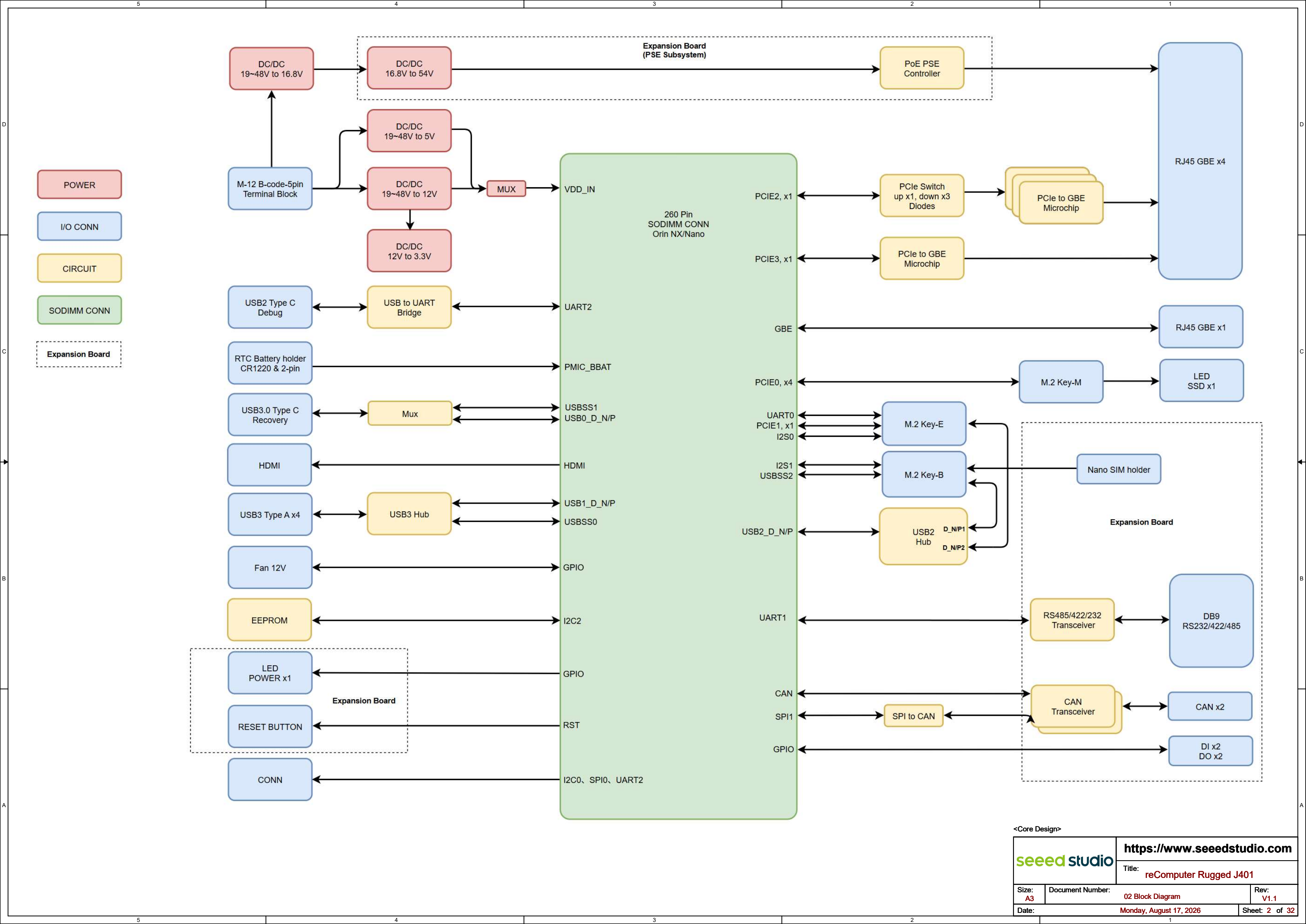


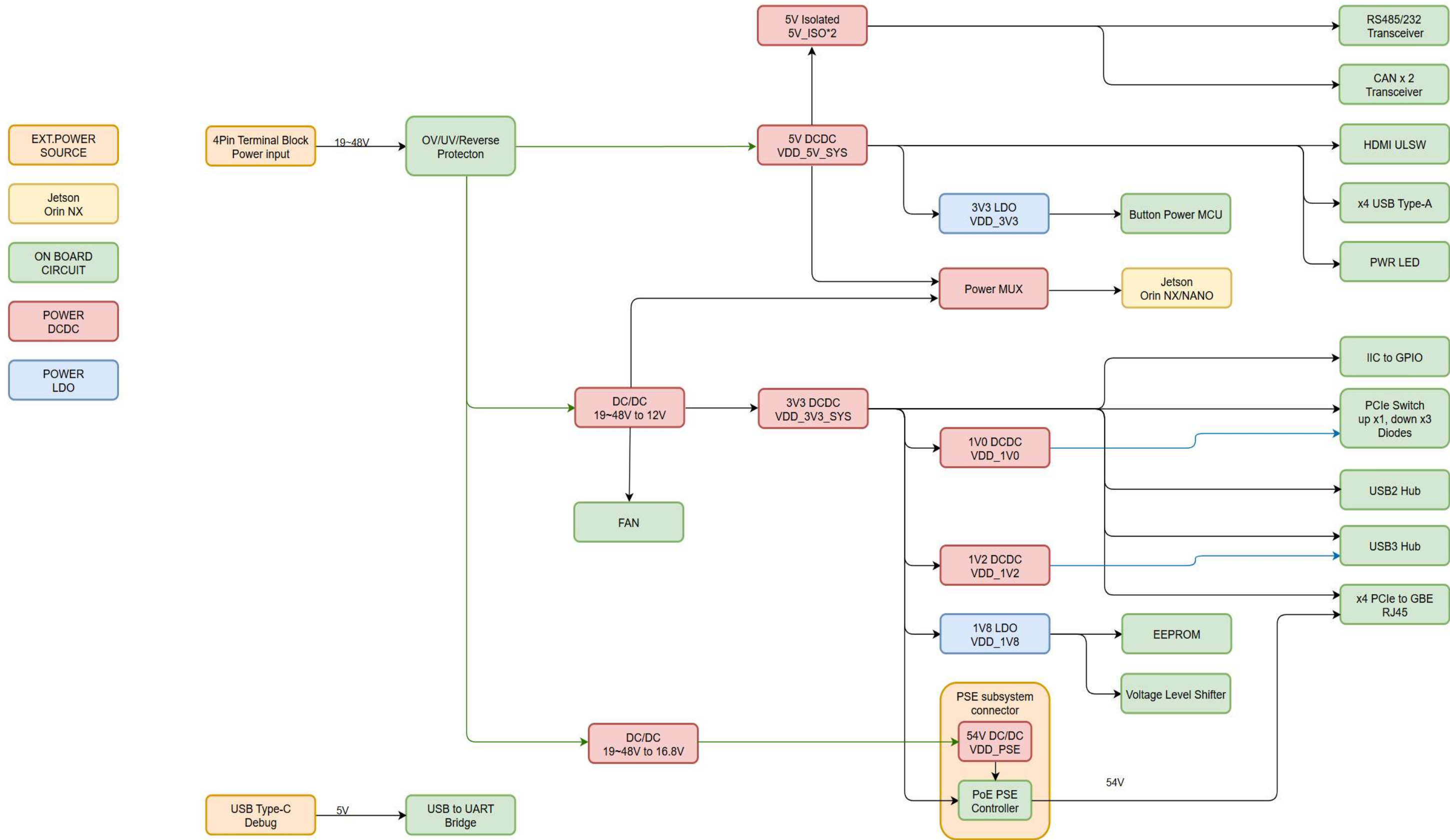
Schematic: reComputer Rugged J401 Carrier Board

Revision History

SHEET	SHEET NAME
01	Table of Contents
02	Block Diagram
03	Power Tree
04	SODIMM Connector 1/3
05	SODIMM Connector 2/3
06	SODIMM Connector 3/3
07	Power In, 5V, 3.3V_MCU
08	Power In, 12V
09	3.3V, 1.8V, 1.2V
10	Power In, 16.8V
11	PSE,1.0V
12	Button MCU For Power Up
13	CVM Power MUX
14	USB3.1 HUB
15	USB3.1 Type-A x2 (A)
16	USB3.1 Type-A x2 (B)
17	HDMI
18	Type C, Debug UART
19	PCIe Switch Power
20	PCIe Switch IO
21	M.2 KEY-M (NVME)
22	M.2 KEY-B (4G/5G)
23	M.2 KEY-E (WIFI/BT)
24	Fan, EEPROM, Debug
25	Concatenate
26	IIC to IO
27	Gigabit Ethernet
28	PCIe to GBE0
29	PCIe to GBE1
30	PCIe to GBE2
31	PCIe to GBE3
32	USB2.0 HUB

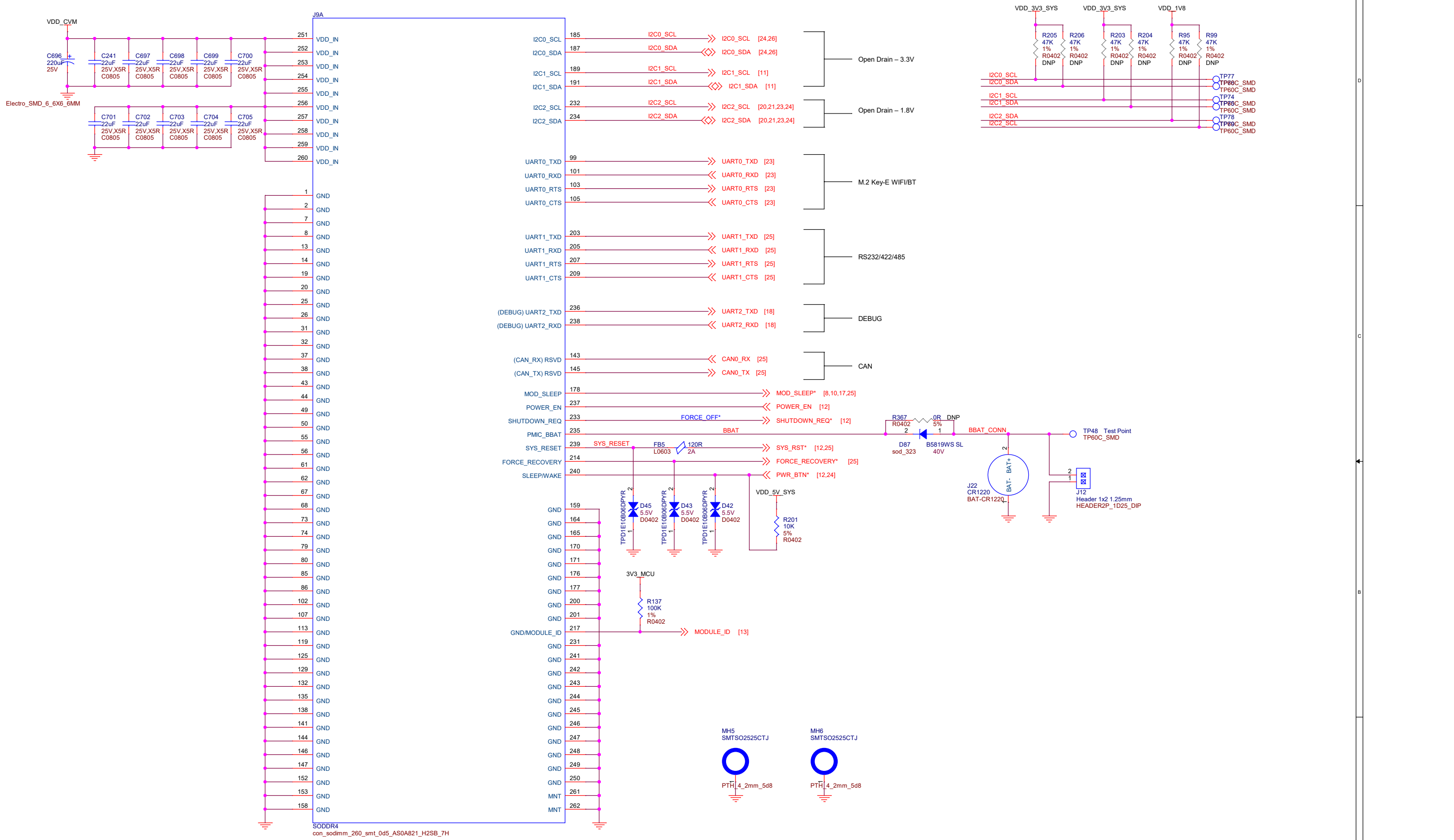
DATE	REVISION	DESCRIPTION
Oct. 30 2025	reComputer Rugged J401 Carrier Board V1.0	Initial Release.
Aug. 17 2026	reComputer Rugged J401 Carrier Board V1.1	Optimize PCB: Adjust the position of the Type C interface



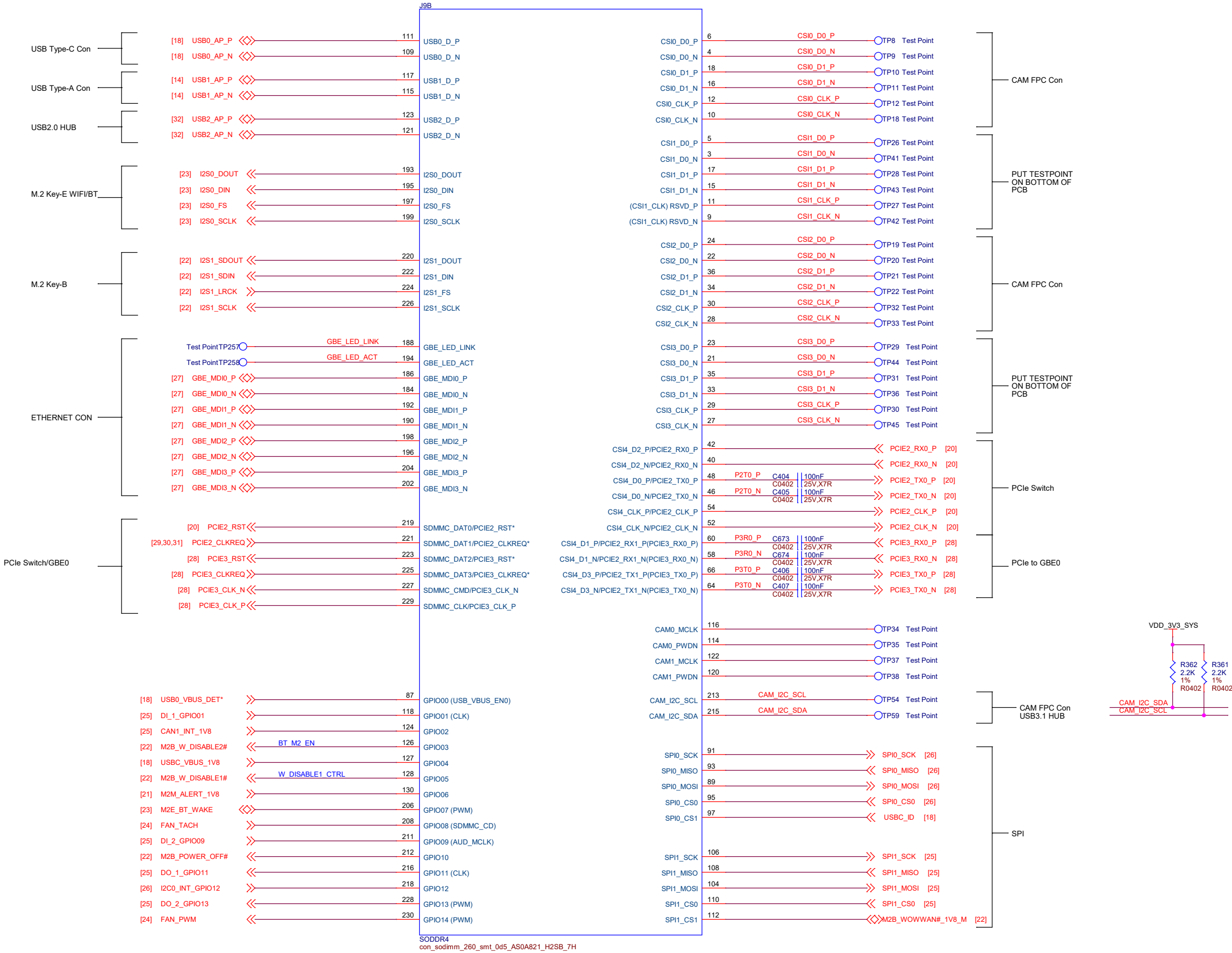


<Core Design>

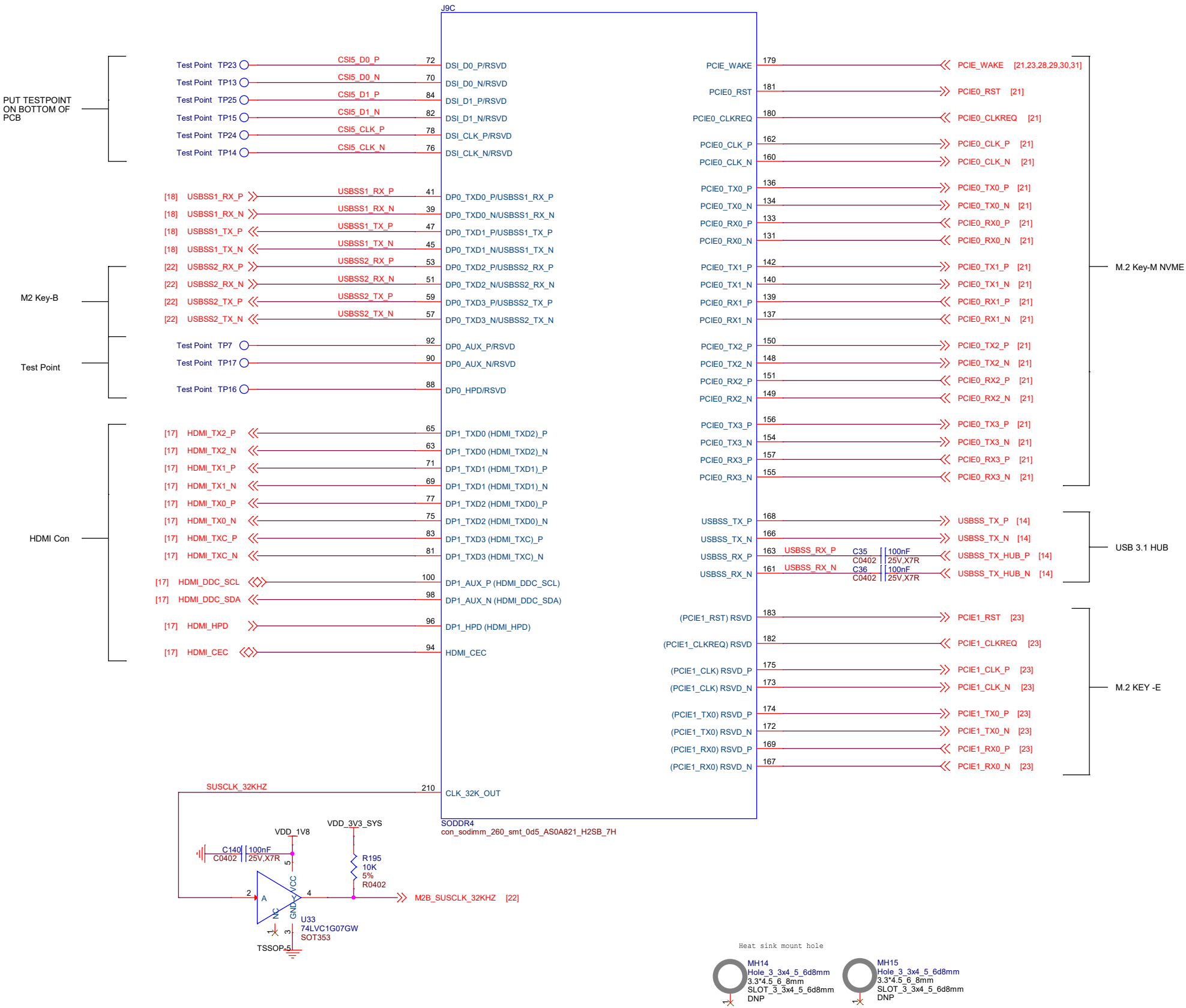
UART, I2C, CAN and GPIOs



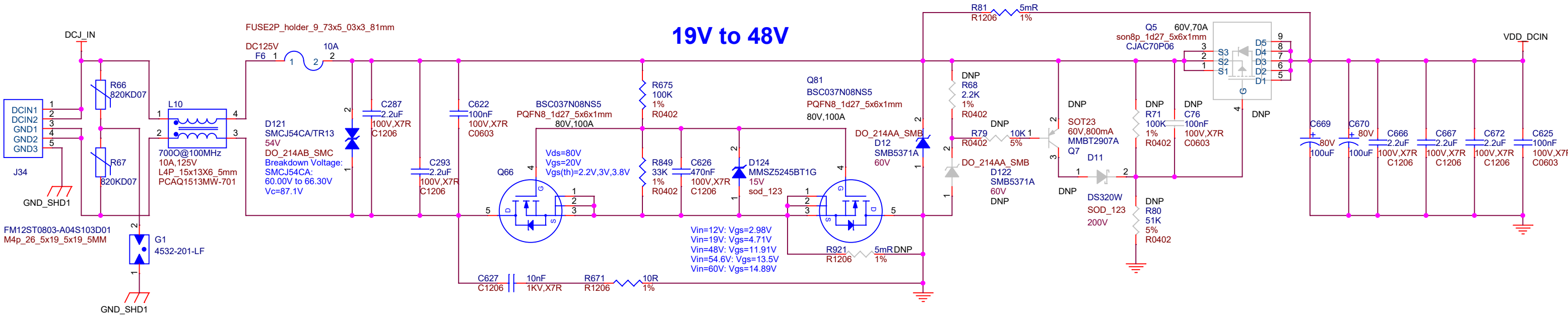
GPIOs, USB2.0, I2S, SPI, GBe and CSI



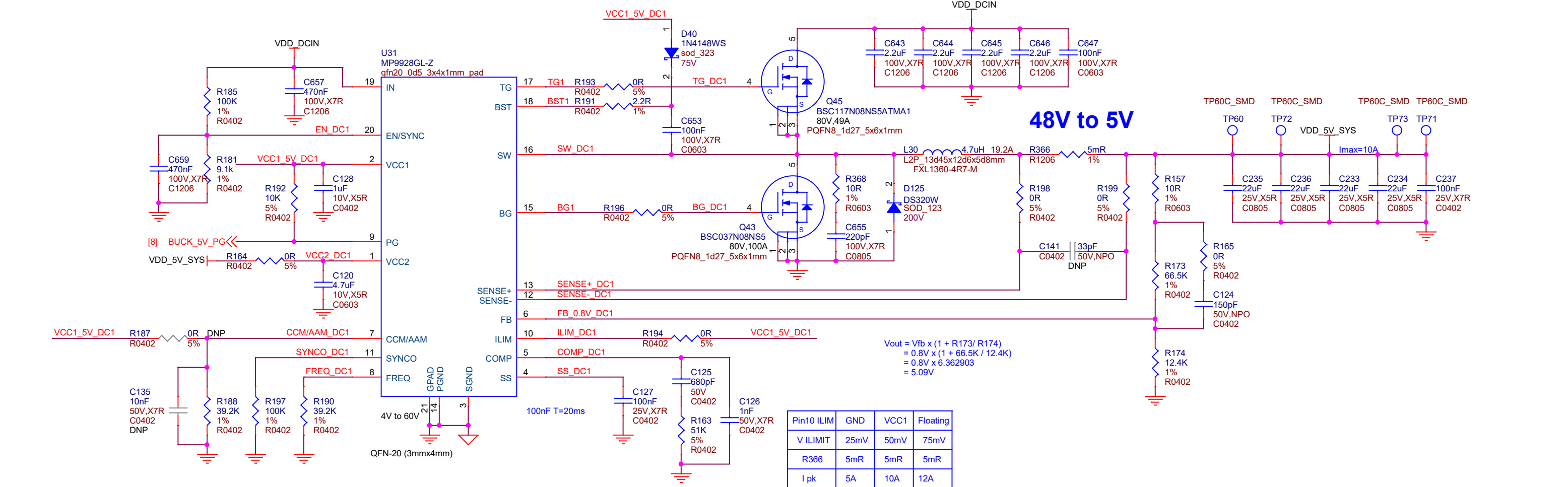
HDMI, DP, DSI, USBSS and PCIe



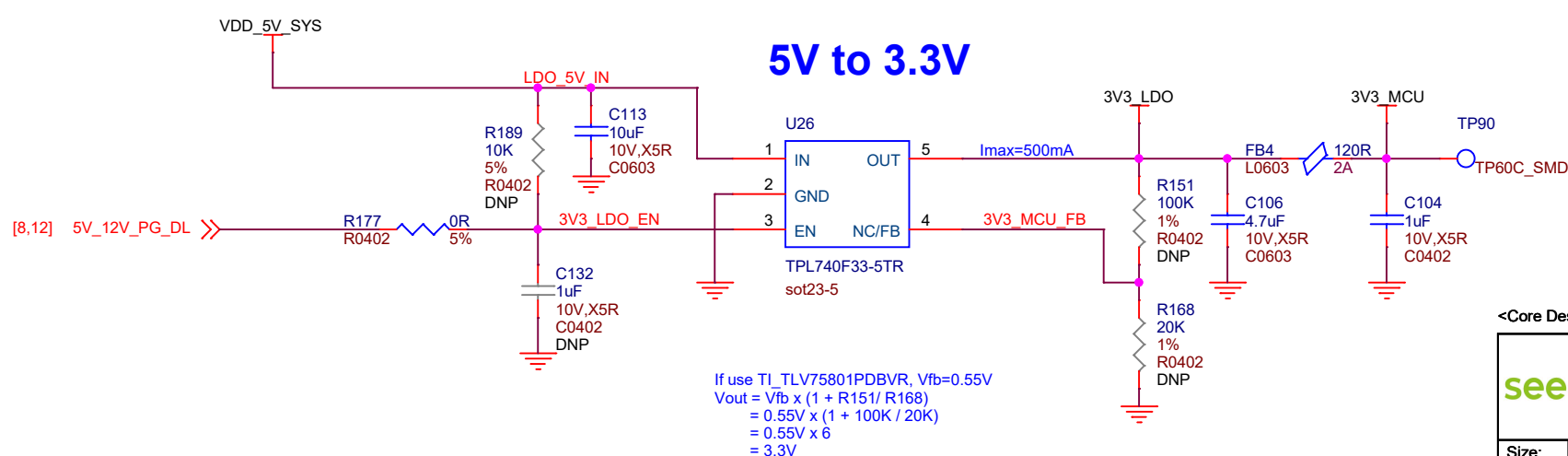
19V to 48V



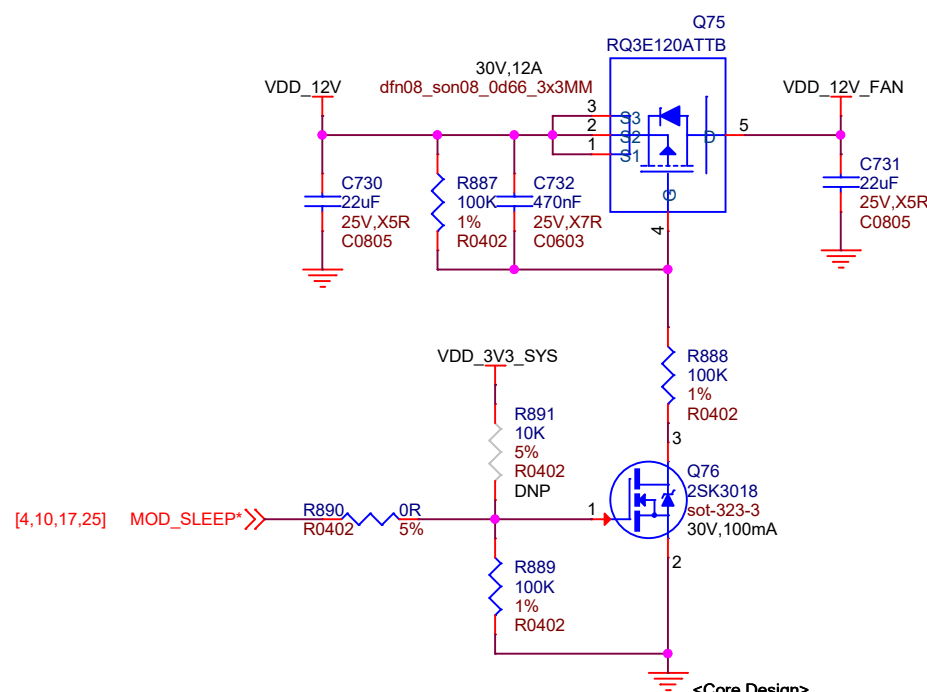
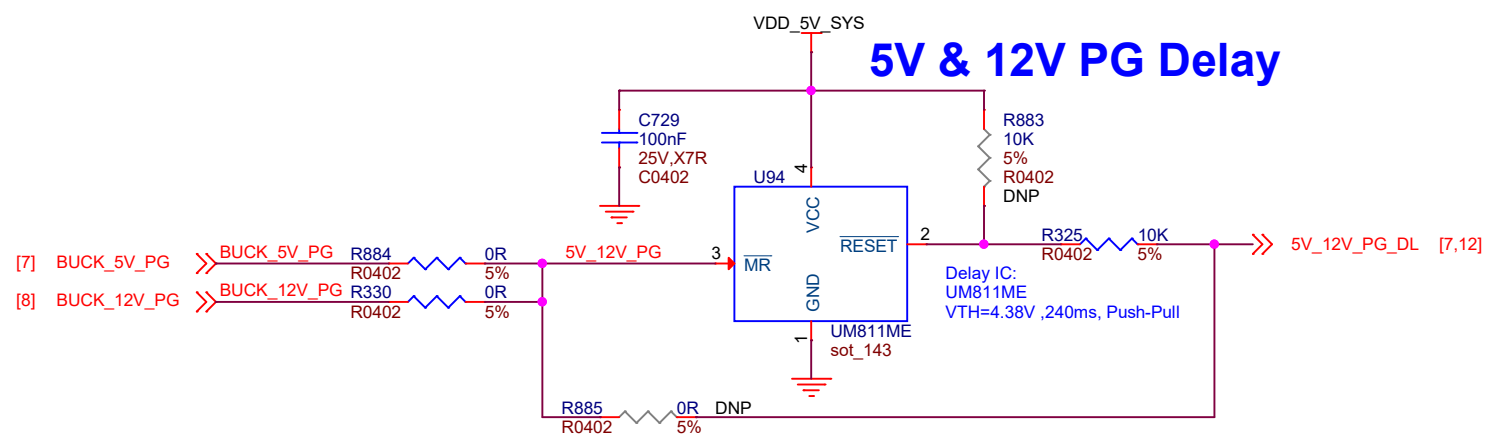
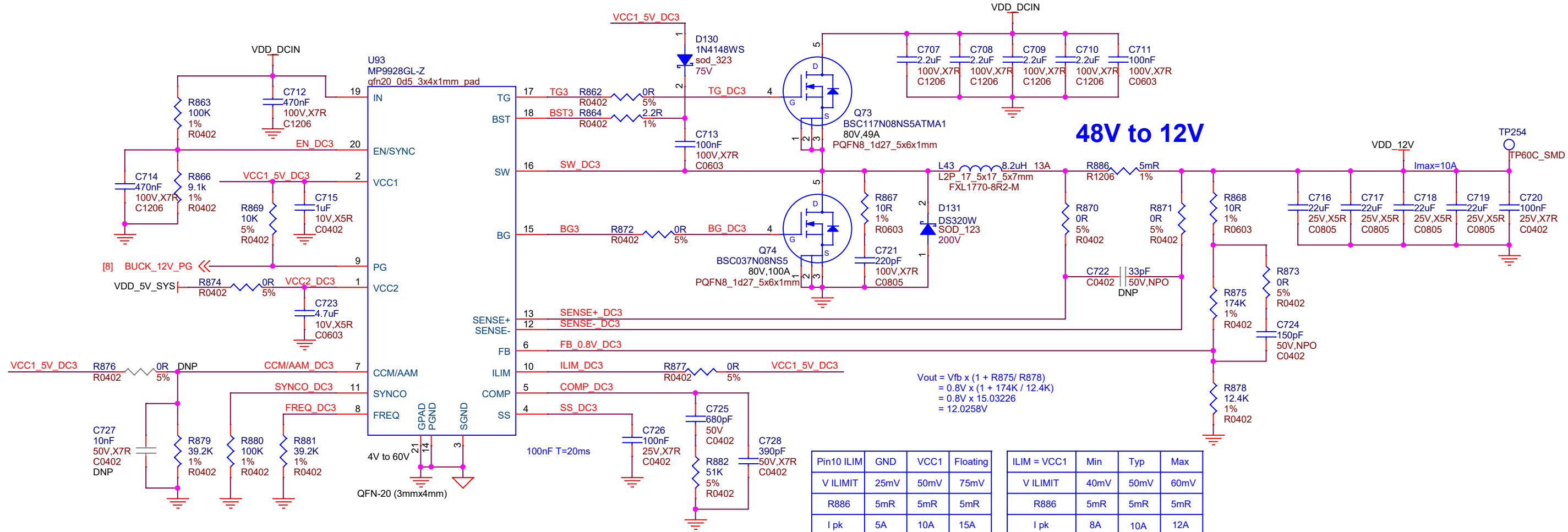
48V to 5V



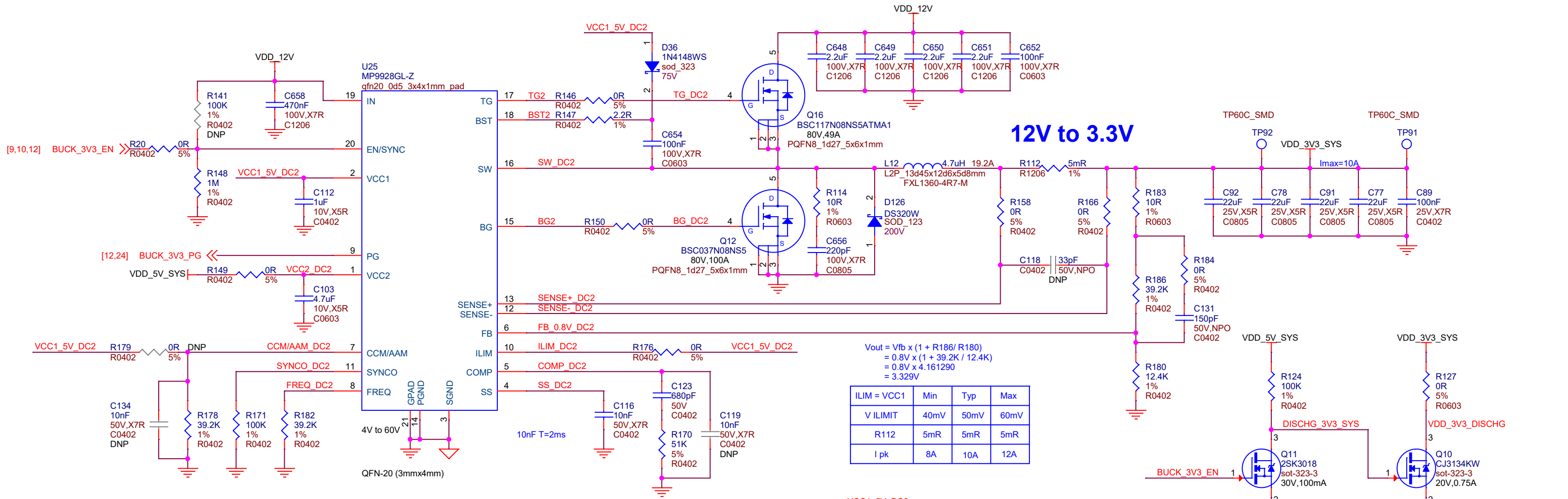
5V to 3.3V



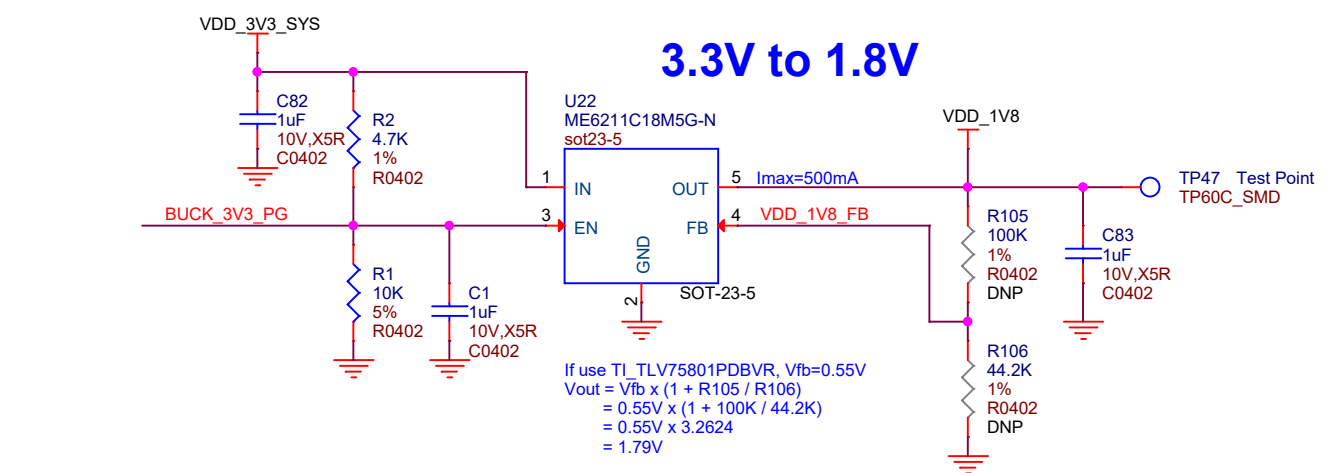
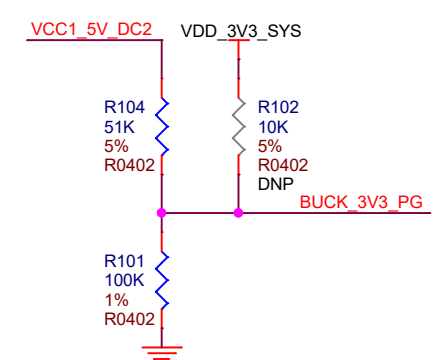
<Core Design>



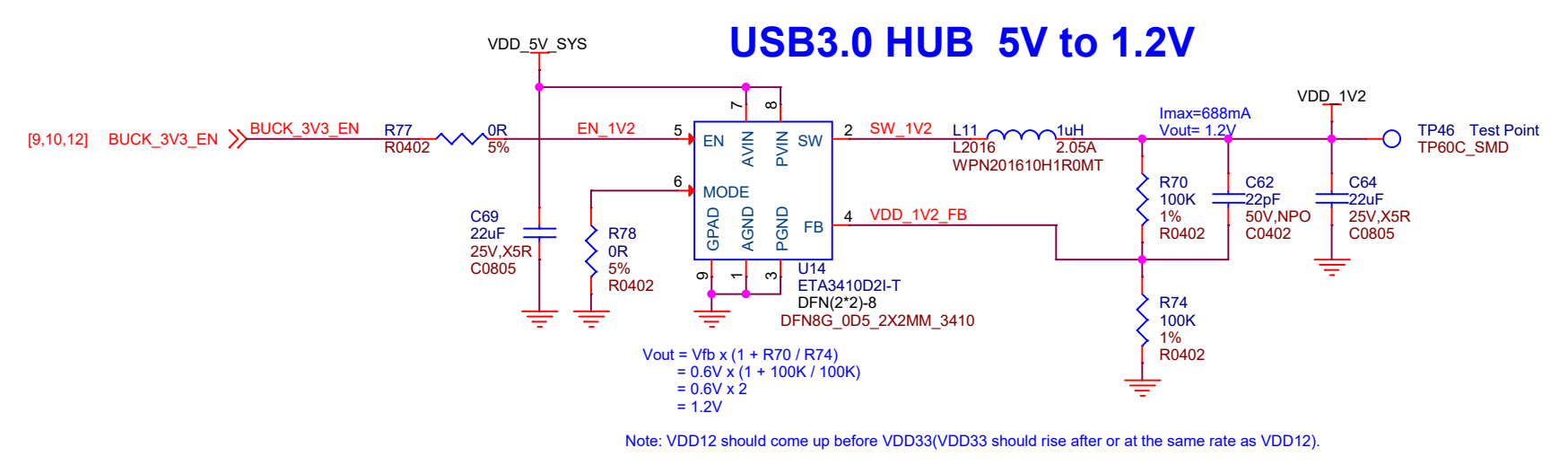
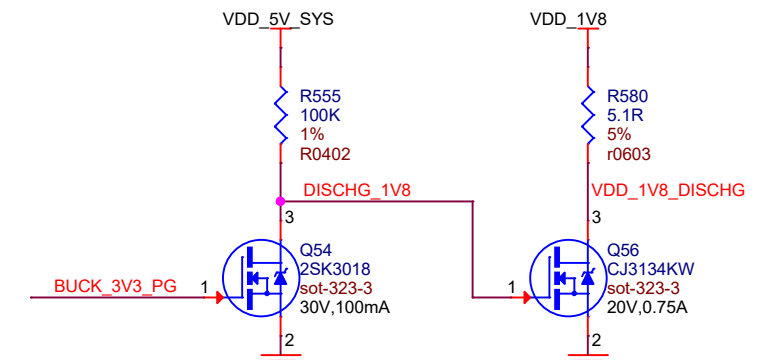
<Core Design>



VDD_3V3_SYS RAIL DISCHARGE

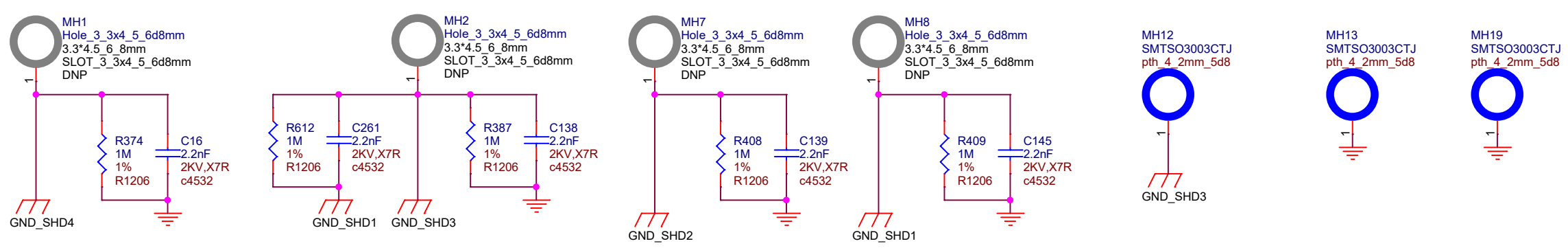
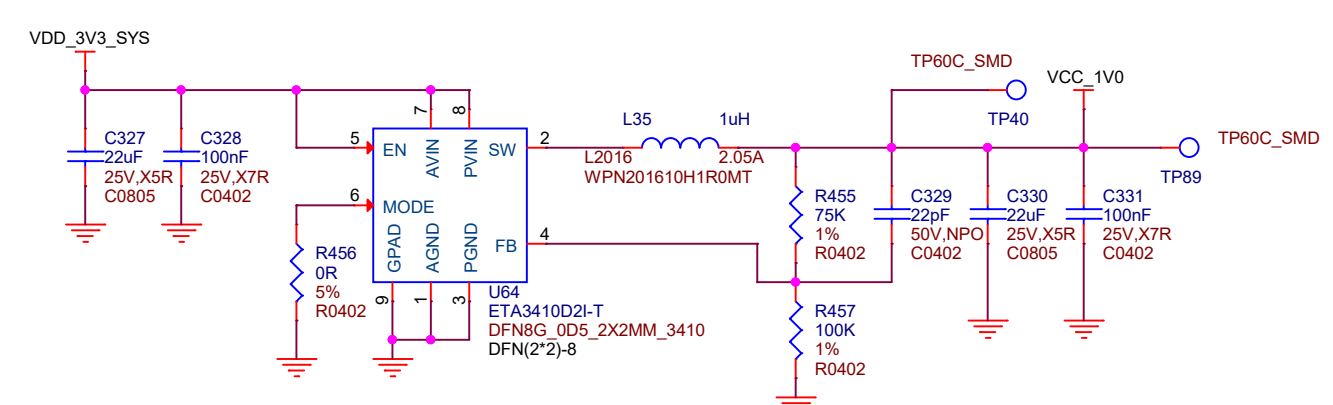
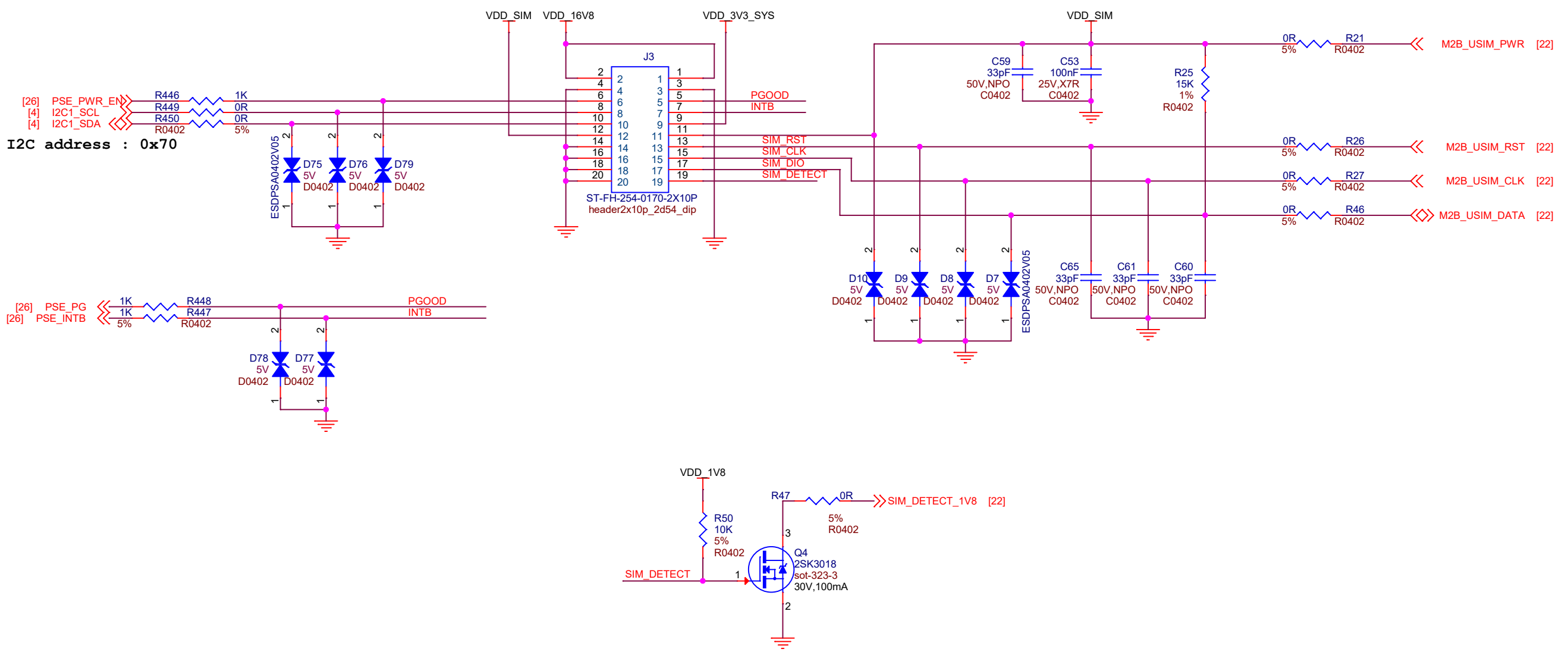


VDD_1V8 RAIL DISCHARGE

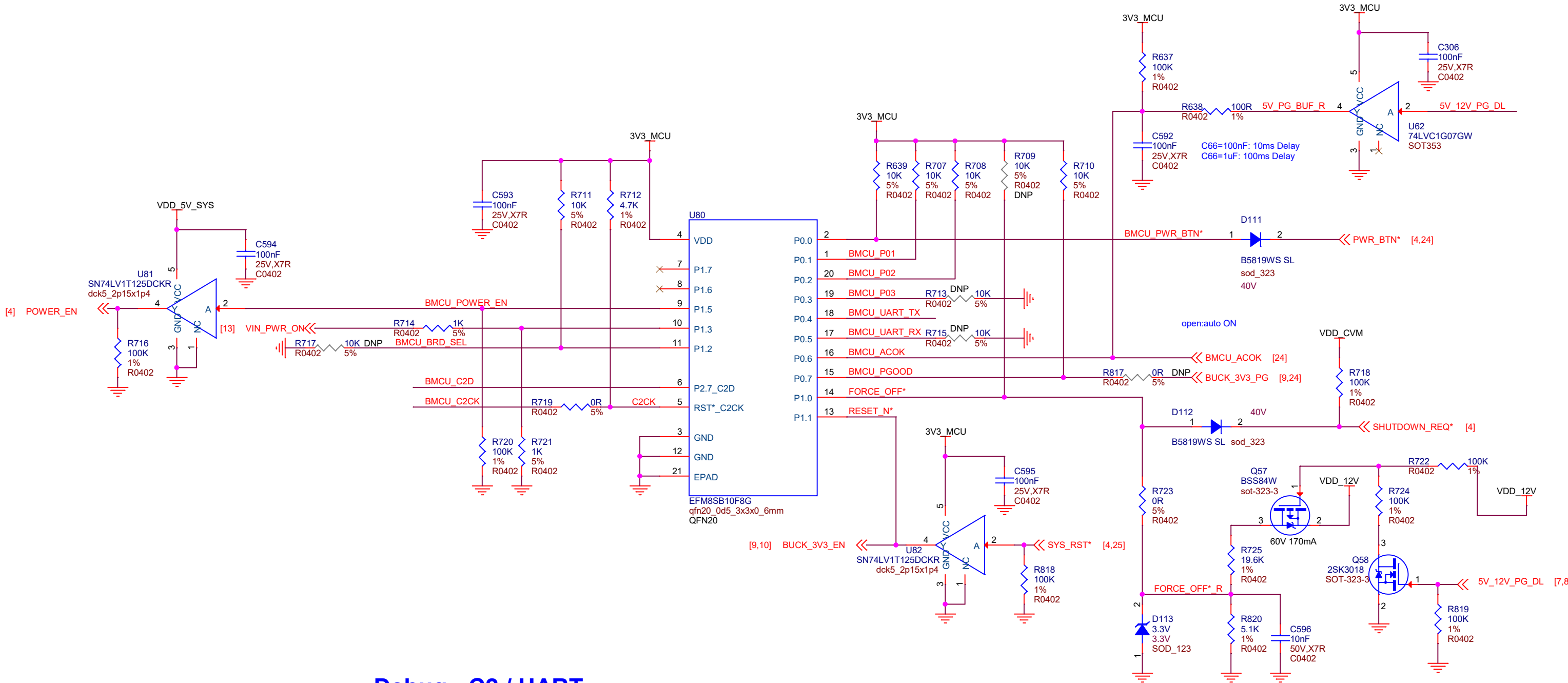


<Core Design>

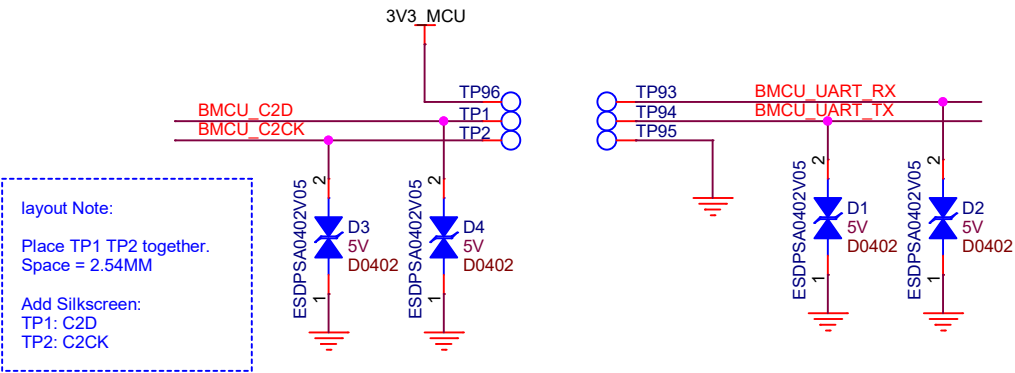




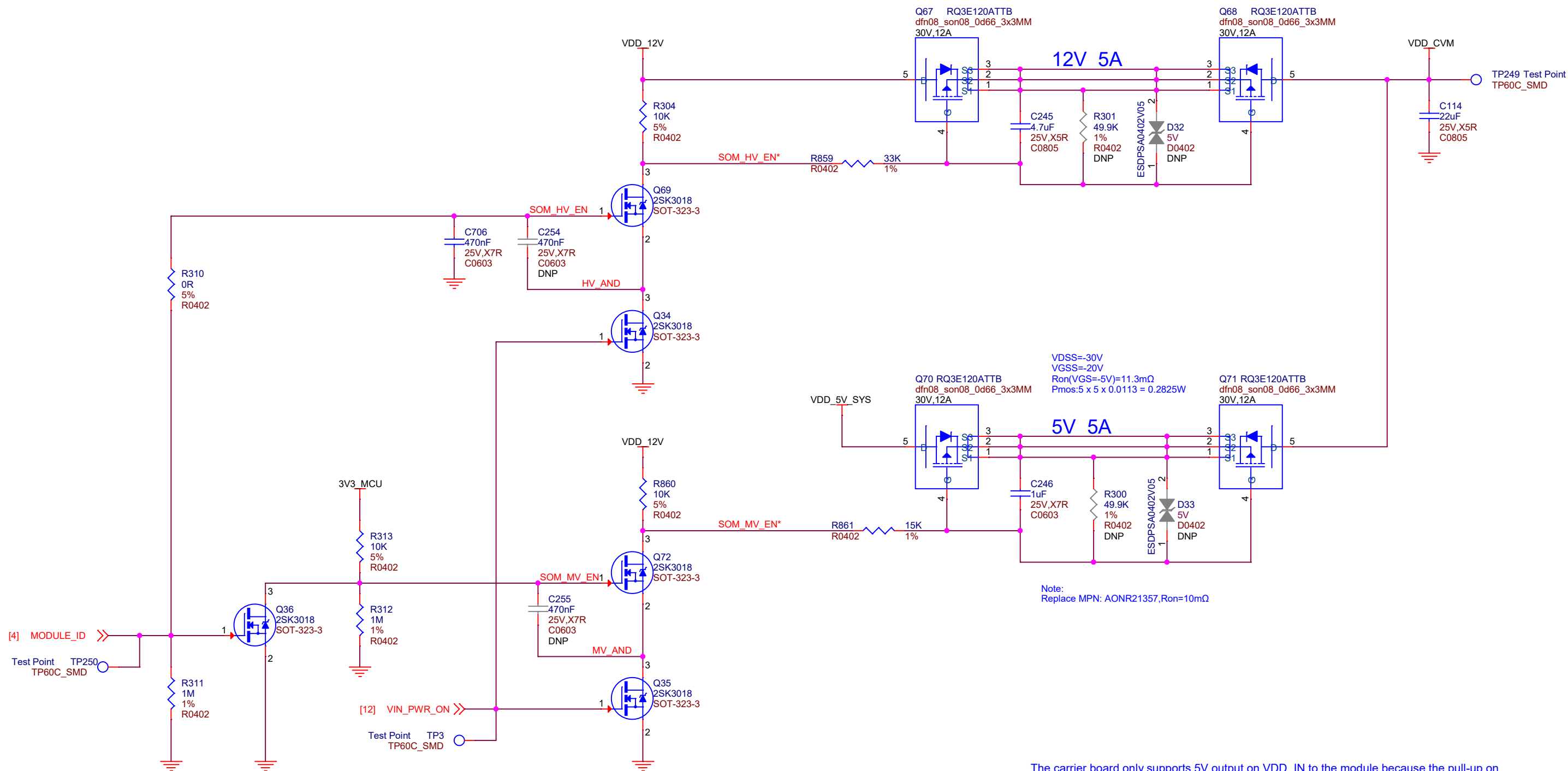
Button MCU For Power Up



Debug - C2 / UART



VDD_12V	FORCE_OFF*
12V	2.021V



The carrier board only supports 5V output on VDD_IN to the module because the pull-up on MODULE_ID (R137) is not stuffed in the Orin Nano DevKit carrier board.

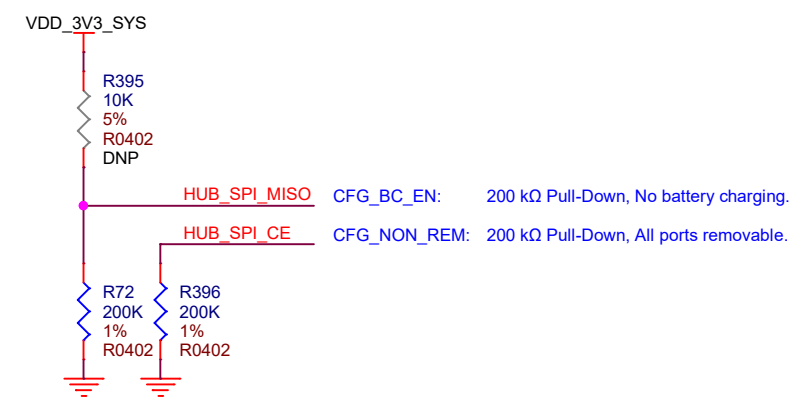
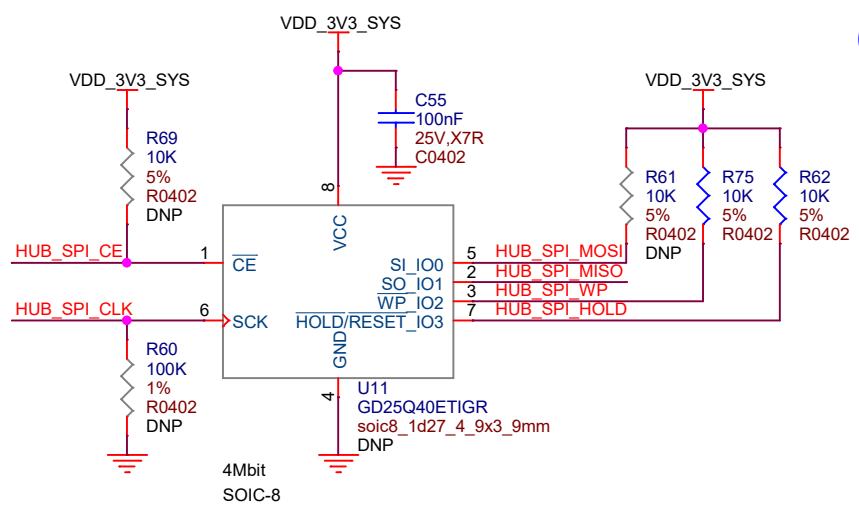
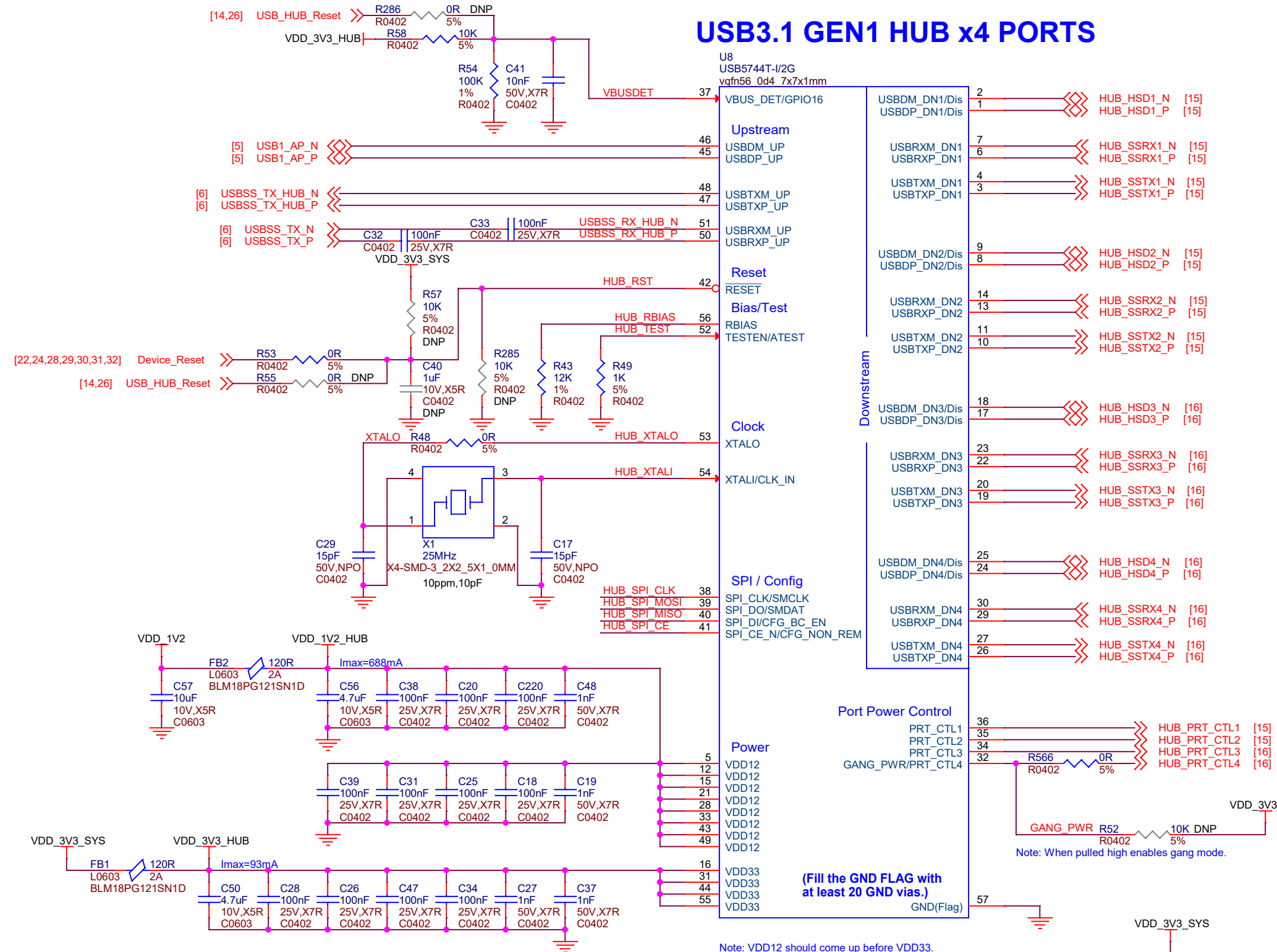
A 10kOhm, 0402 R137 Resistor can be added to support 5V, and up to 19V. As stated in the design guide, please be aware that Hot Plugging is not supported. Jetson Orin Nano modules have 5V Input Voltage, and hot plugging may cause an incorrect input voltage to be sent to the module if this resistor is added.

Please make sure the carrier board power is removed and adequate time has elapsed for the various power rails to fully discharge before when plugging in the Jetson Orin Nano module. R137 (to pull MODULE_ID high) is located on the SODIMM Connector 1/3 (page 4).

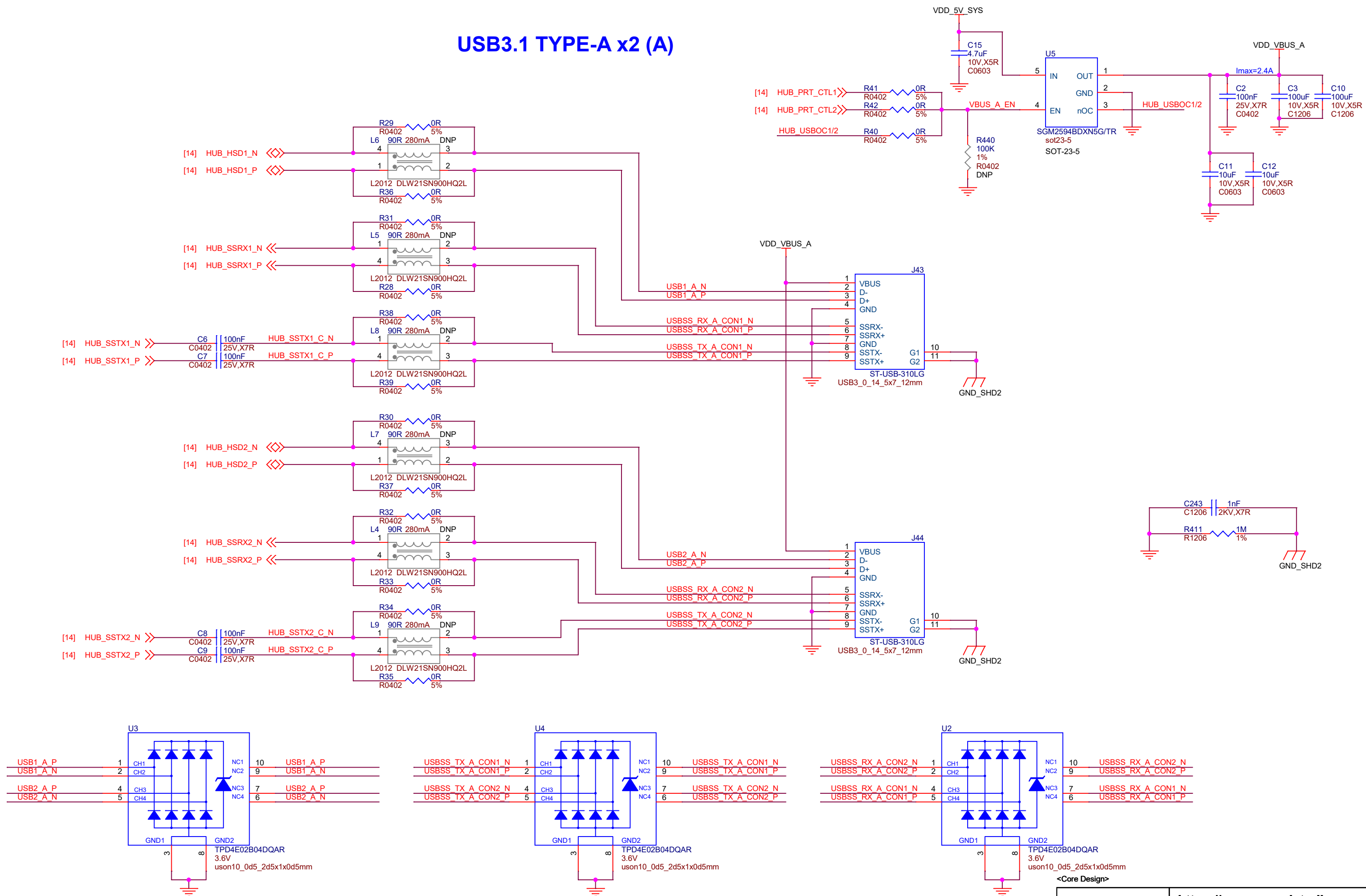
VIN_PWR_ON	MODULE_ID	VDD_CVM
0	0	OFF
0	1	OFF
1	0	5V
1	1	12V

<Core Design>

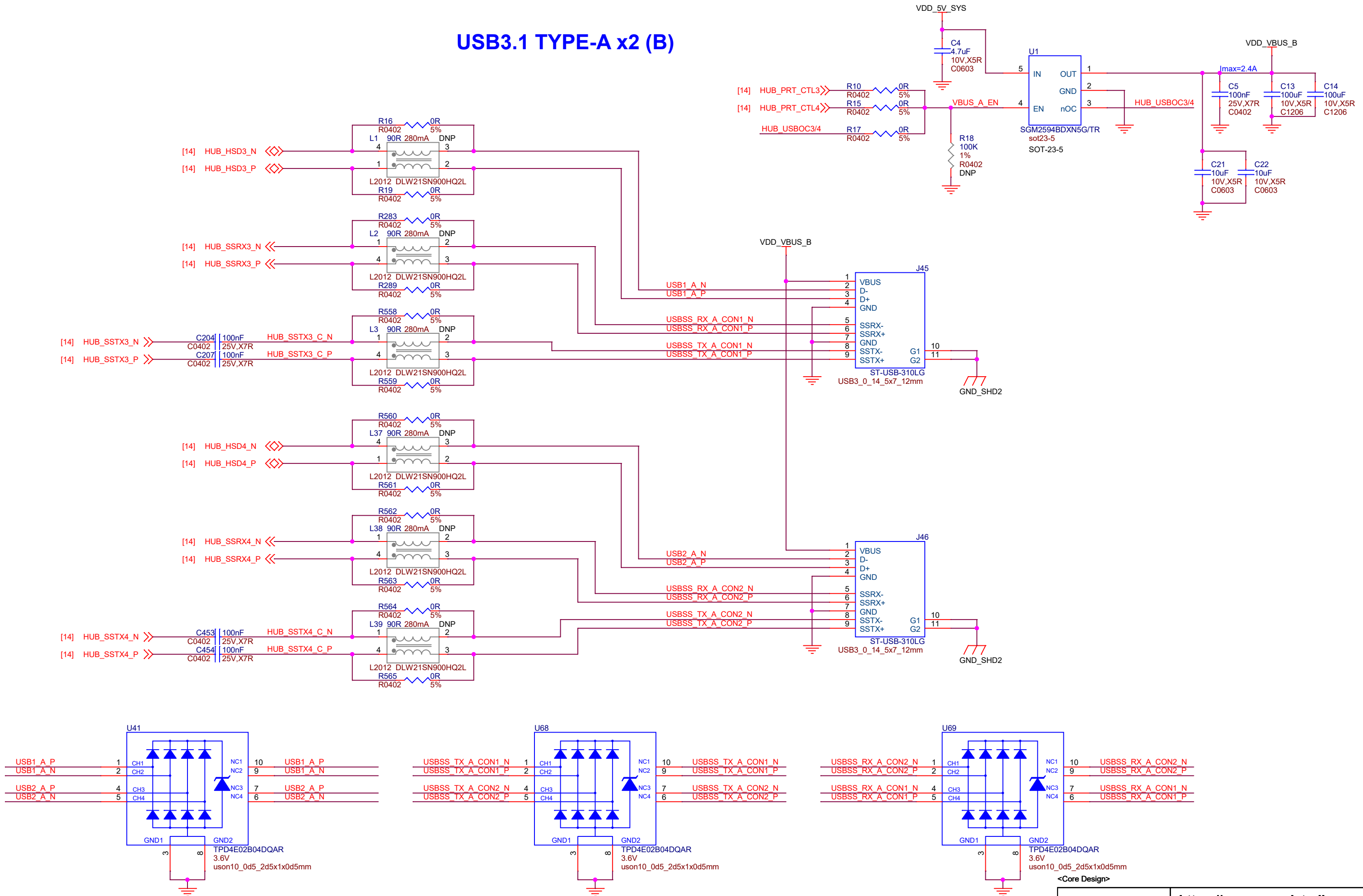
seeed studio		https://www.seeedstudio.com	
Title:		reComputer Rugged J401	
Size: A3	Document Number:	13 CVM Power MUX	Rev: V1.1
Date:	Monday, August 17, 2026		Sheet: 13 of 32



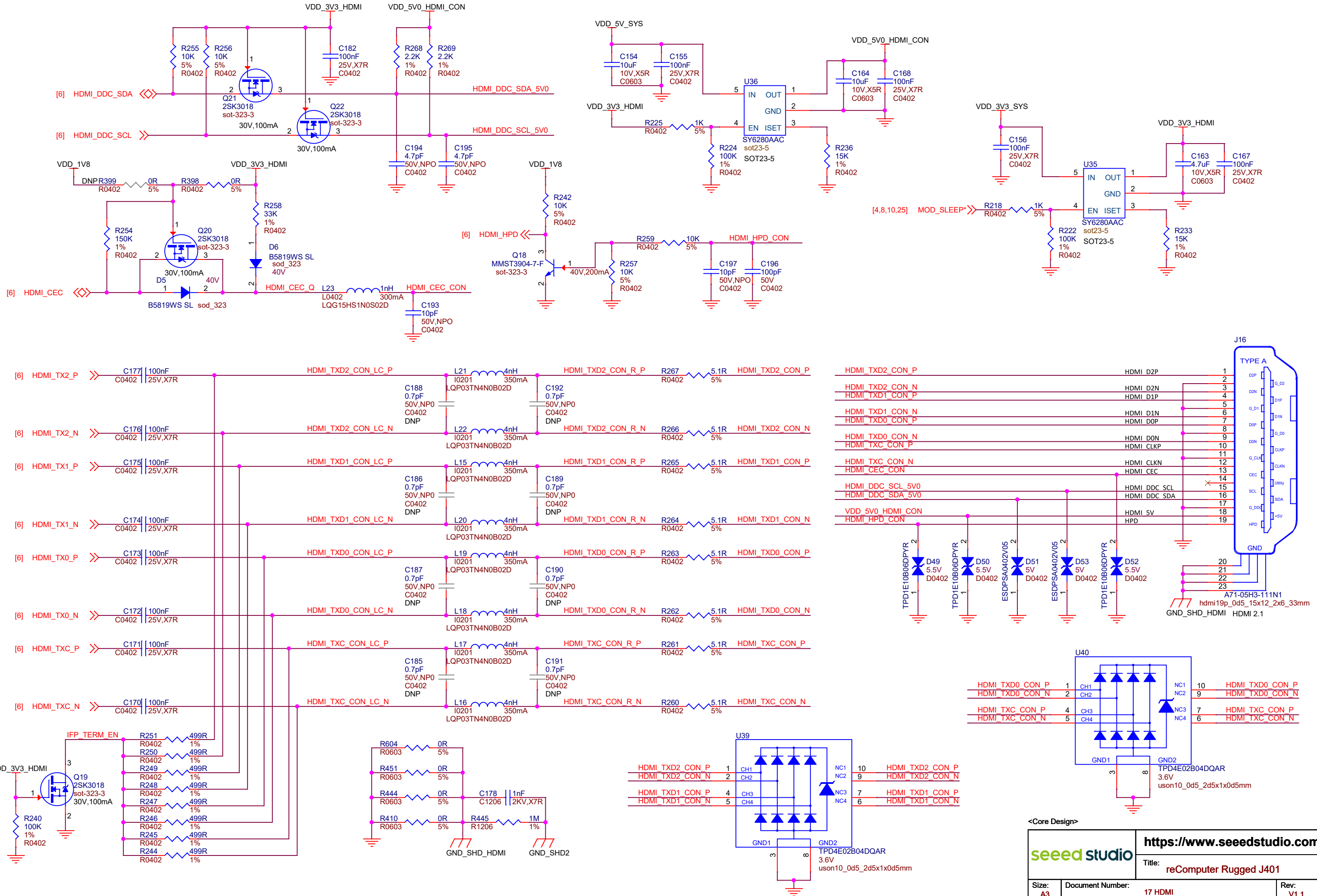
USB3.1 TYPE-A x2 (A)



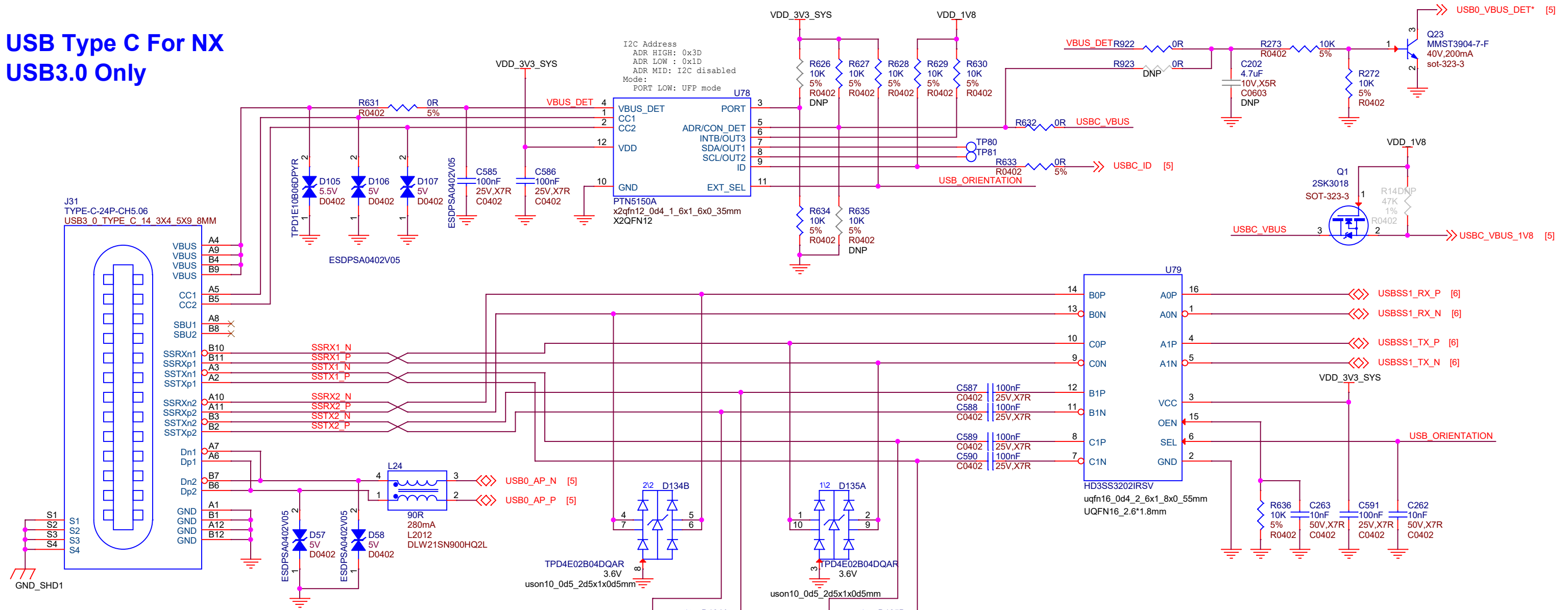
USB3.1 TYPE-A x2 (B)



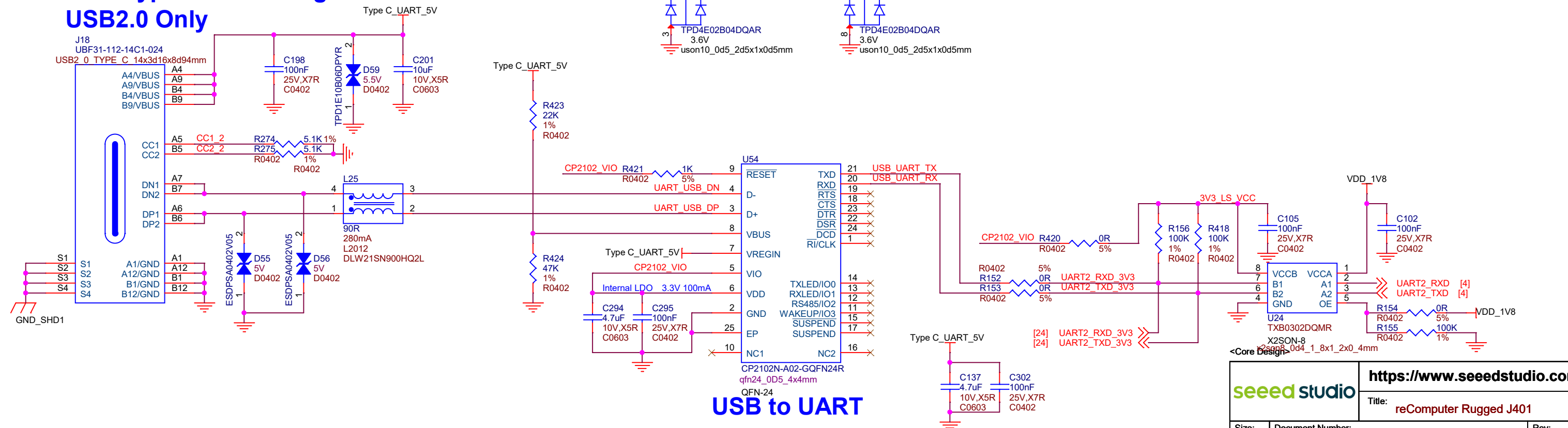
HDMI Connector



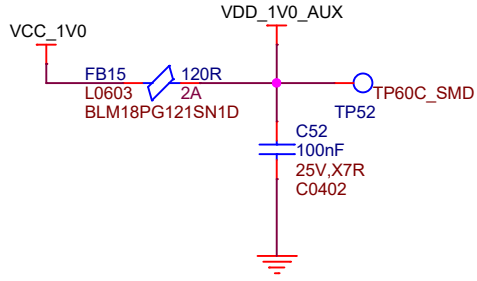
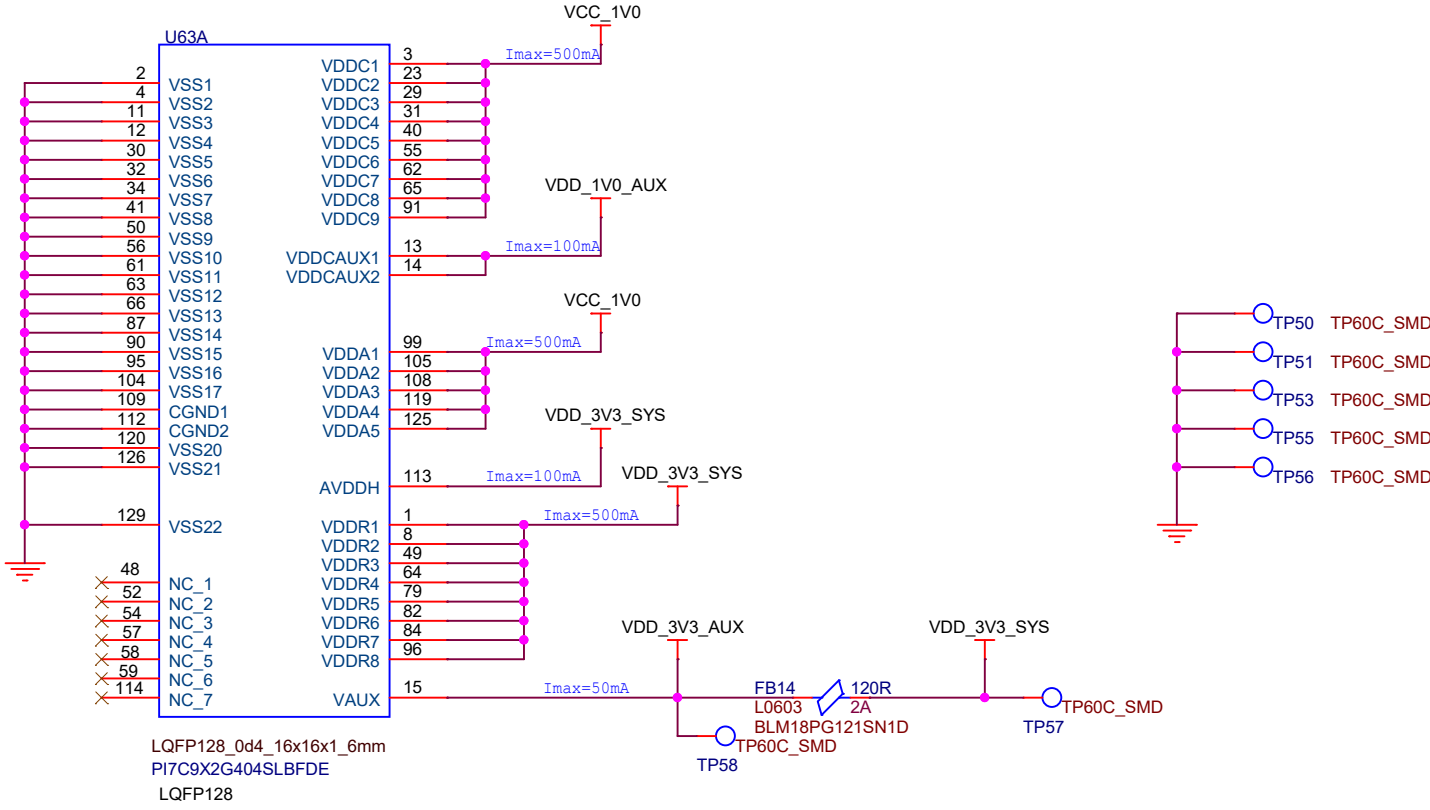
USB Type C For NX USB3.0 Only



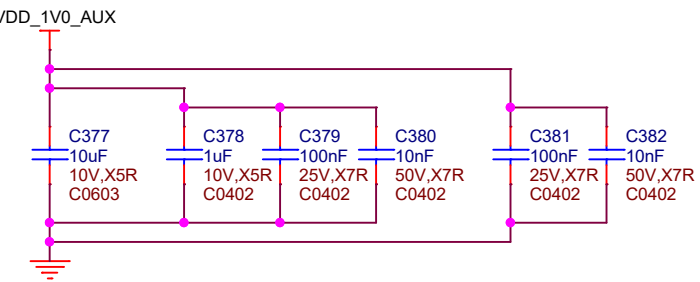
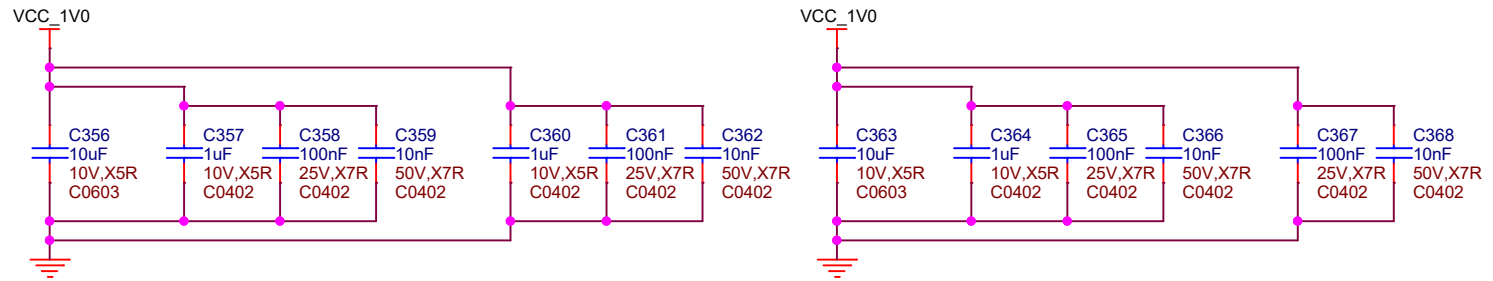
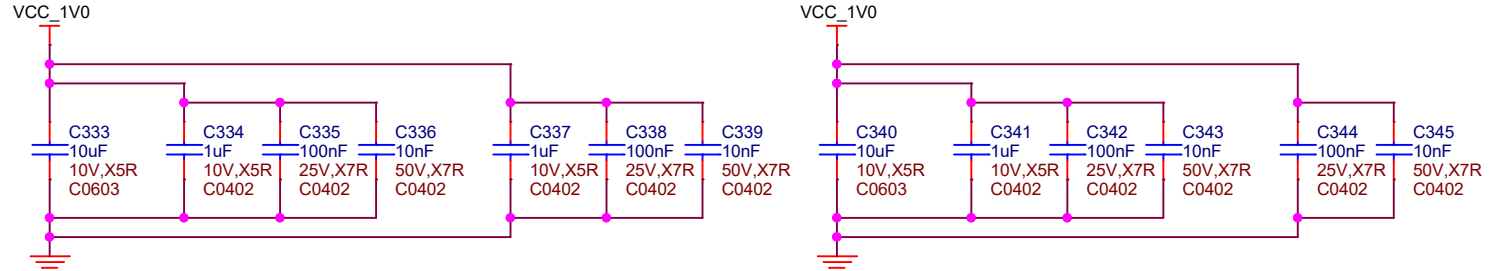
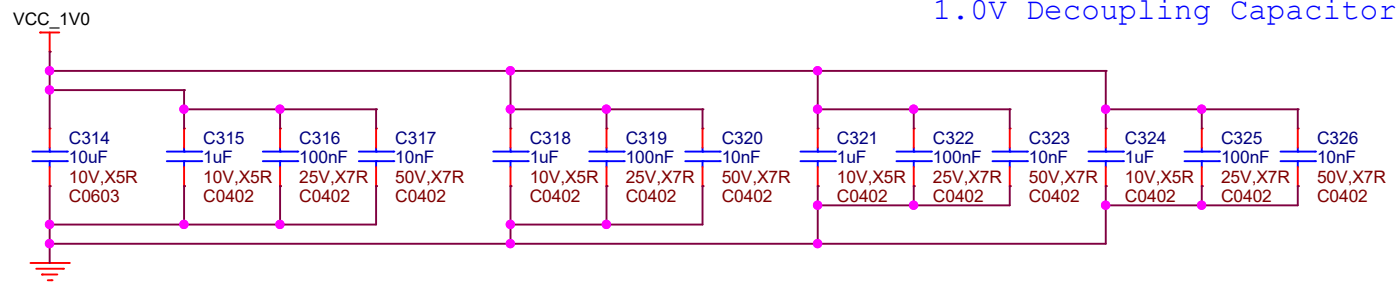
USB Type C For Debug UART



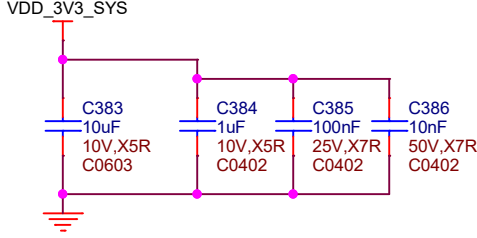
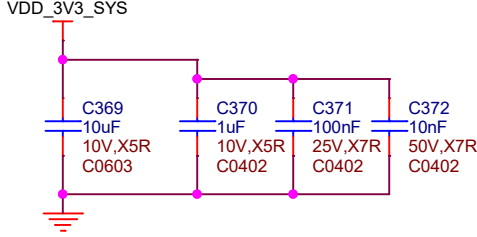
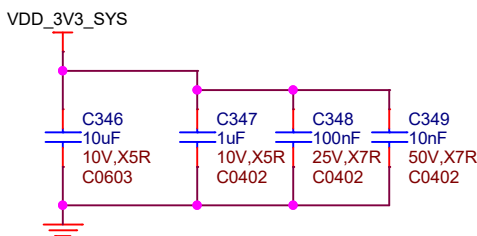
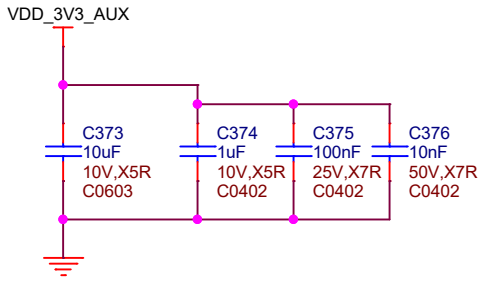
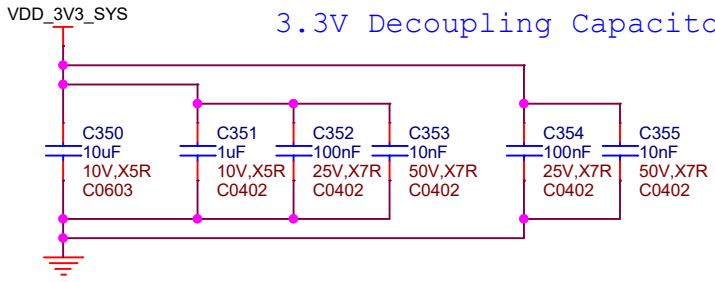
PCle switch power



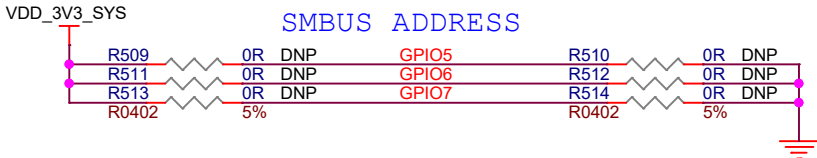
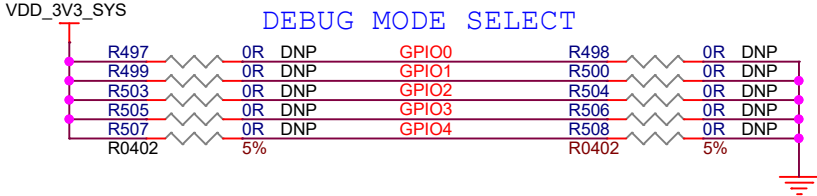
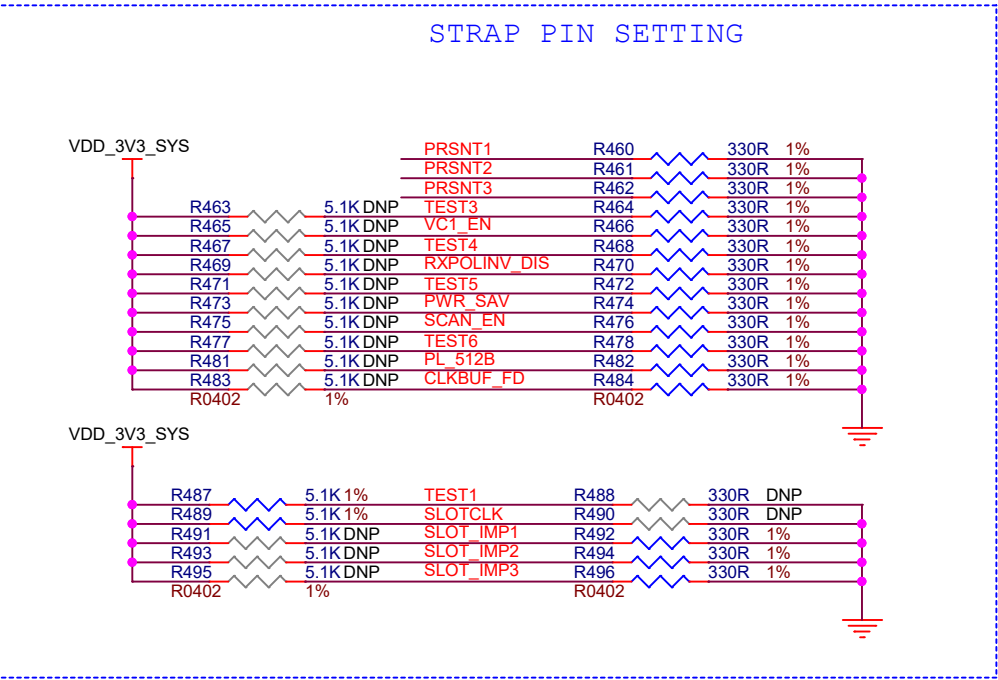
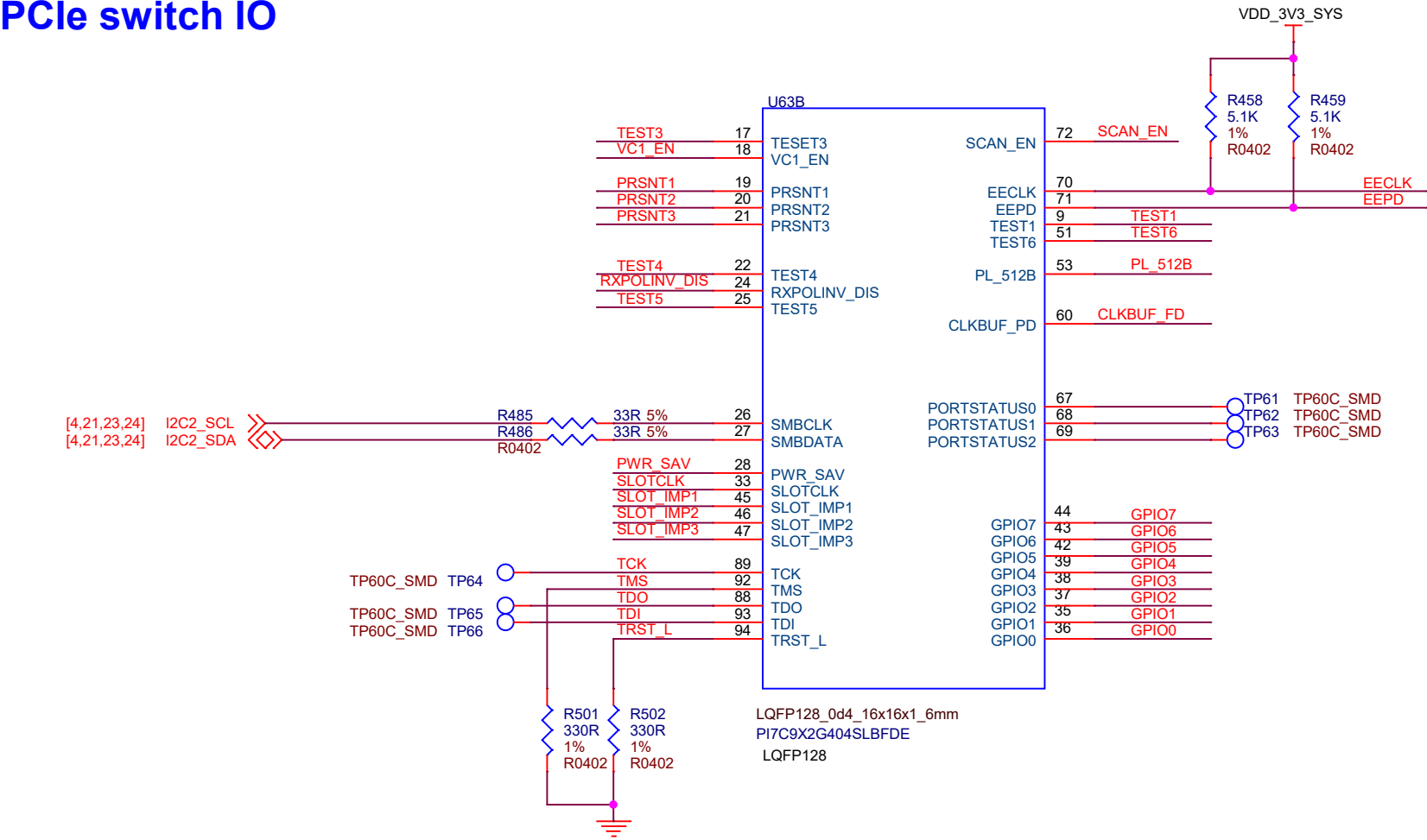
1.0V Decoupling Capacitors



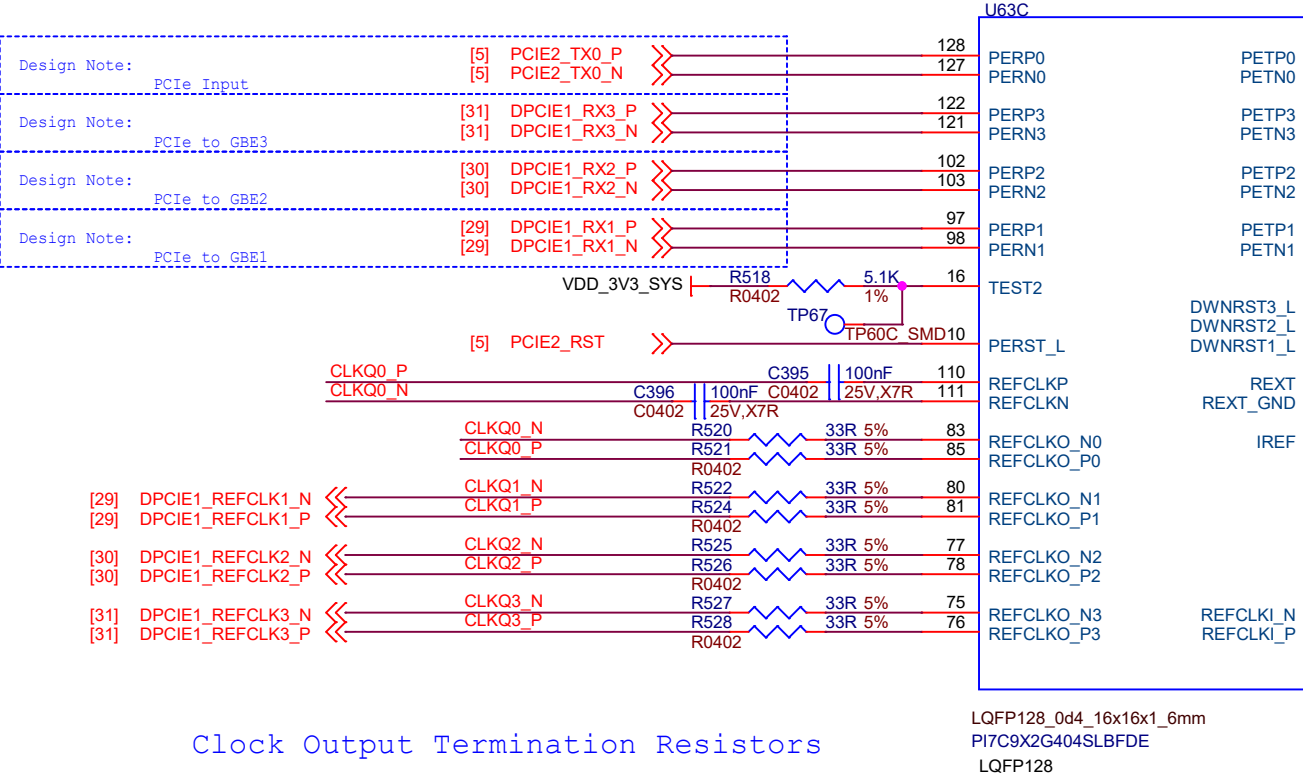
3.3V Decoupling Capacitors



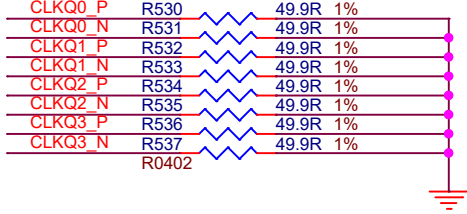
PCIe switch IO



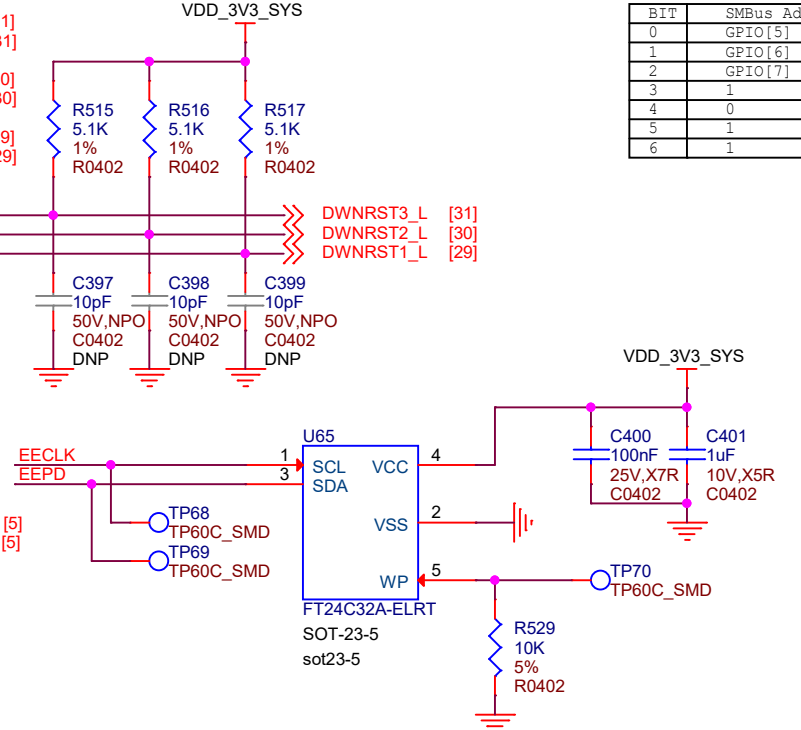
BIT	SMBus Address
0	GPIO[5]
1	GPIO[6]
2	GPIO[7]
3	1
4	0
5	1
6	1



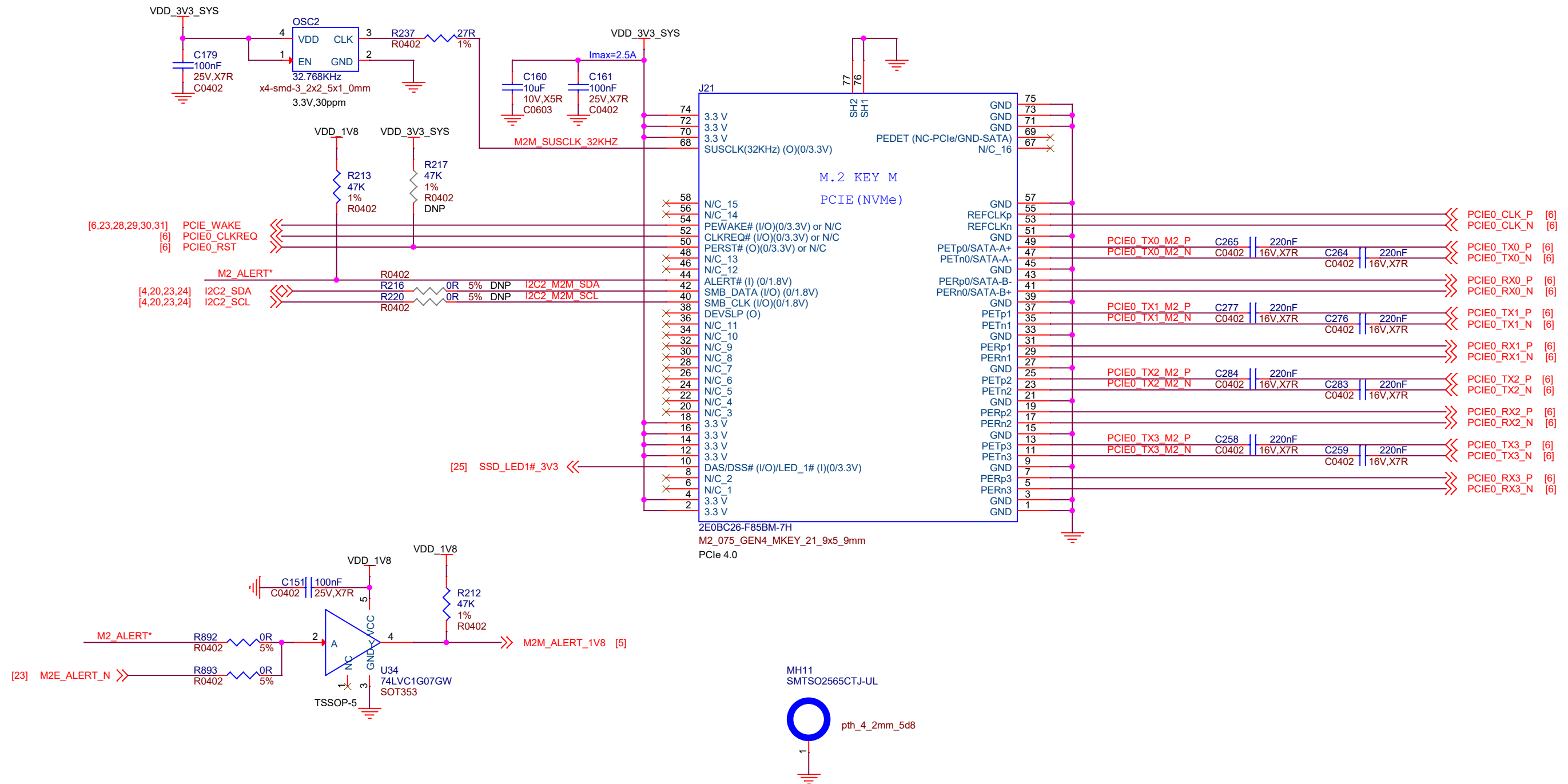
Clock Output Termination Resistors



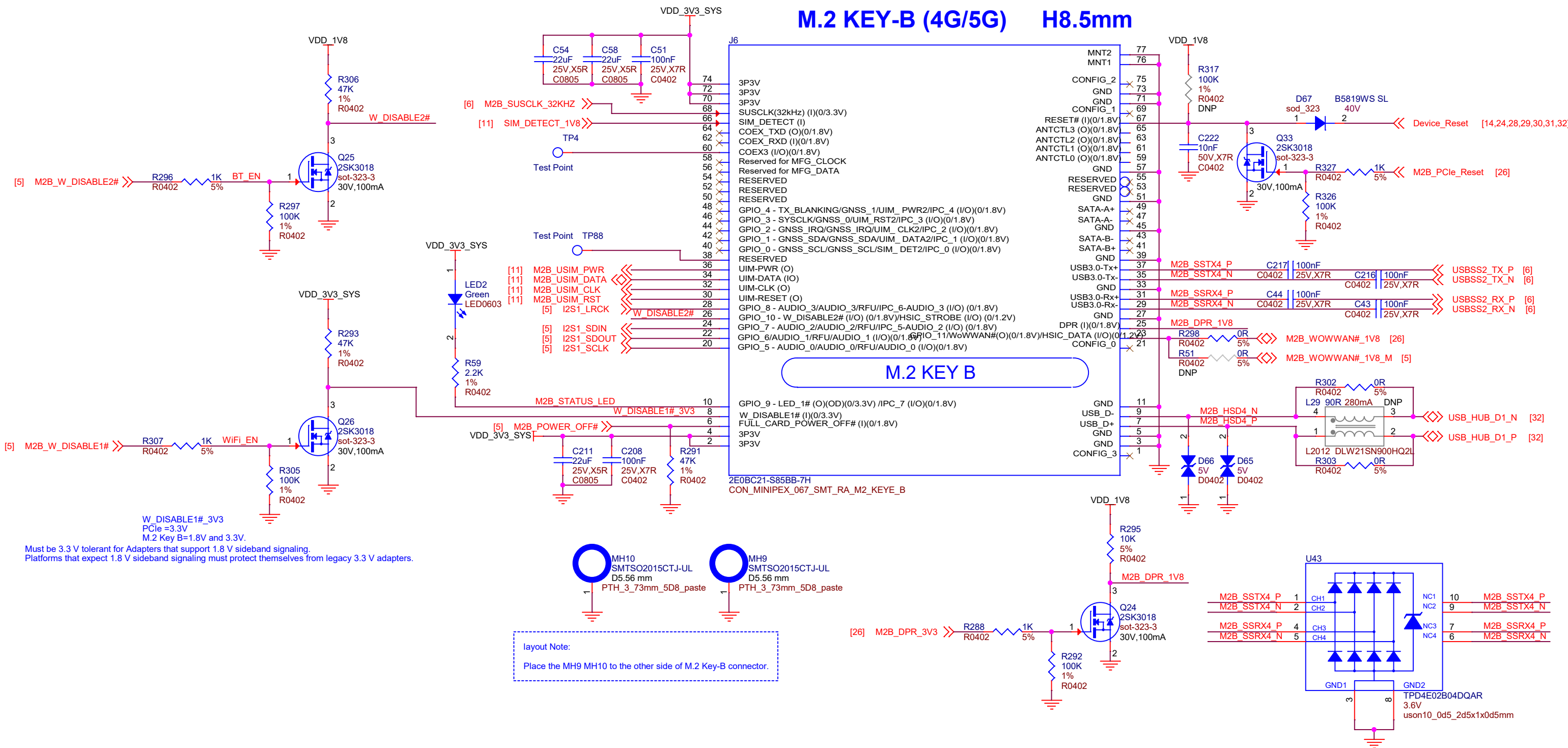
Layout Note:
Put these resistors near
to the end point



M.2 KEY-M (NVME) H8.5mm



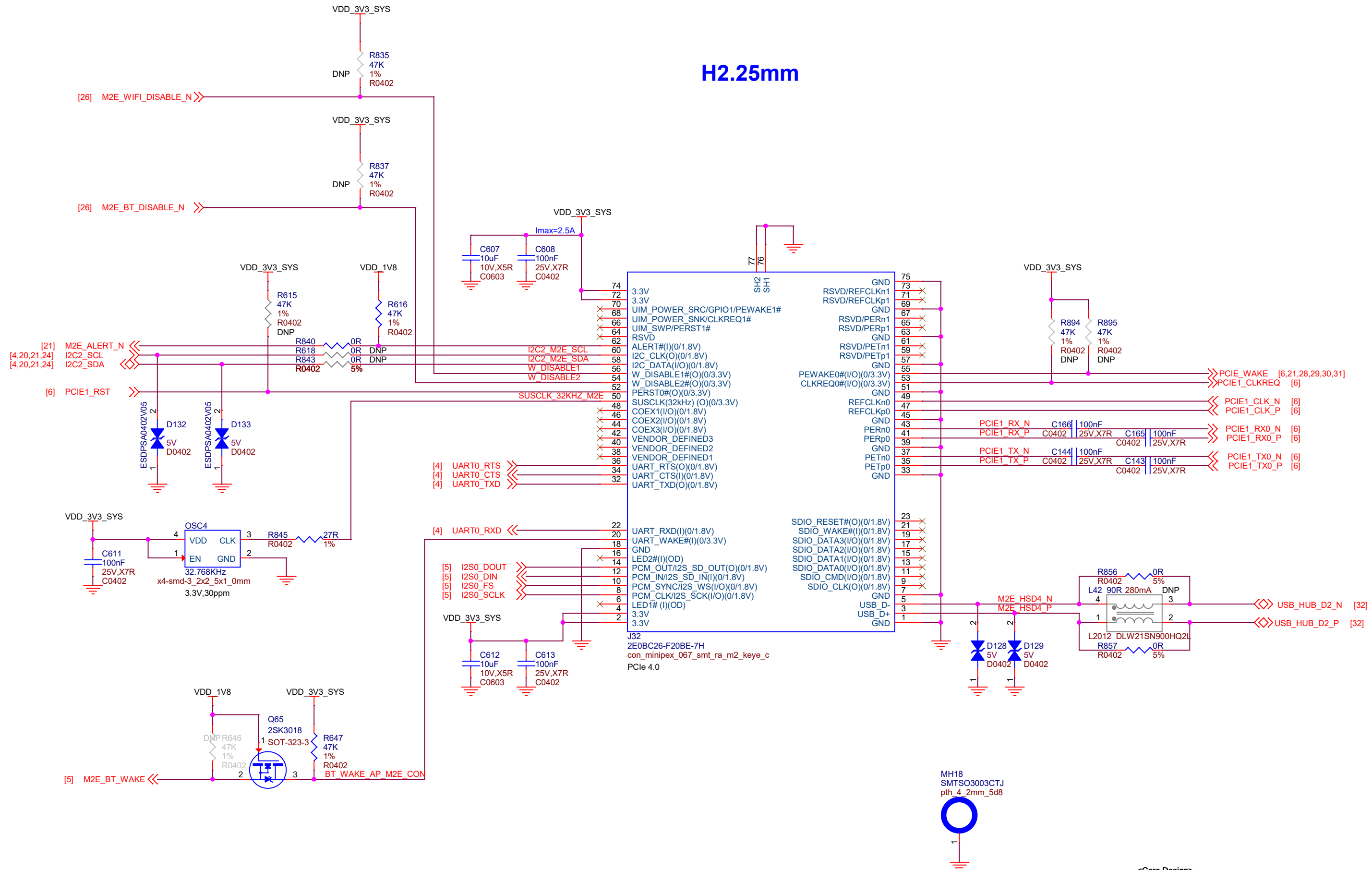
<Core Design>



<Core Design>

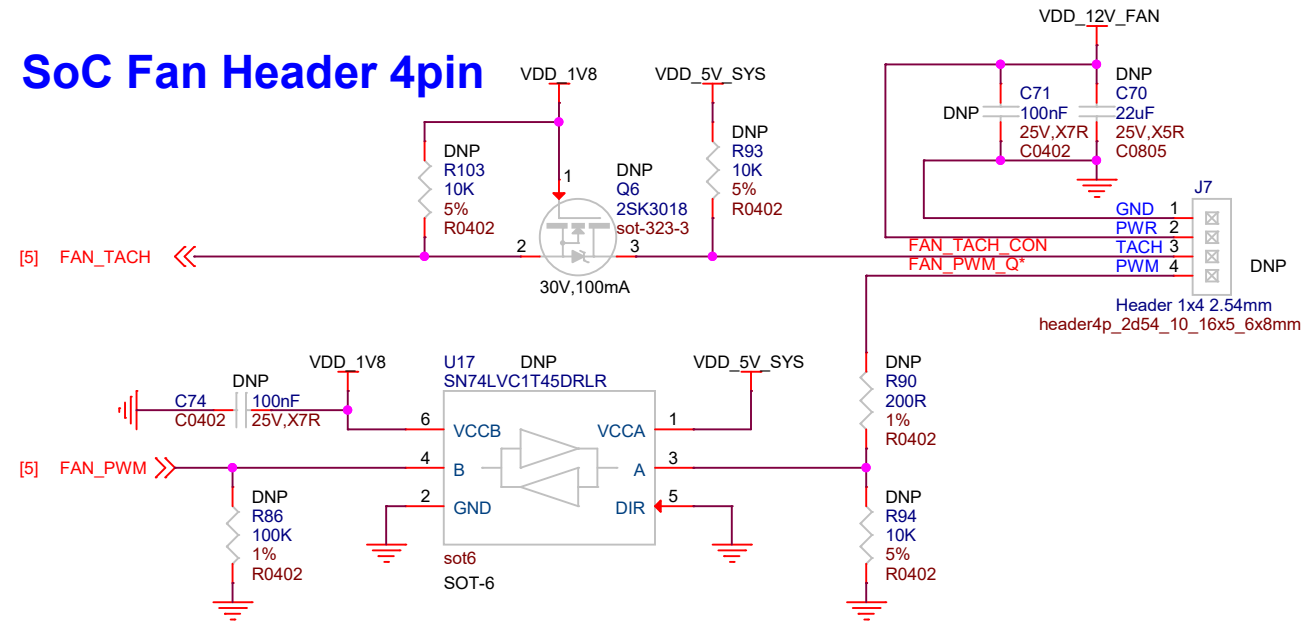
M.2 KEY-E (WIFI/BT)

H2.5mm

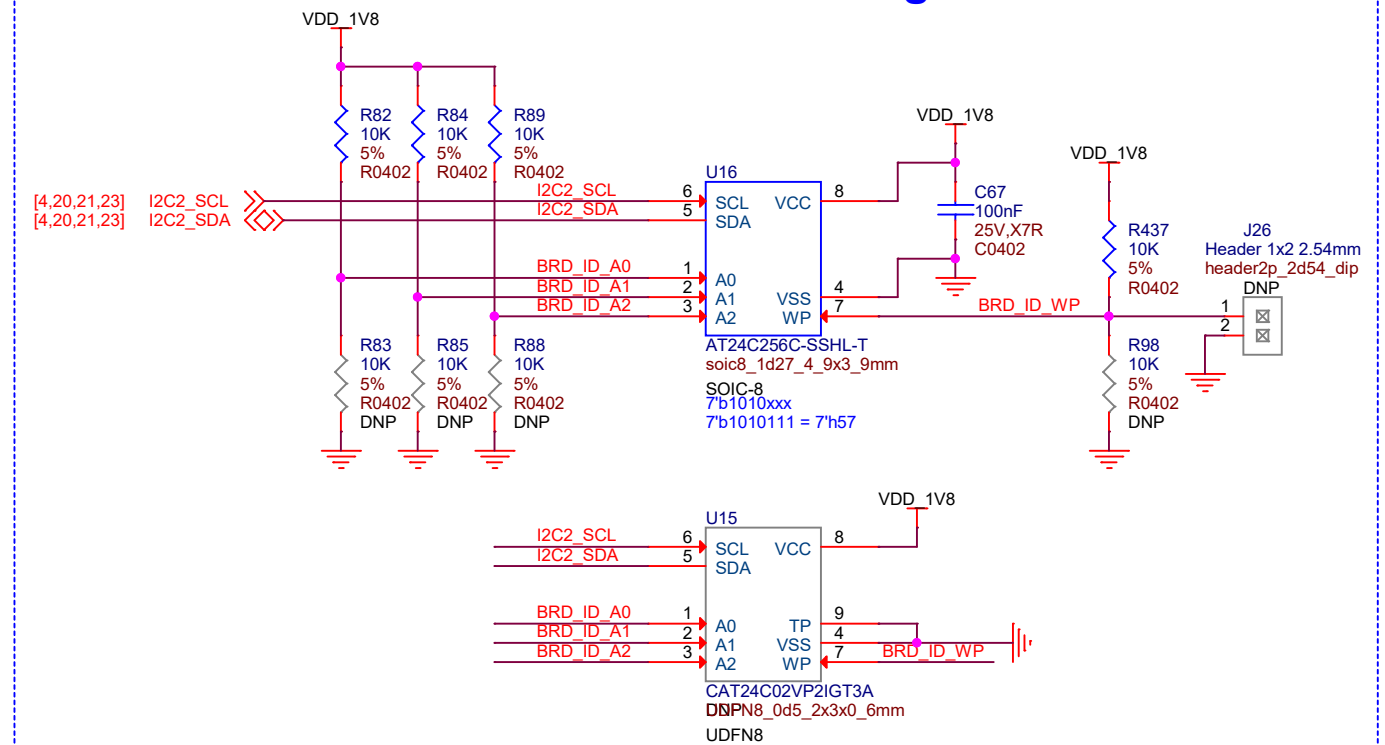


<Core Design>

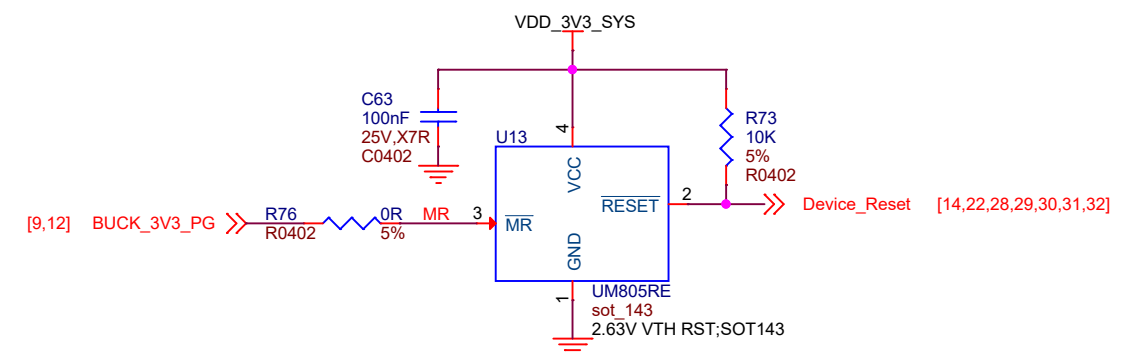
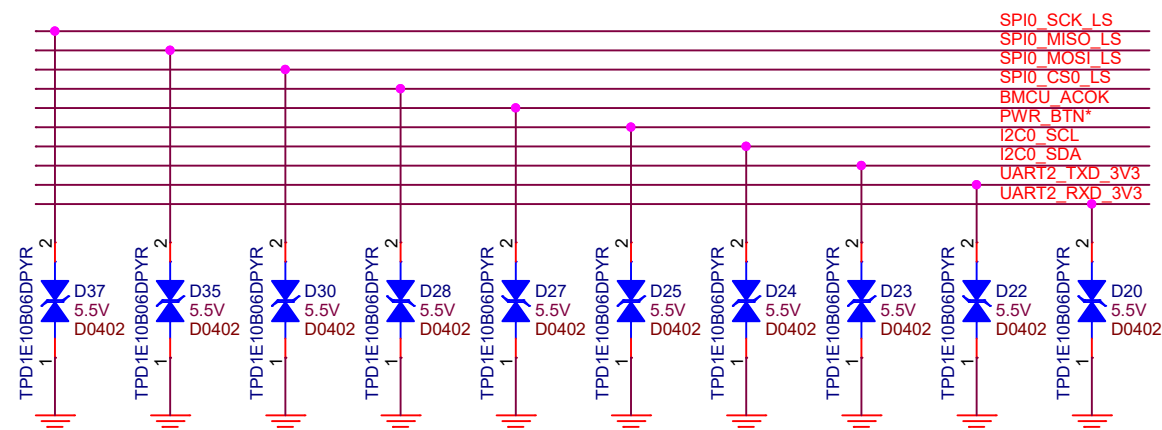
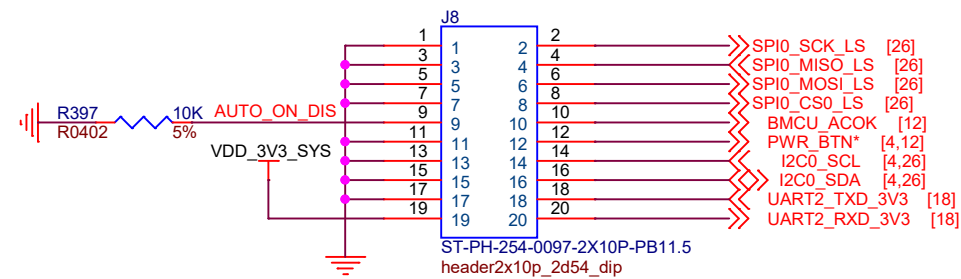
SoC Fan Header 4pin



Carrier Board Config

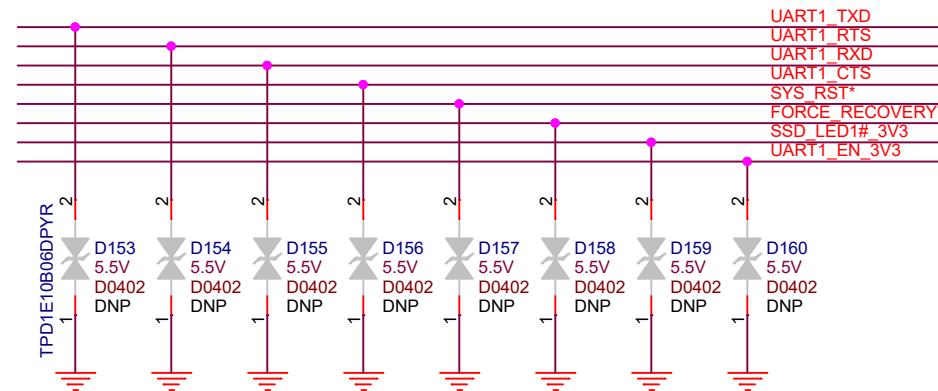
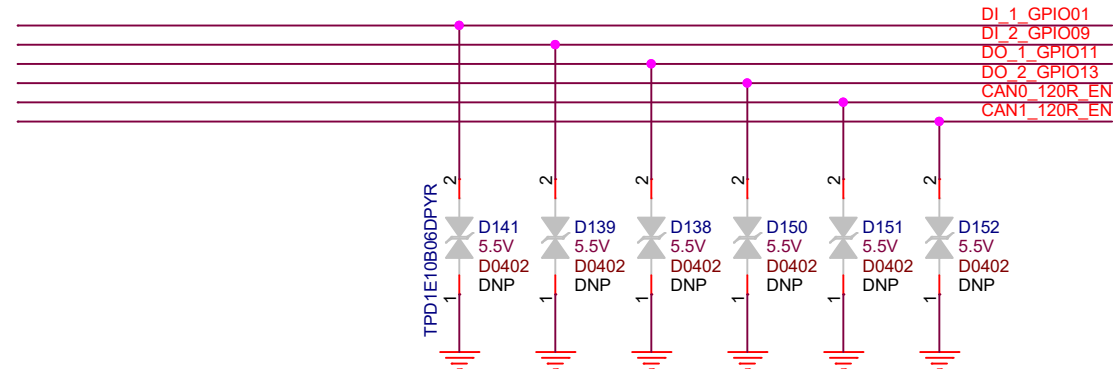
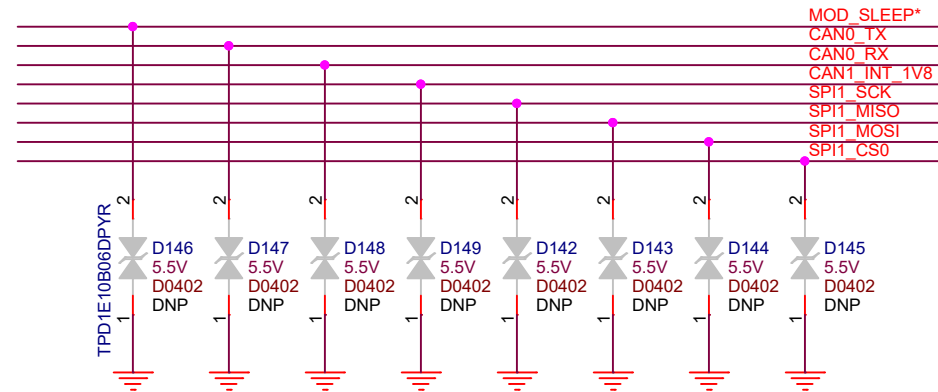
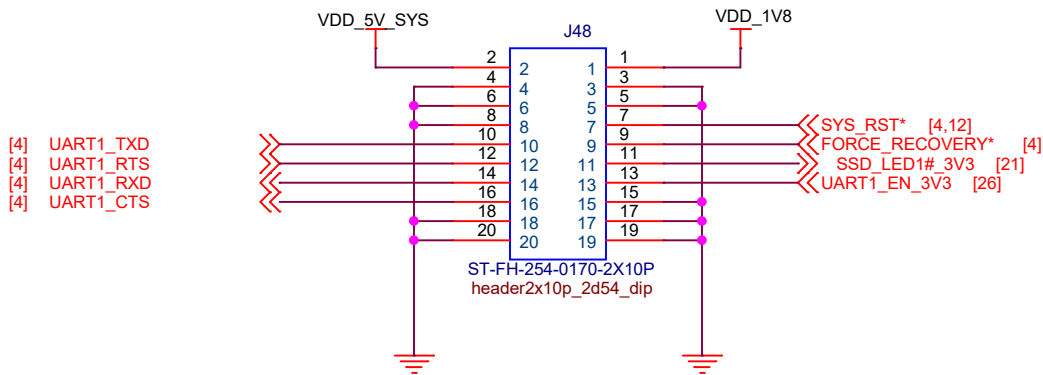
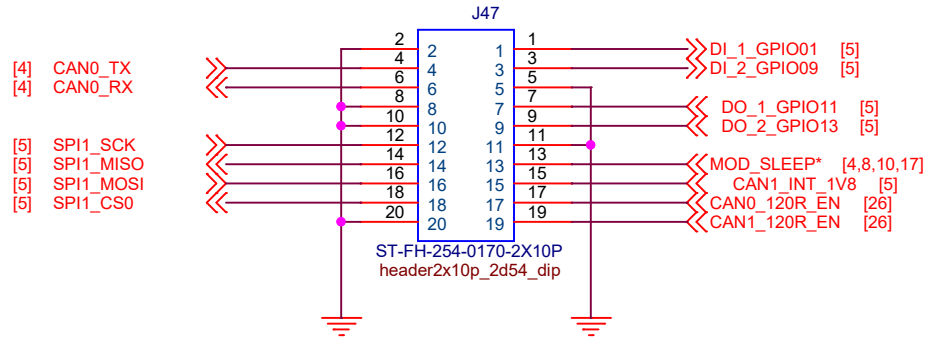


Debug - UART USB BOOT

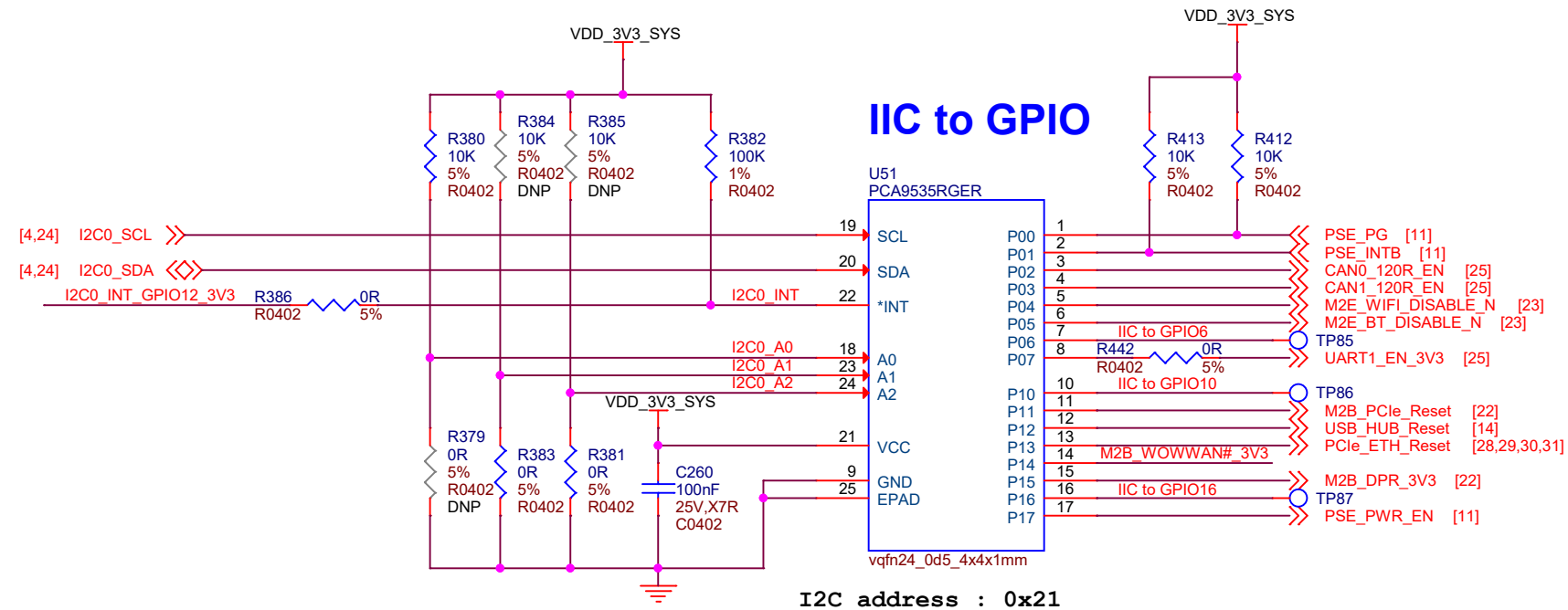
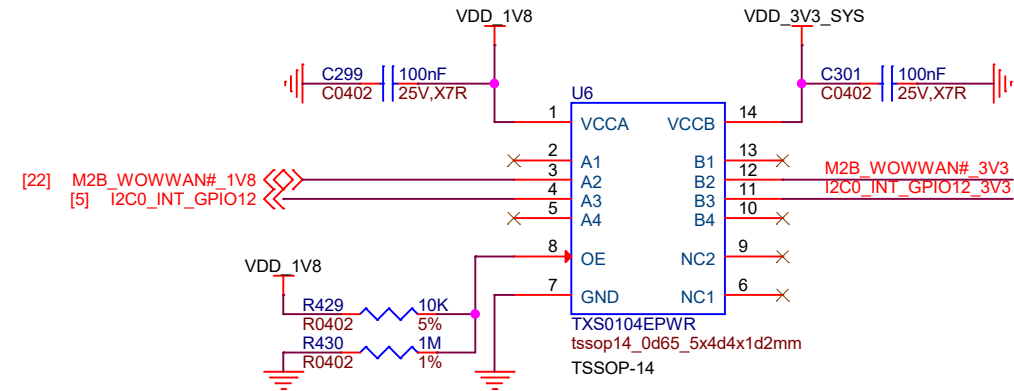
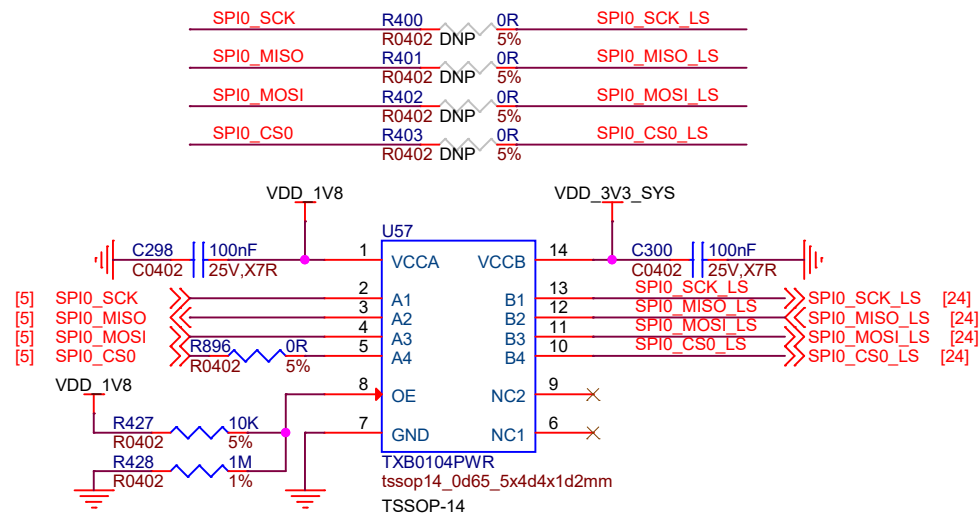


<Core Design>

		https://www.seeedstudio.com	
		Title: reComputer Rugged J401	
Size: A3	Document Number: 24 Fan, EEPROM, Debug		Rev: V1.1
Date: Monday, August 17, 2026		Sheet: 24 of 32	



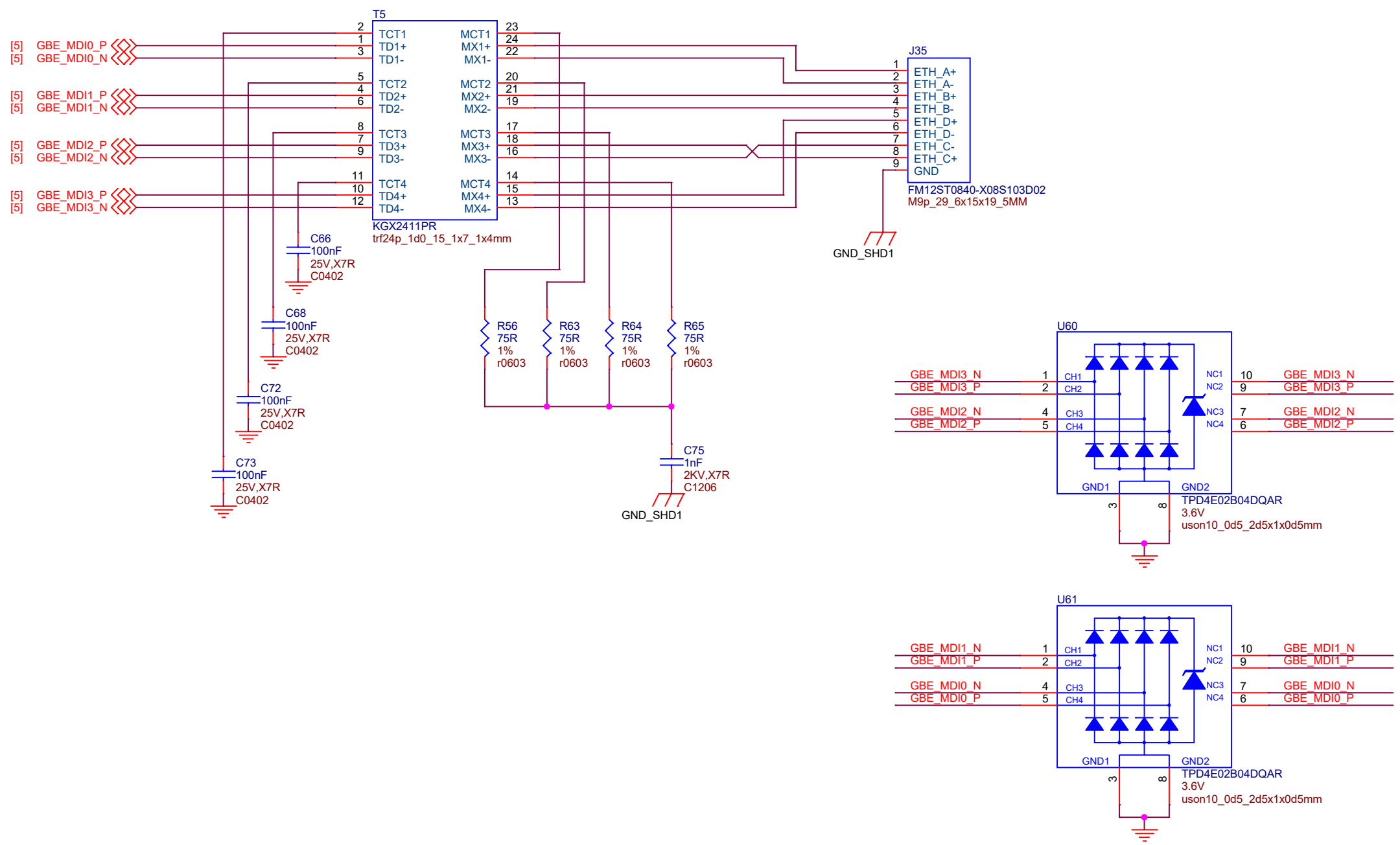
<Core Design>



<Core Design>

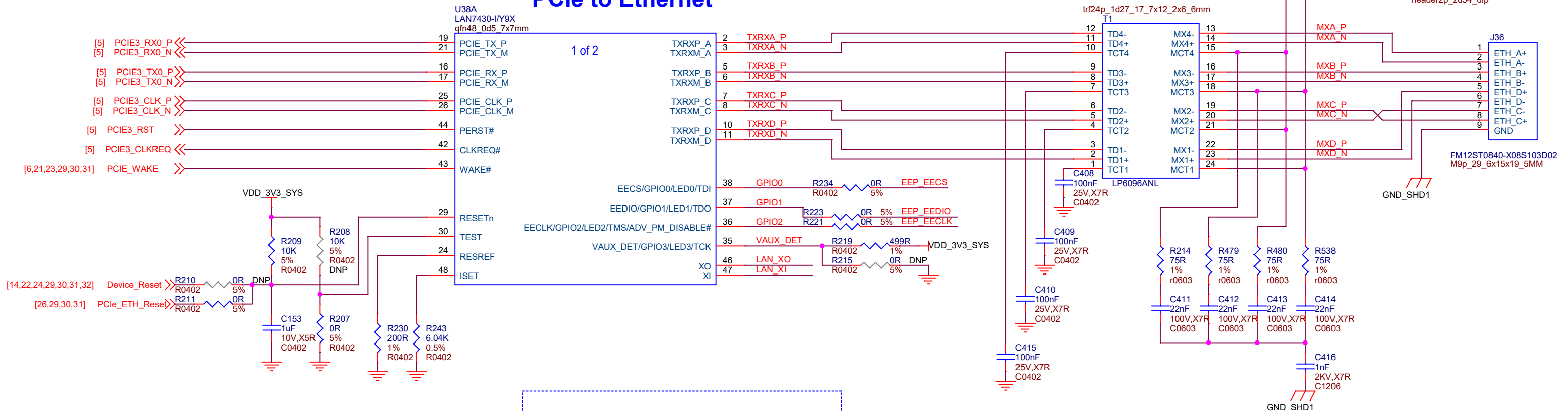
seeed studio		https://www.seeedstudio.com	
Size: A3		Title: reComputer Rugged J401	
Date: Monday, August 17, 2026		Rev: V1.1	
Document Number: 26 IIC to IO		Sheet: 26 of 32	

Gigabit Ethernet



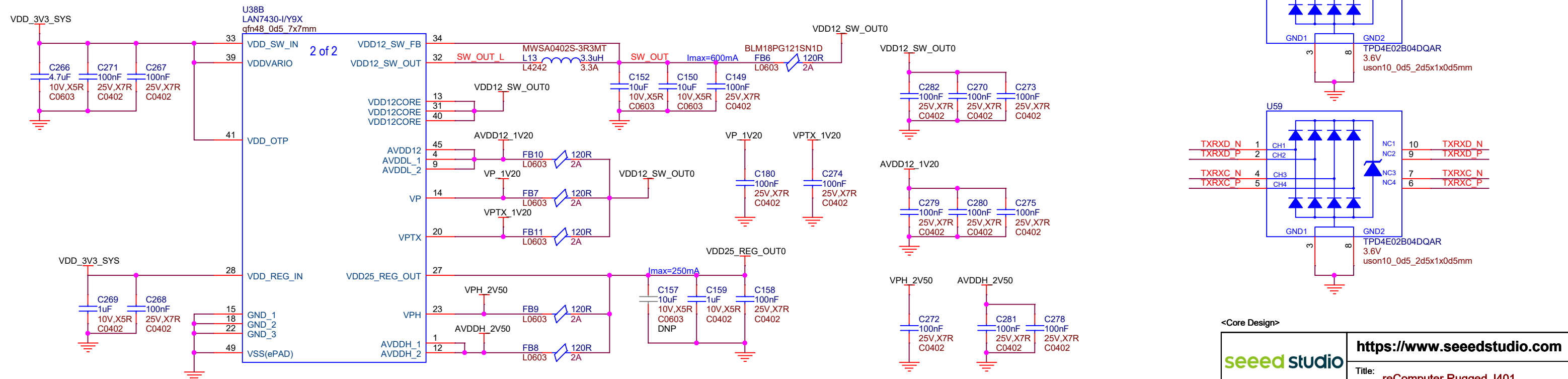
PSE input

PCle to Ethernet



EEPROM Optional

The EEPROM is optional, and can be configured to load USB descriptors, USB device configuration, and the MAC address.



<Core Design>

seed studio

<https://www.seeedstudio.com>

Title: reComputer Rugged J401

Size:
A3

Document Number:	28 PCIe to GBE0
------------------	-----------------

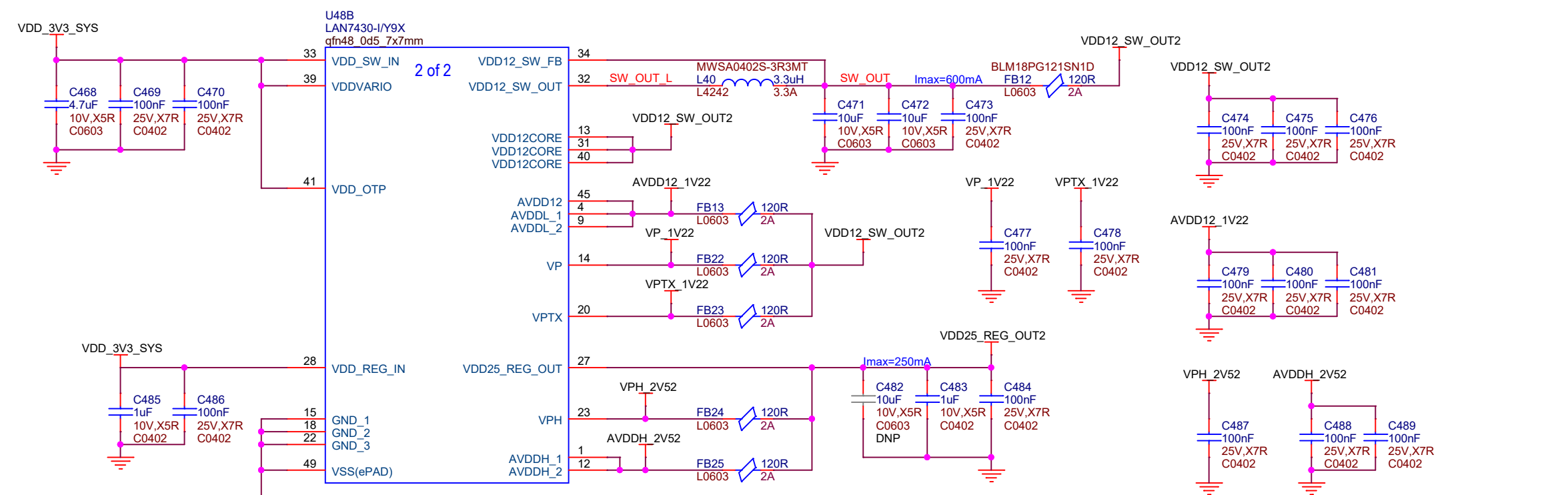
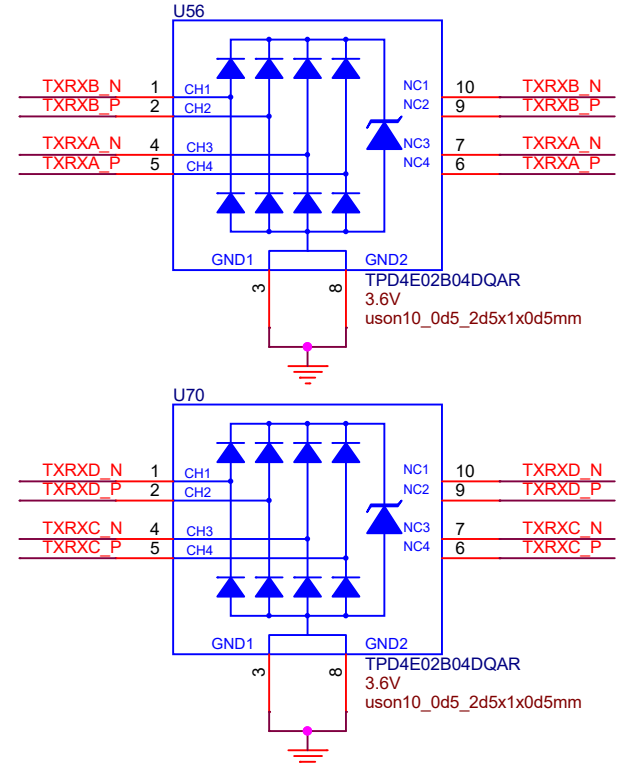
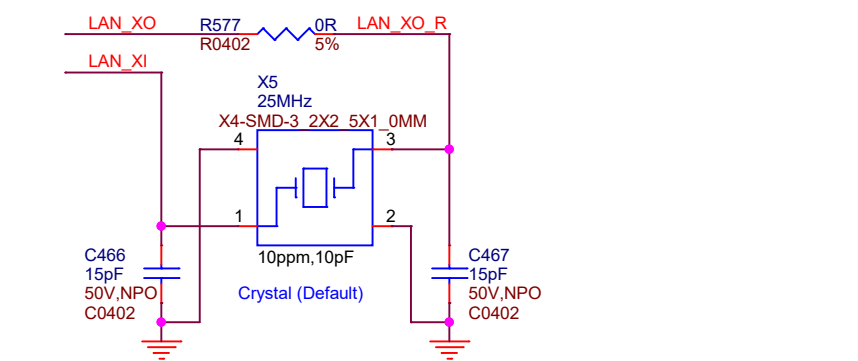
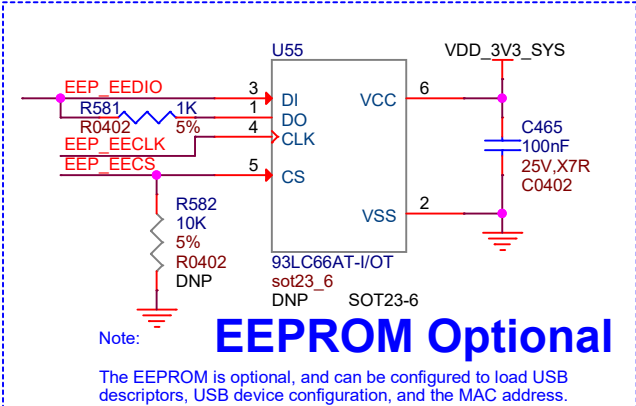
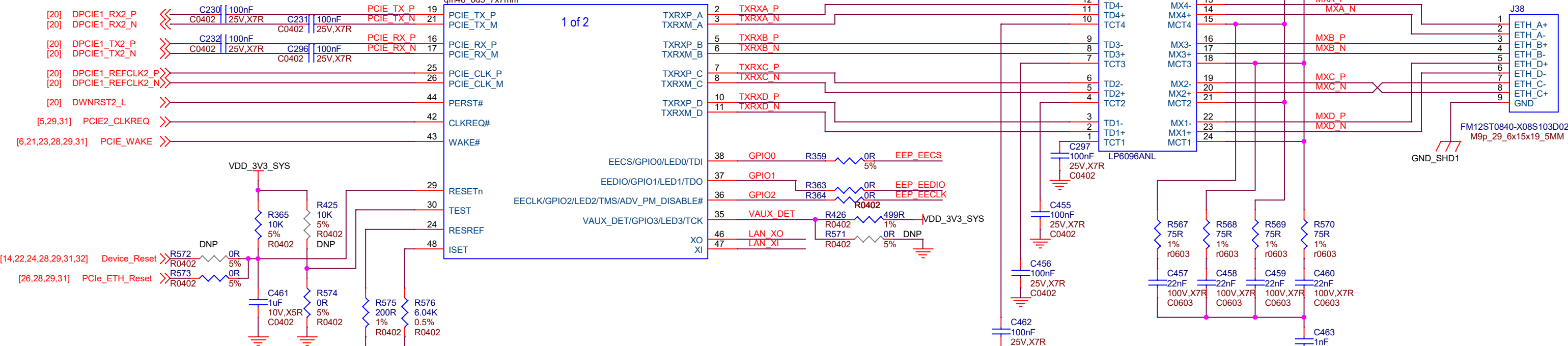
Rev:
V1.1

Date: Monday, August 17, 2026

Sheet: 28 of 32

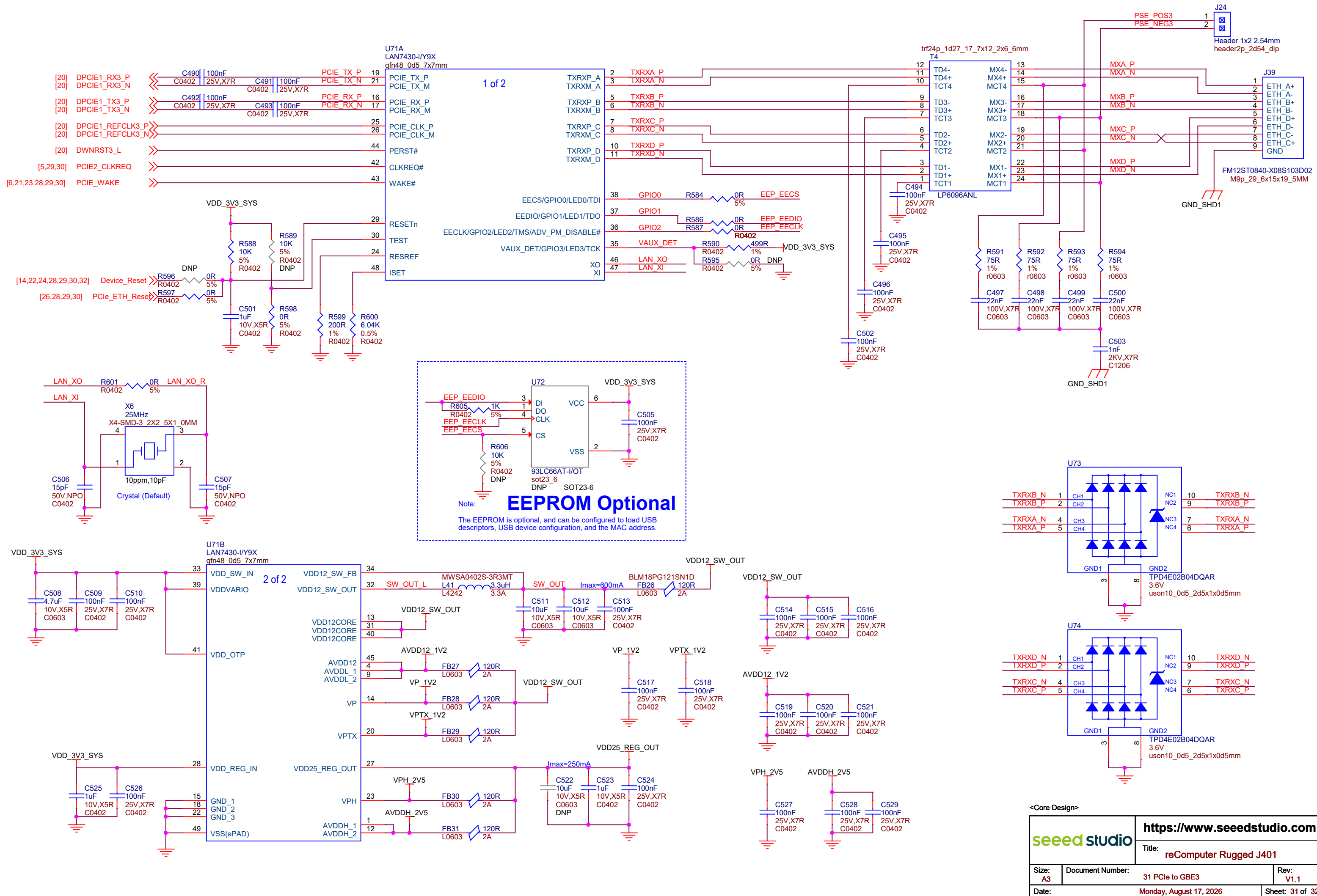
PSE input

PCle to Ethernet



PCIe to Ethernet

PSE input



USB2.0_HUB

