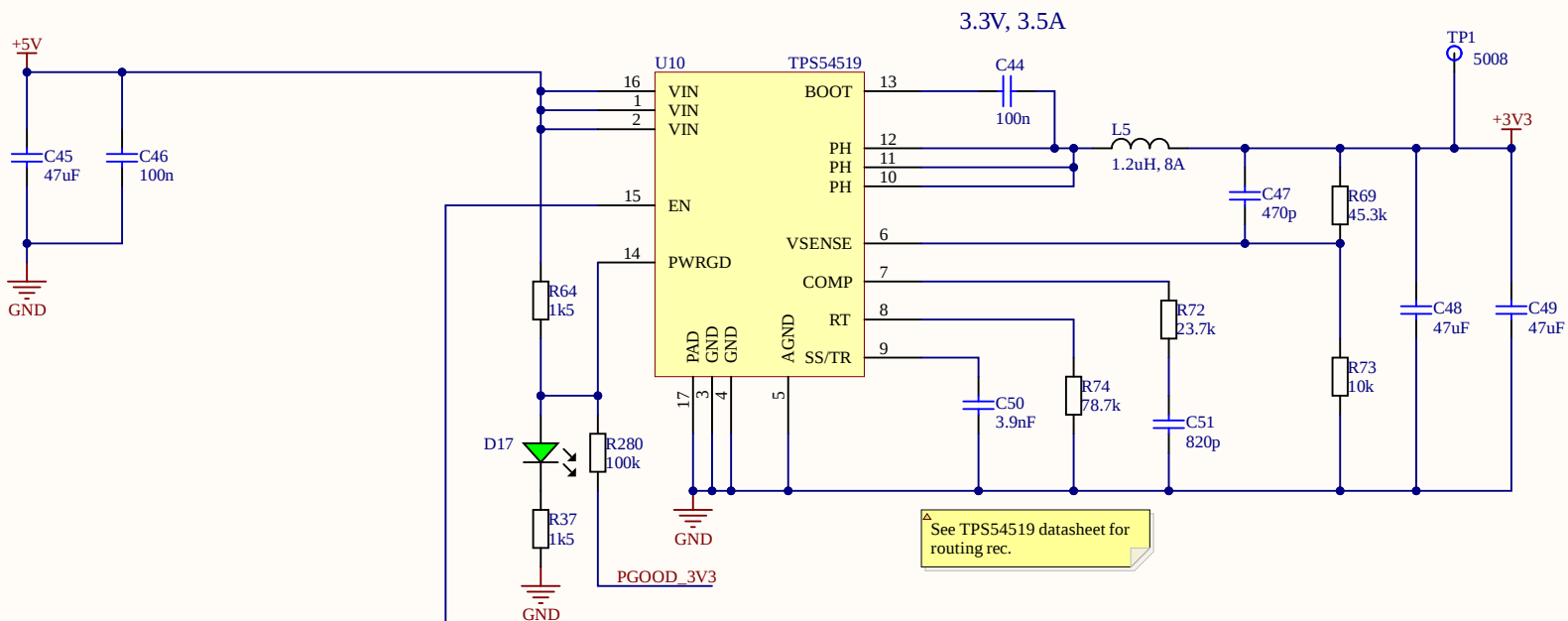
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File: CW340_PSU_VCCAUX.SchDoc





Title: **VCCIO Fixed Supplies**

Approved: Yes



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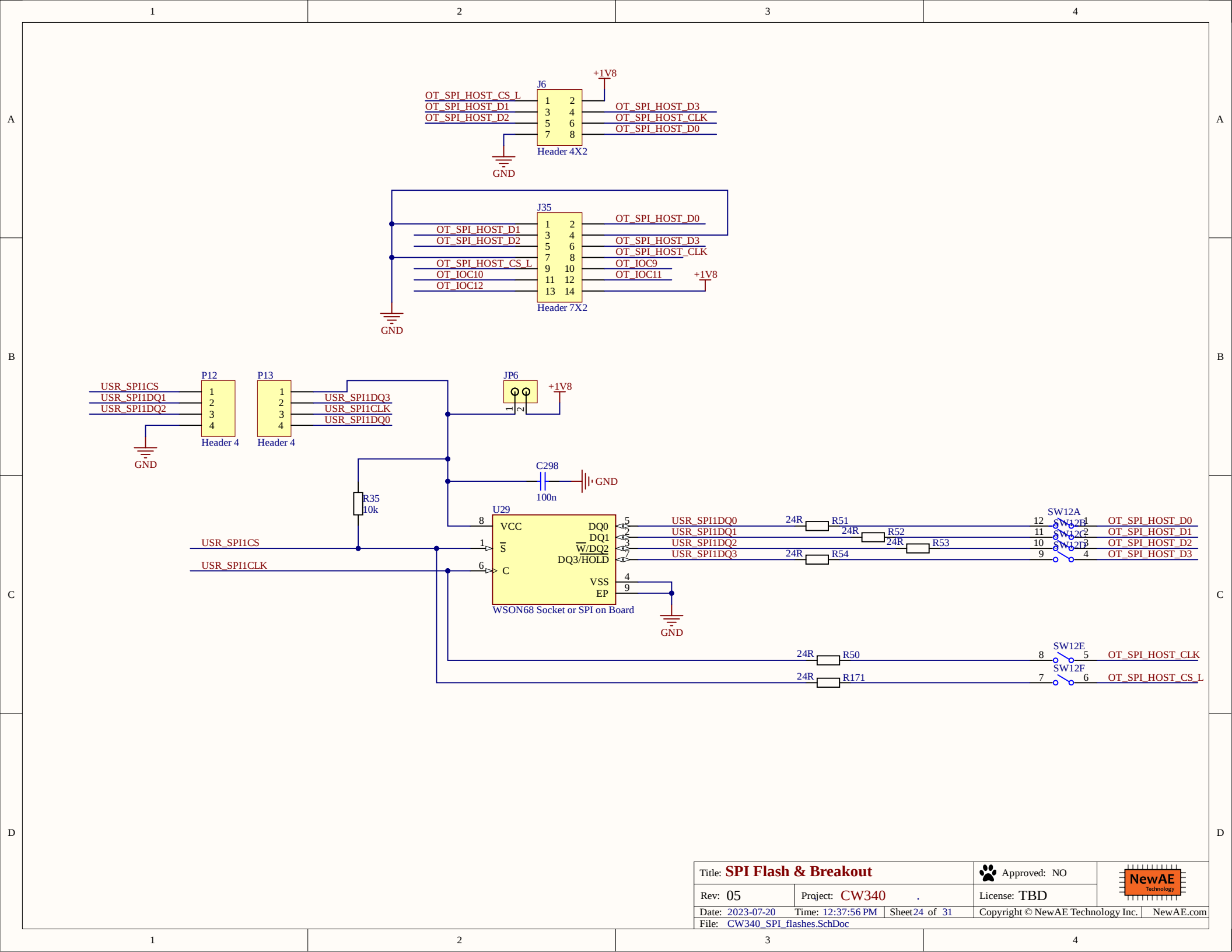
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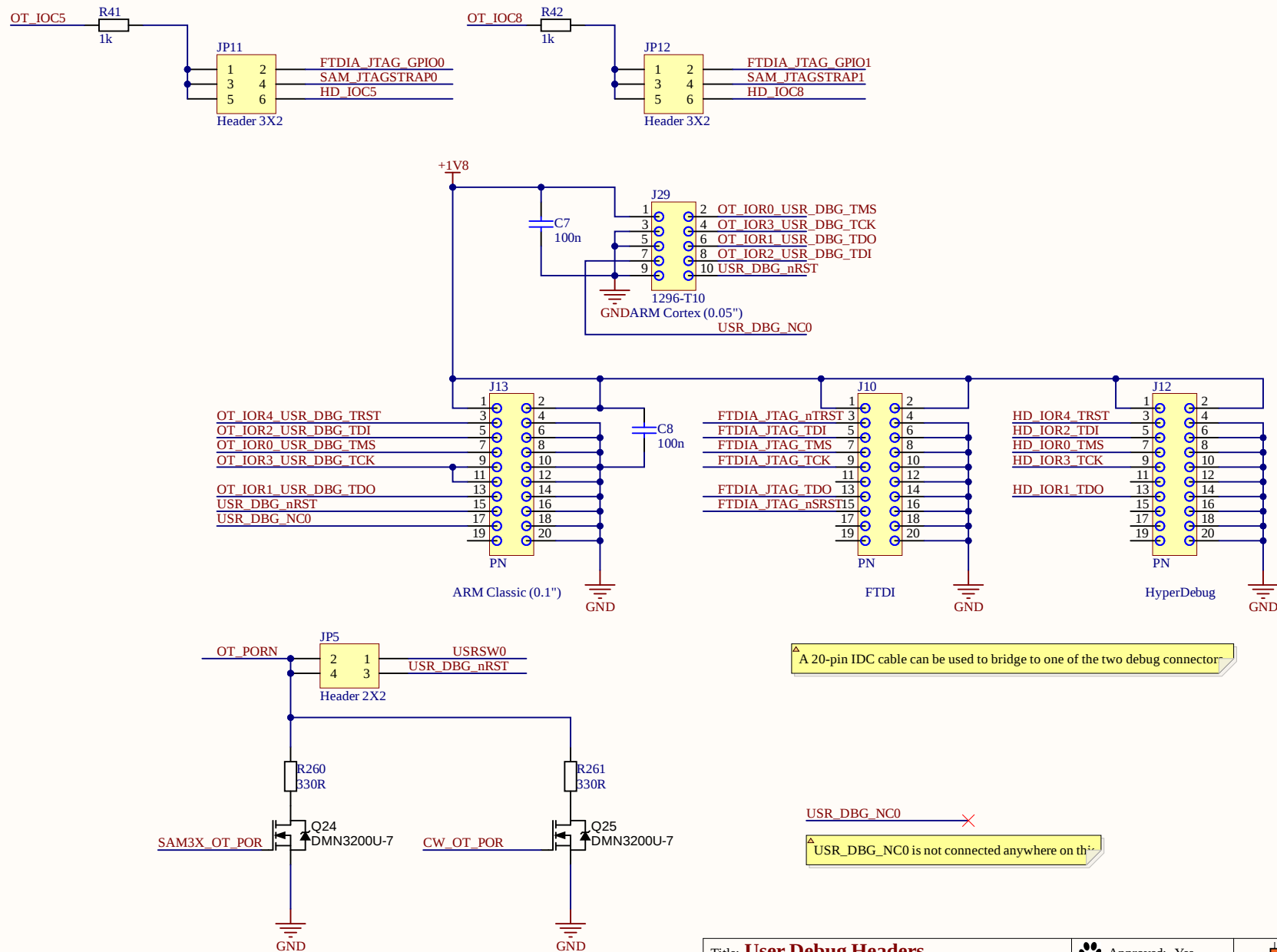
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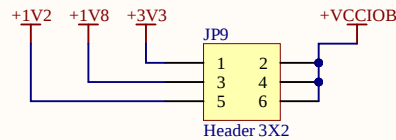
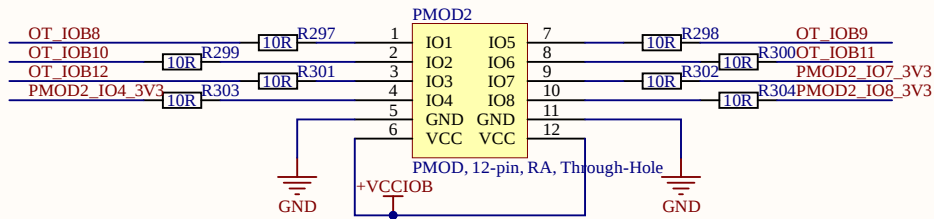
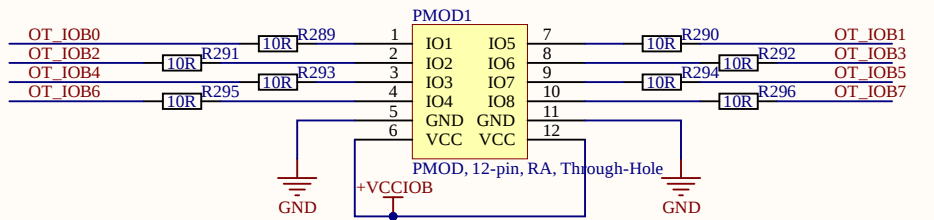
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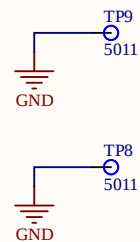
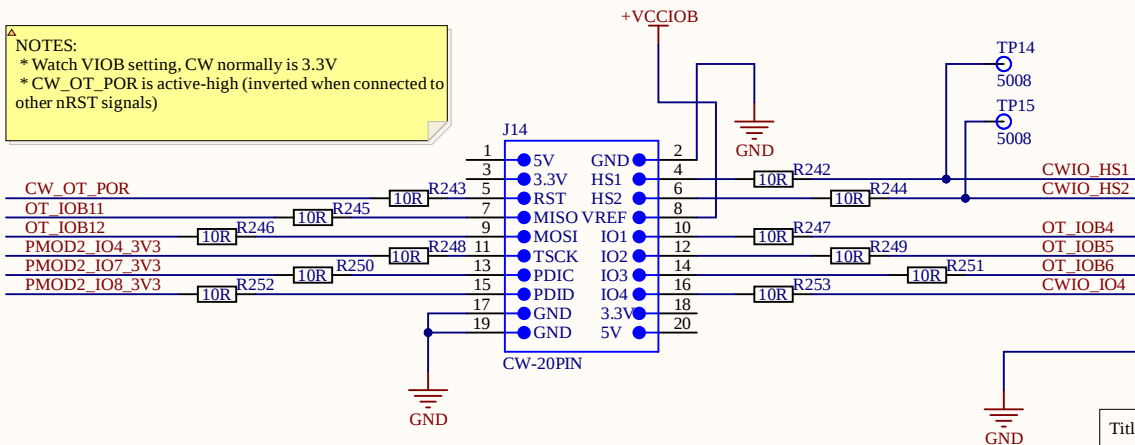
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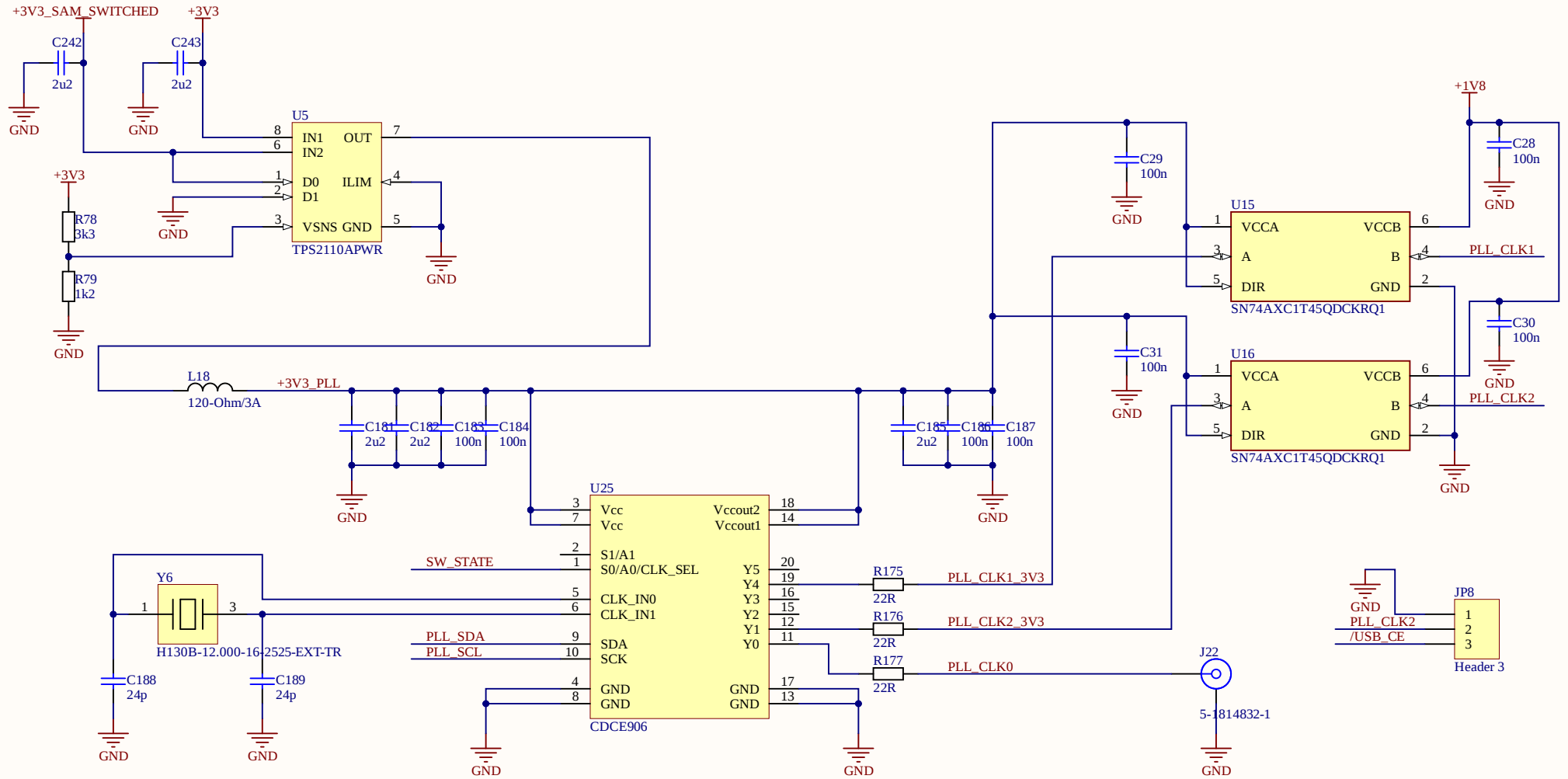


NOTES:
 * Watch VIOB setting, CW normally is 3.3V
 * CW_OT_POR is active-high (inverted when connected to other nRST signals)



Title: User GPIO Headers			 Approved: Yes	
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CLOCKS



Title: **PLL, Clocks for FPGA**

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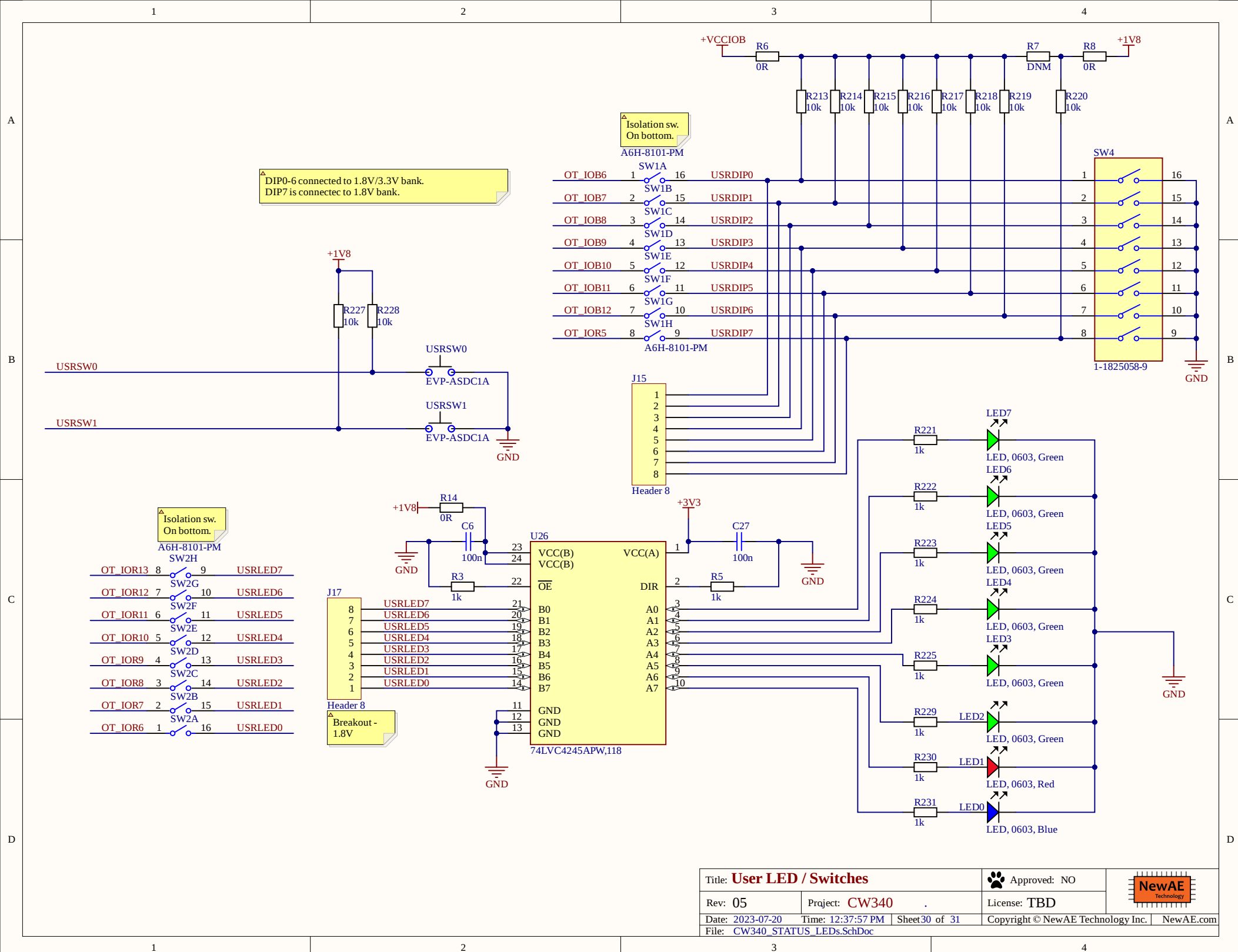
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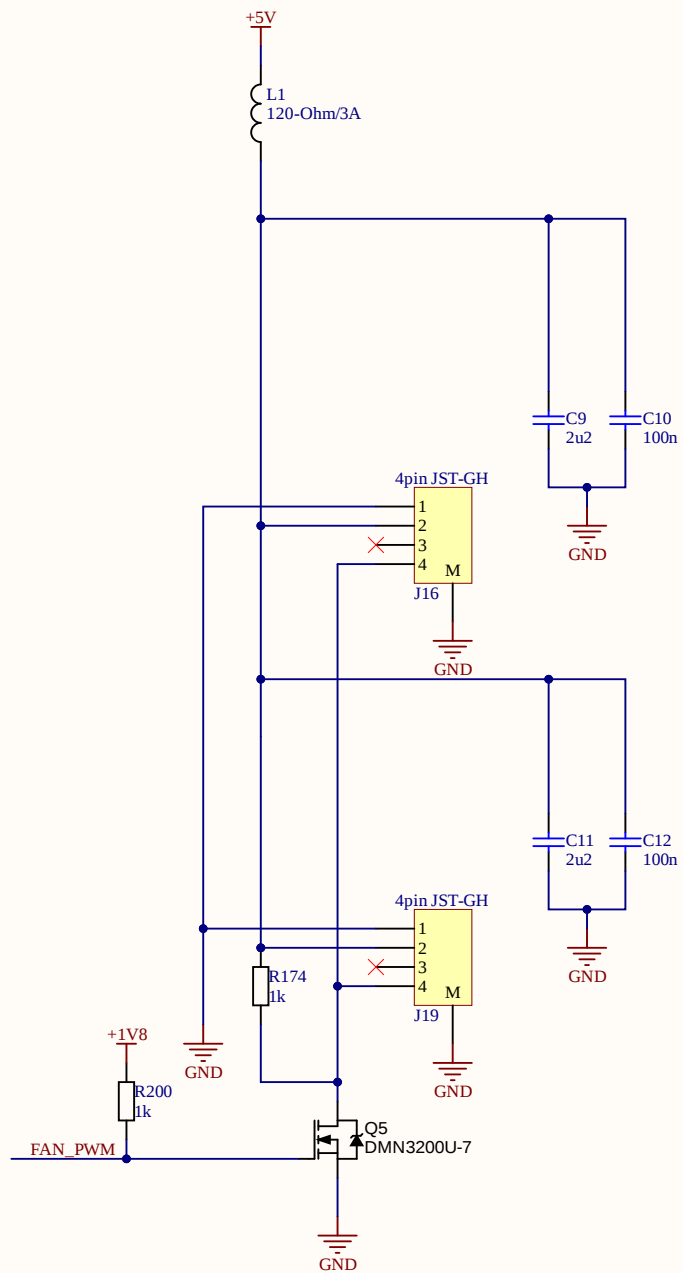
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Connector top & bottom.

2-pin fan, or 3-pin fan with tach output:
 * Connect pin 2 (VCC) , pin 4 (GND).
 4-pin fan, or 3-pin fan with control input:
 * Connect pin 1 (GND), pin 2 (VCC), pin 4 (CTRL).
 If fan has tach output, connect to pin 3 (NC) to terminate header.

Mating connector:
 * Housing GHR-04V-S
 * Contacts SSL-002T-P0.2
 * Crimp tool YRS-1590



Title: **FAN Headers**

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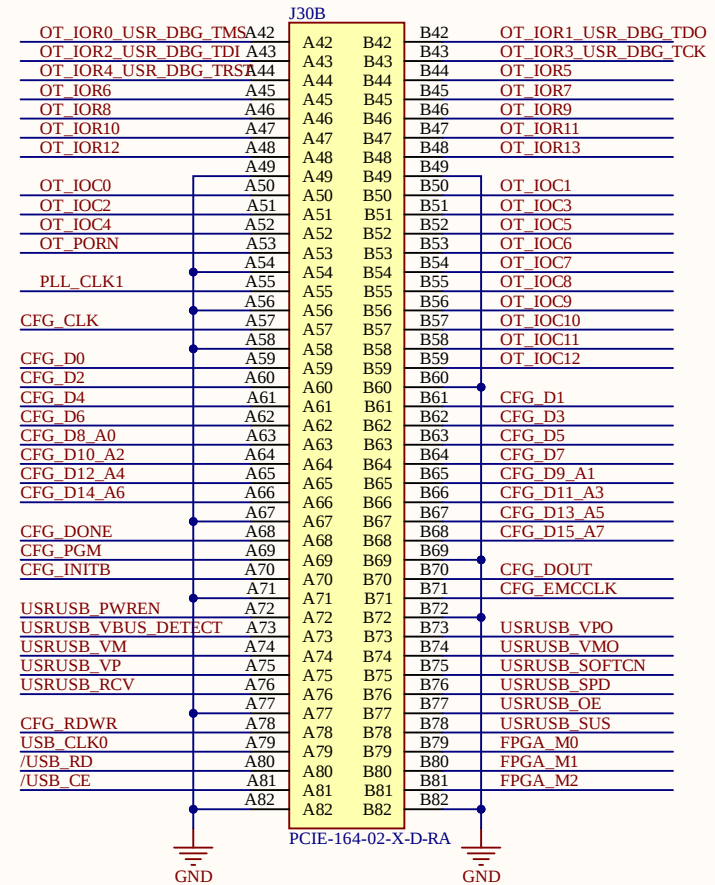
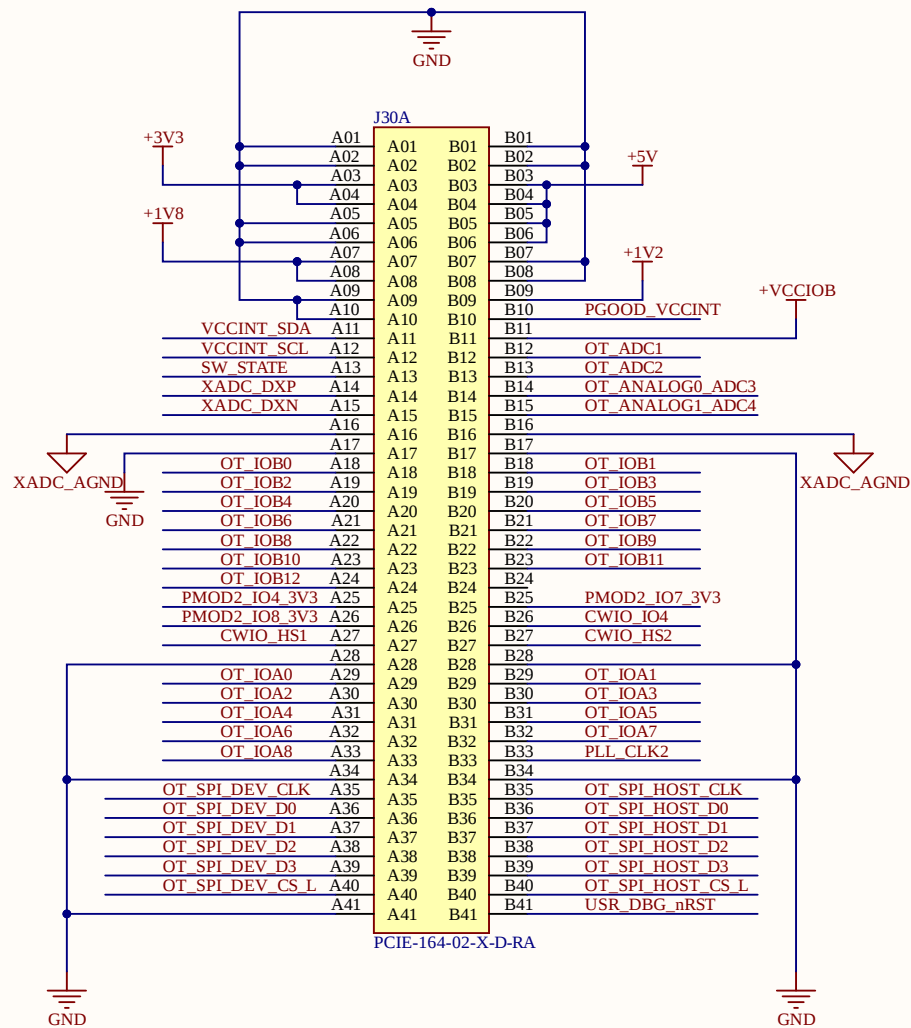
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Title: **Edge Connector**

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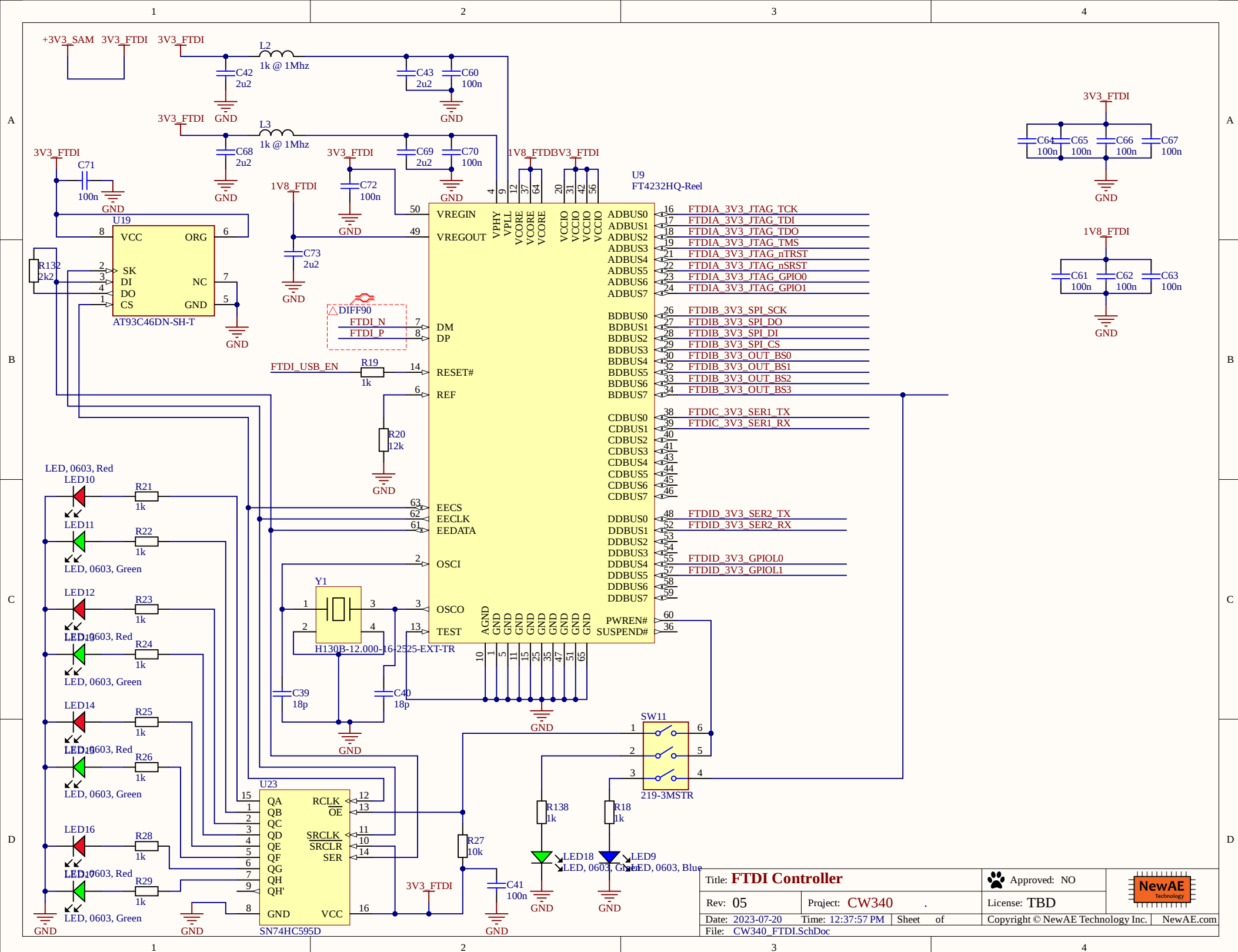
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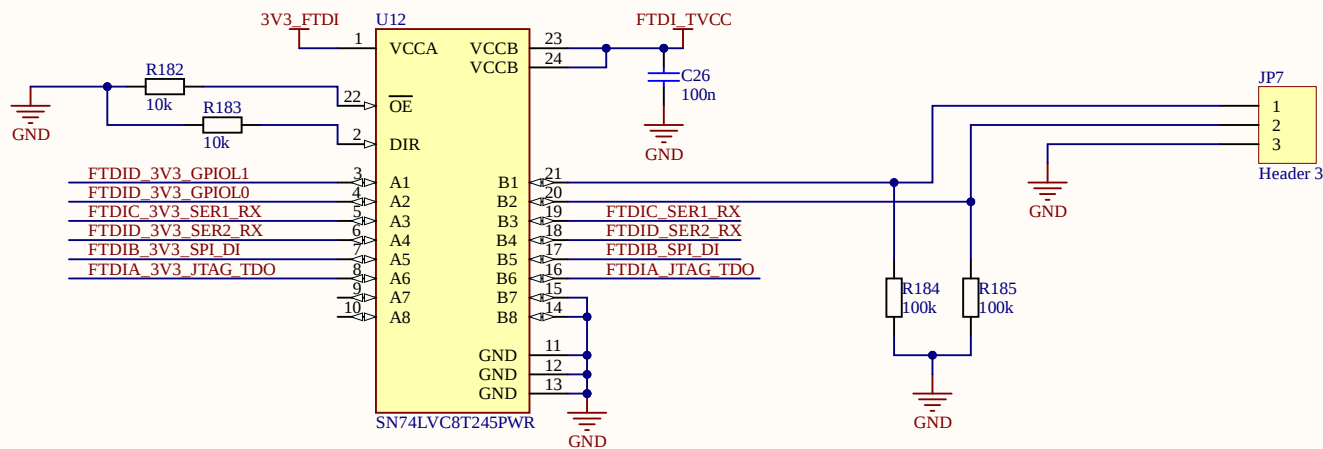
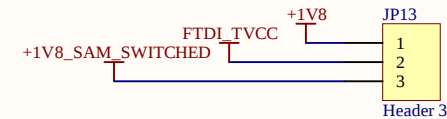
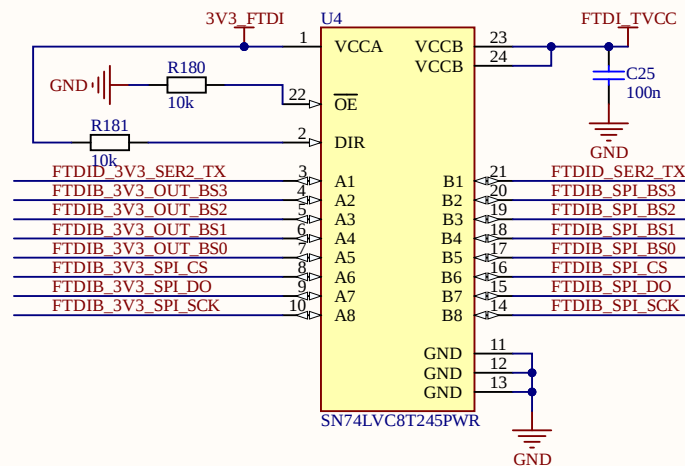
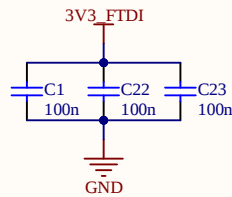
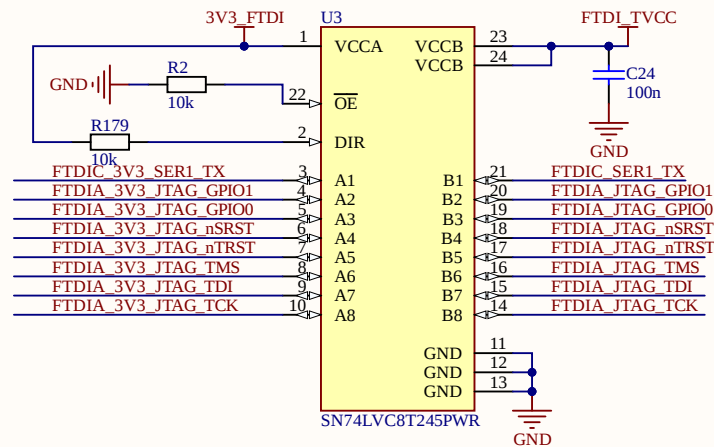
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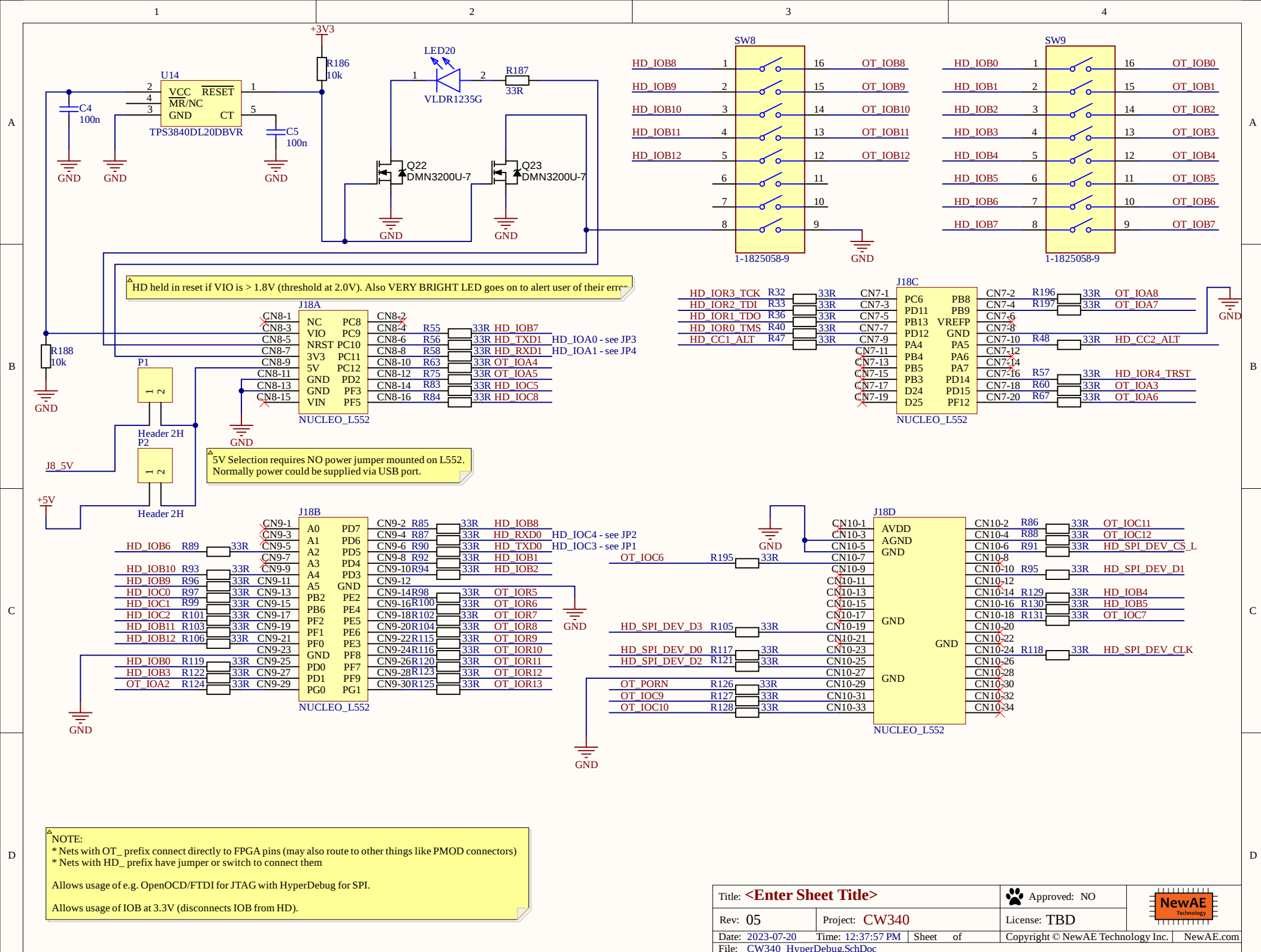
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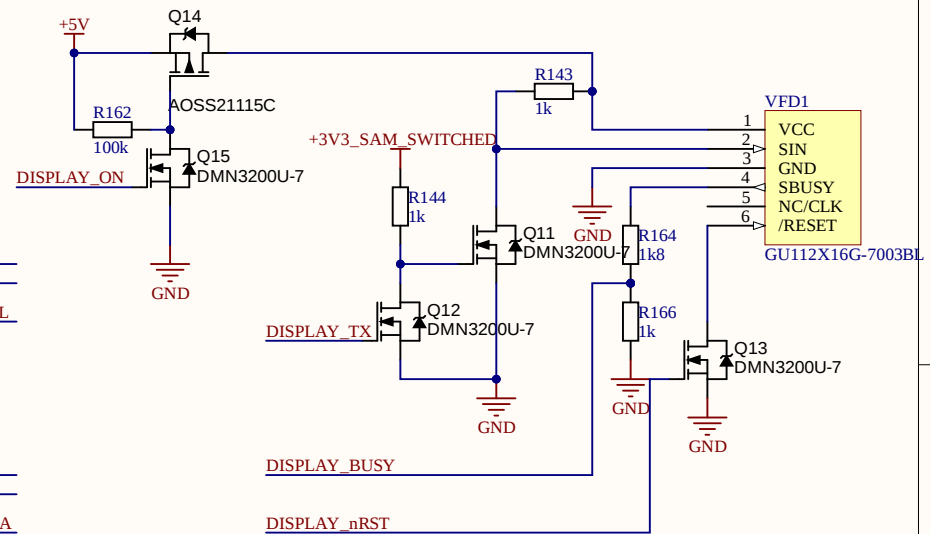
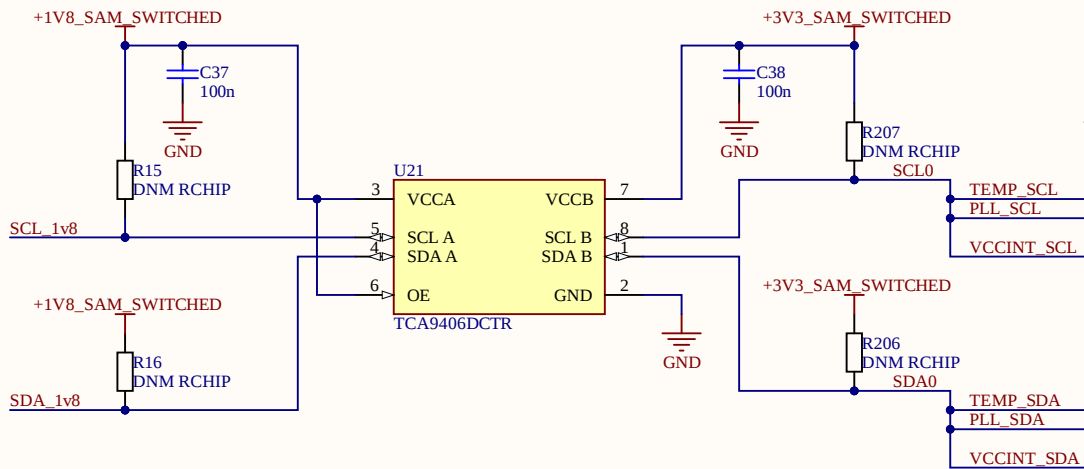


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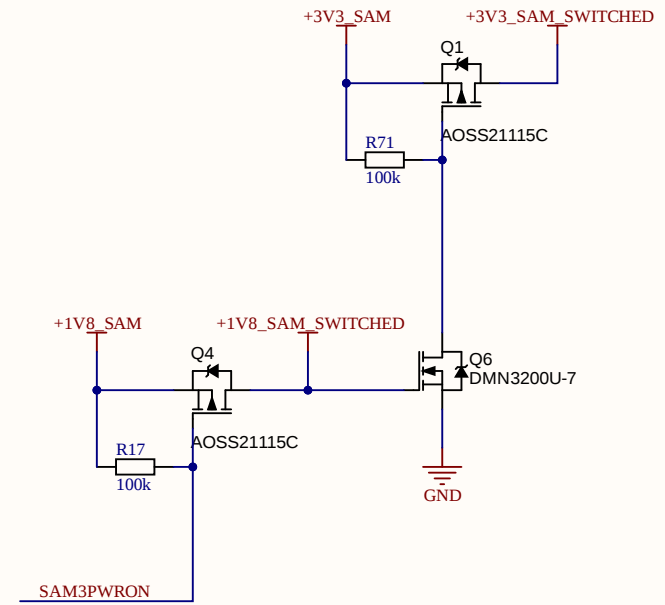
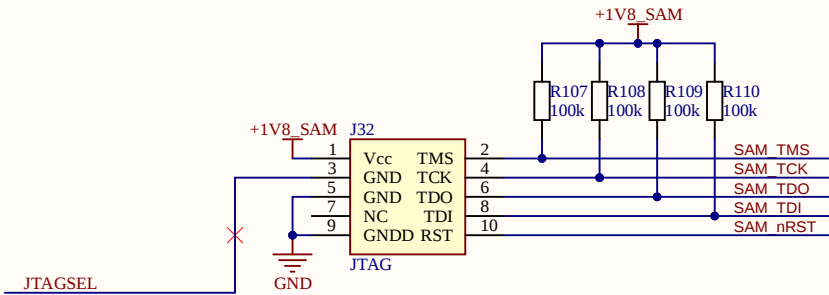
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D



▲ If SAM3X goes to sleep, turns off connected devices (PLL chip, etc). Also need to turn off power to pull-ups and similar.



Title: **MCU Misc Connections**

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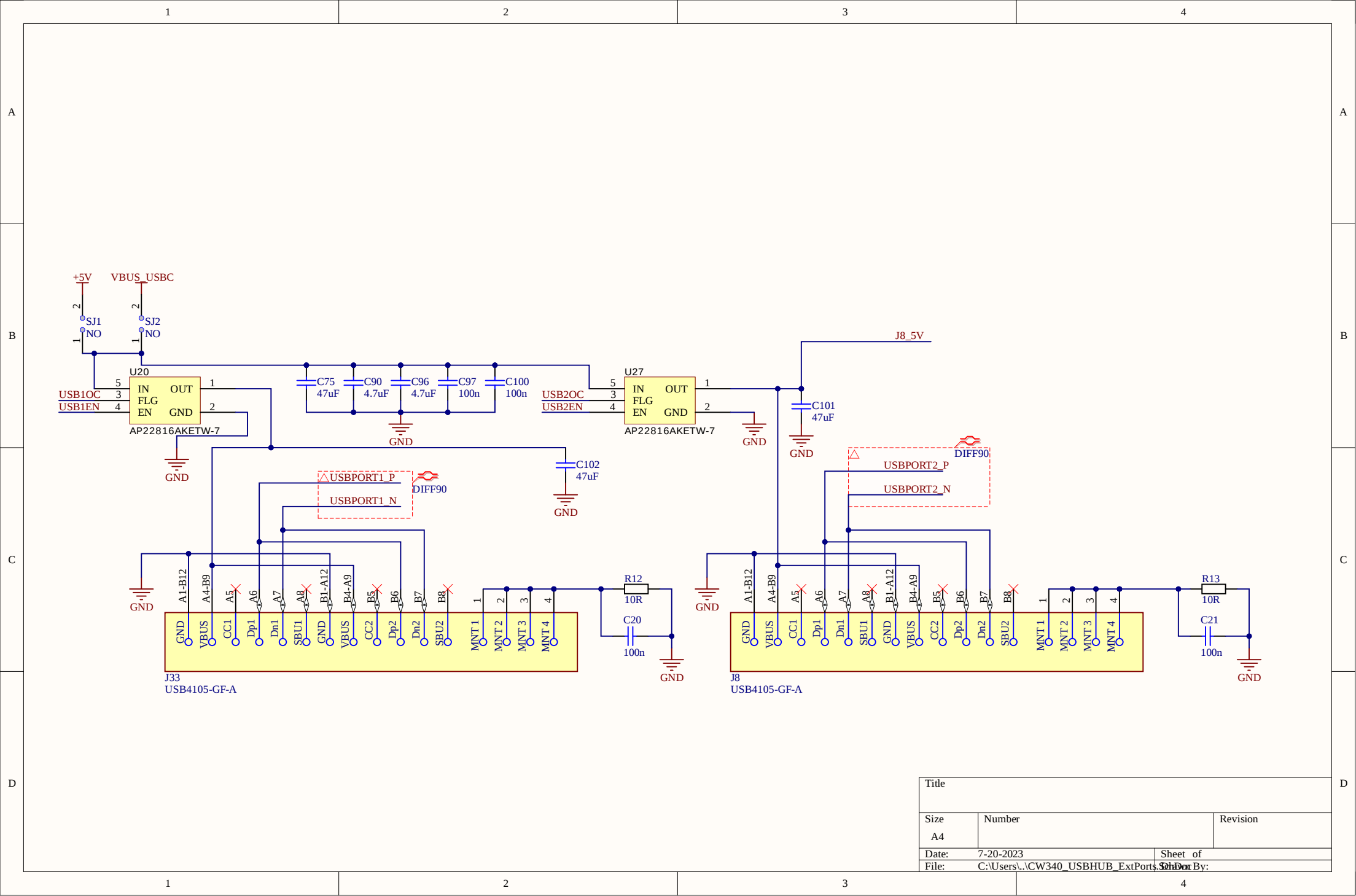
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A

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C

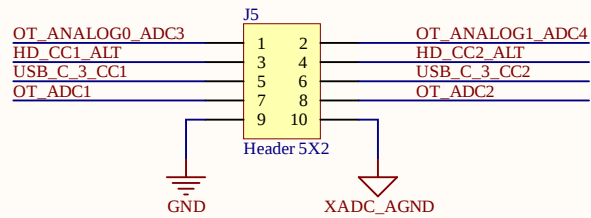
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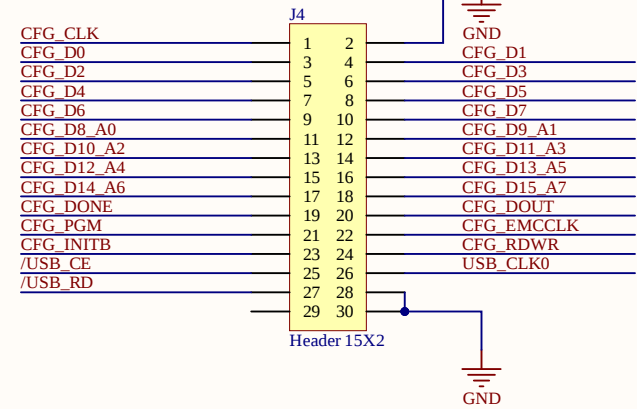
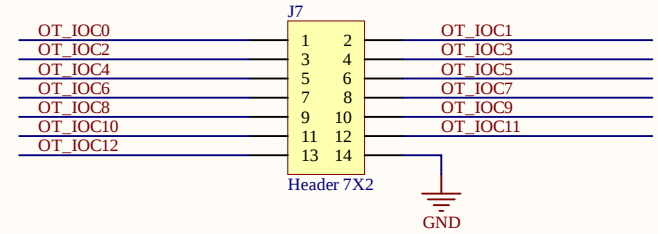
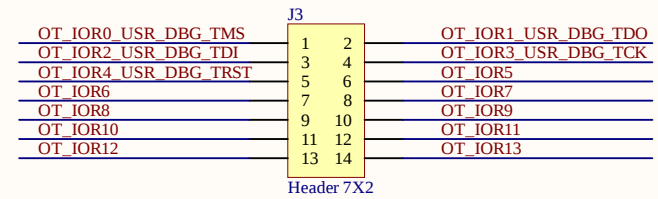
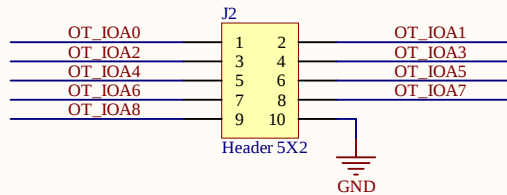
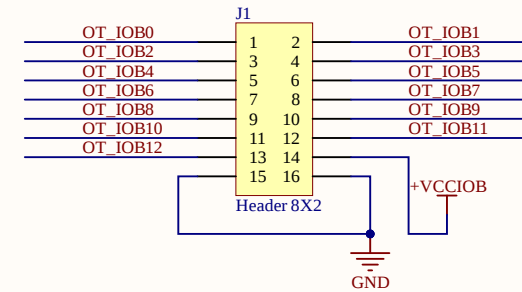
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D



TODO - Check XADC GND



Title: **Breakout from Edge Connector**

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