

ConnectCore 93 Dev Board

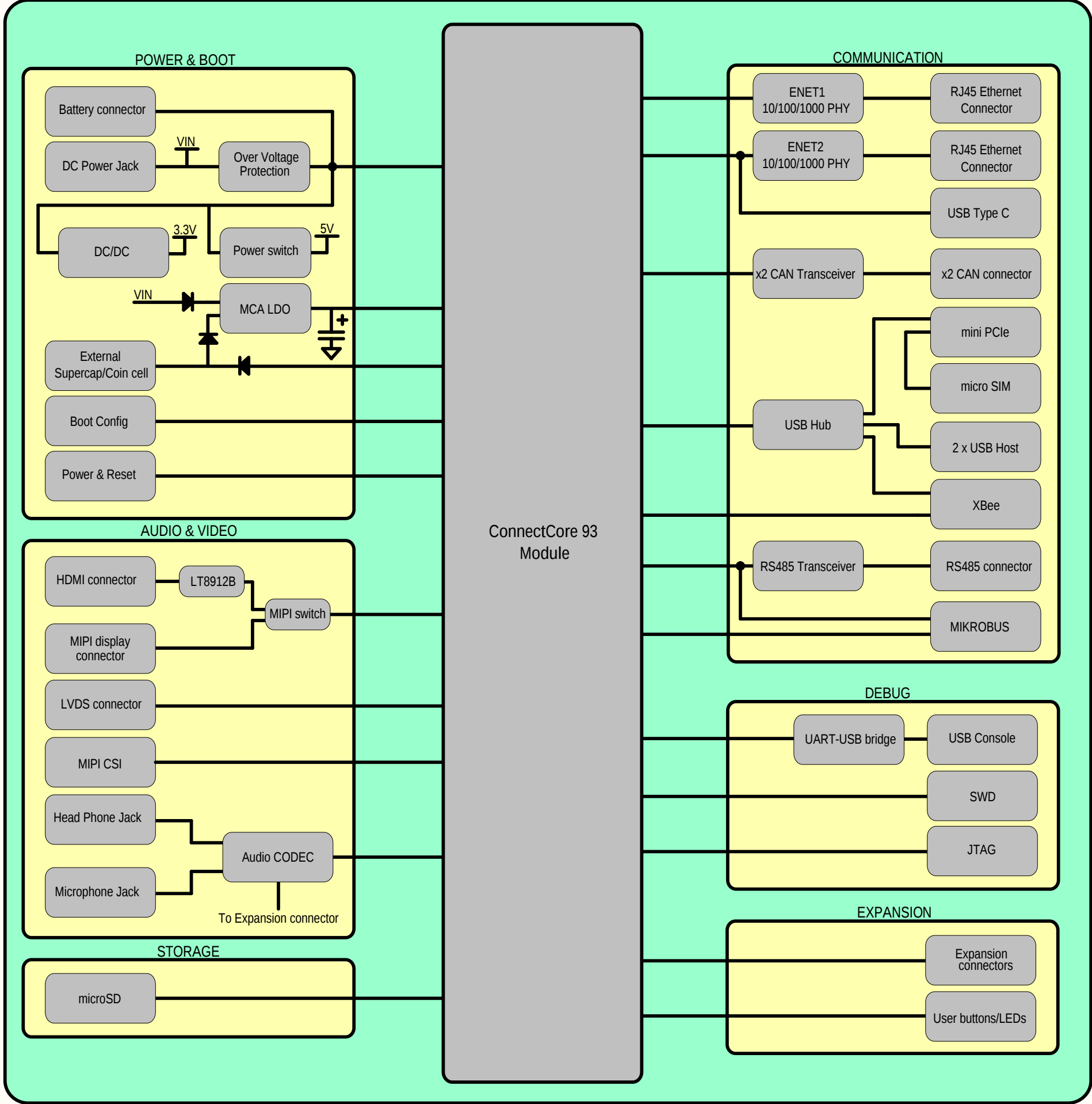
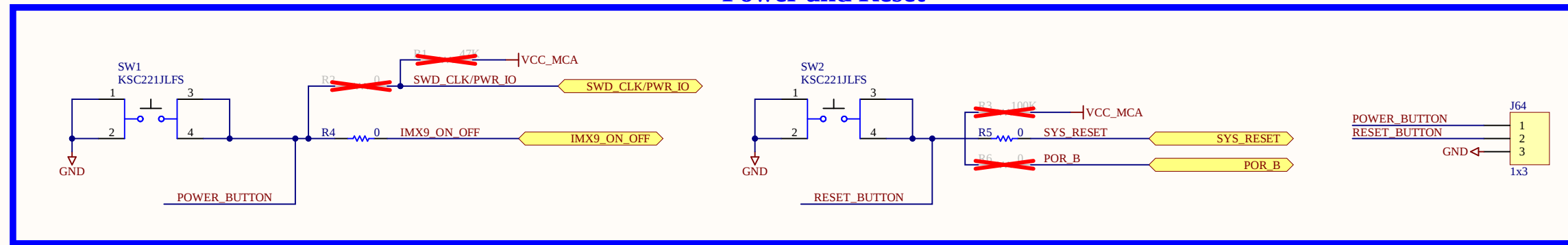


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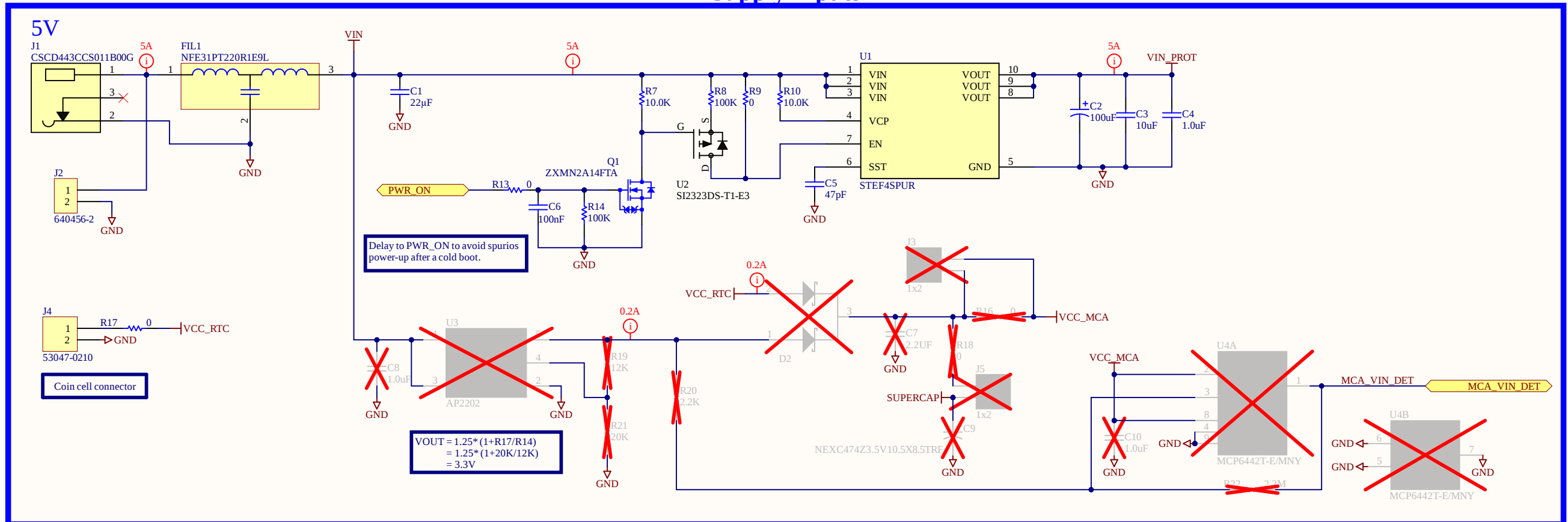
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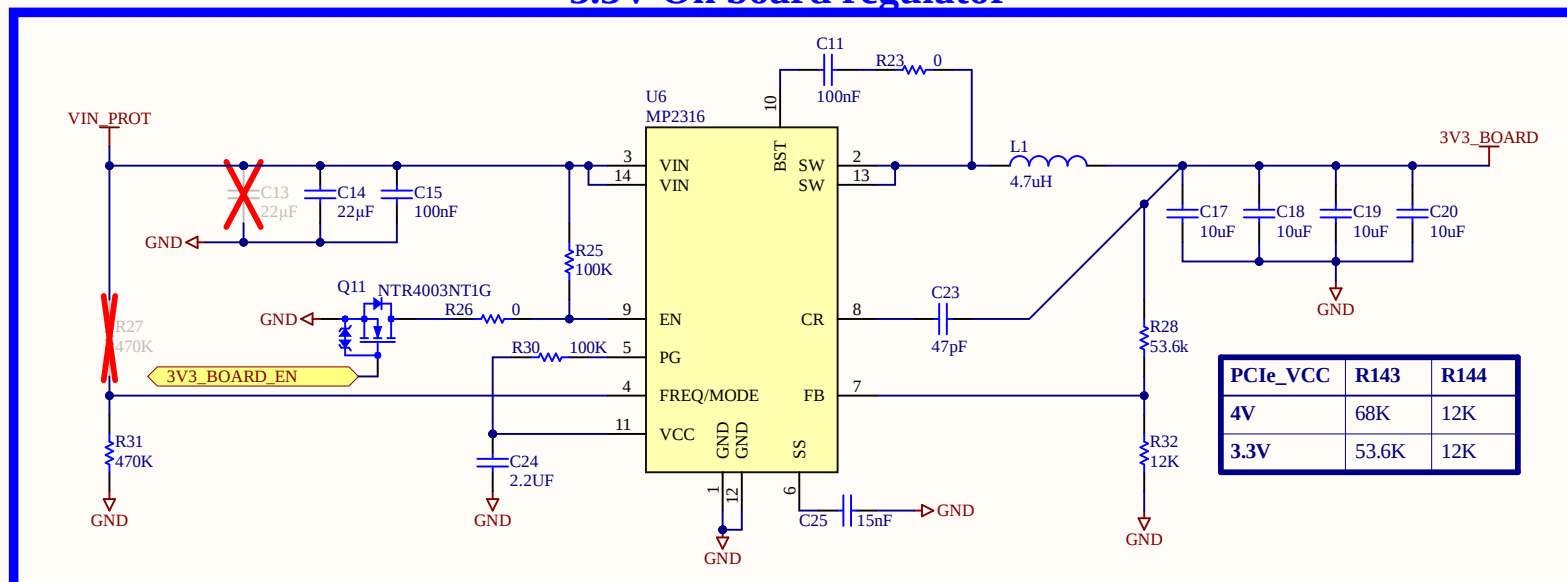
Power and Reset



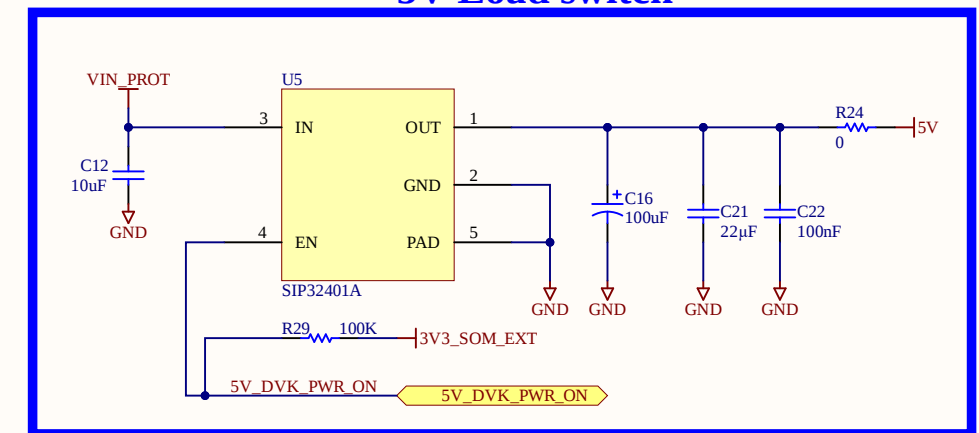
Supply Inputs



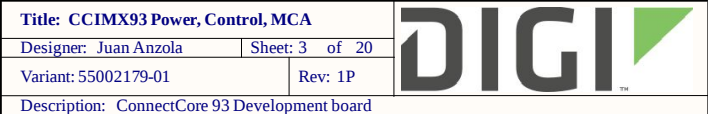
3.3V On board regulator

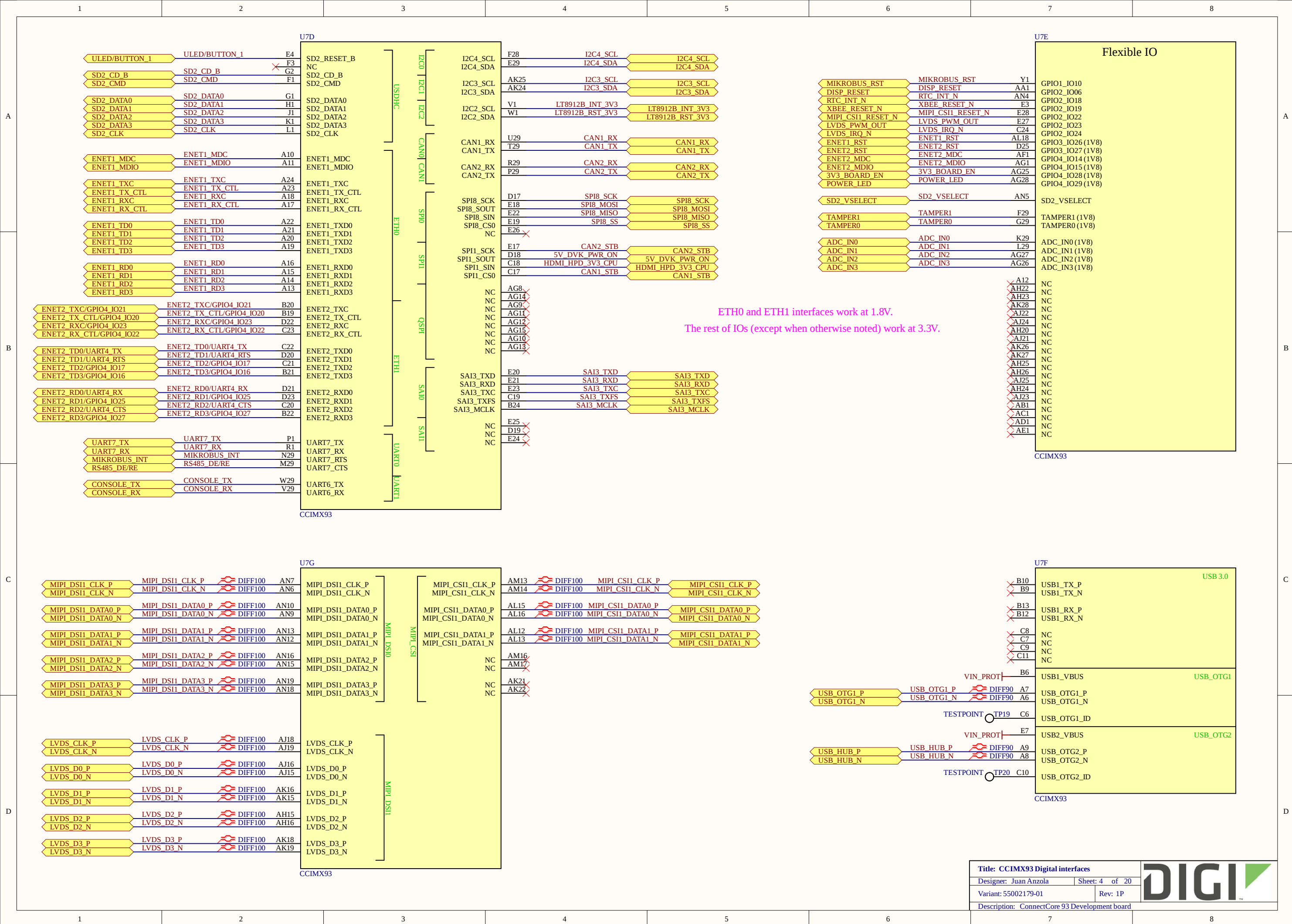


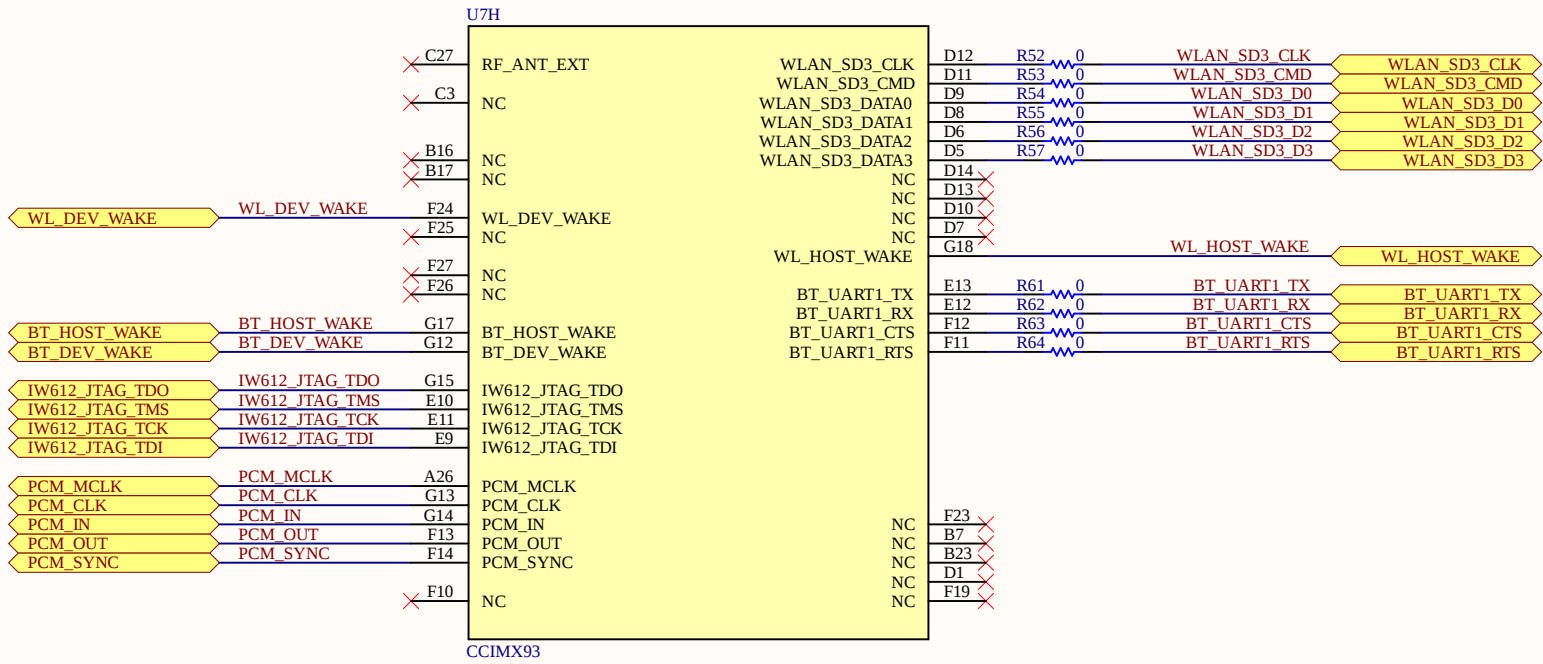
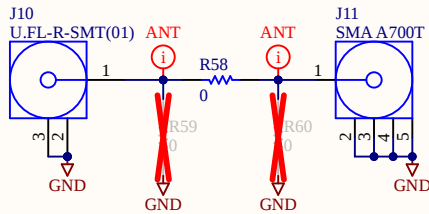
5V Load switch



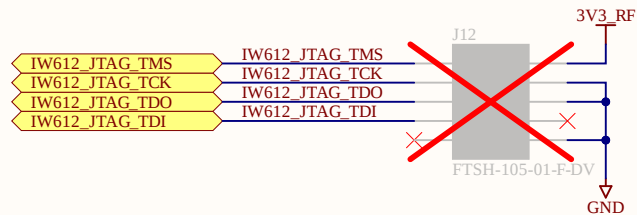
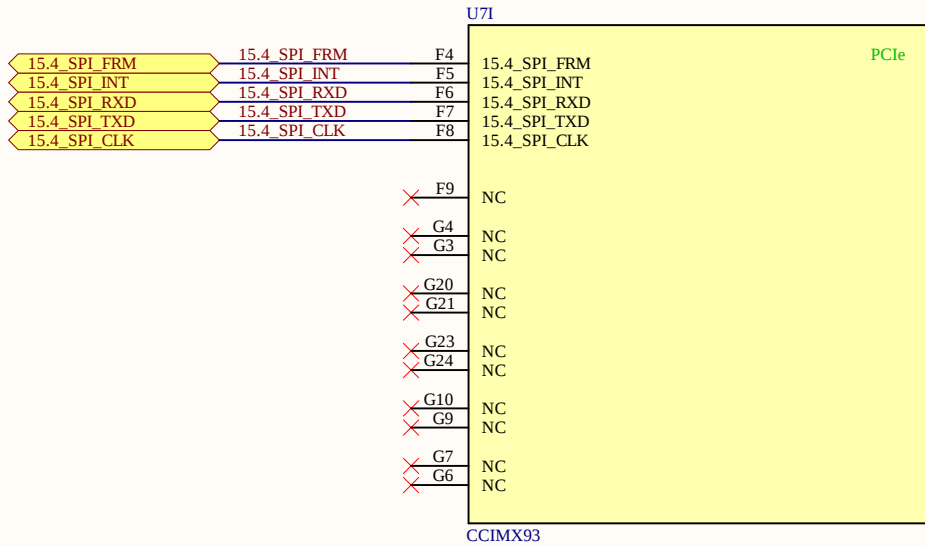
PCIE_VCC	R143	R144
4V	68K	12K
3.3V	53.6K	12K





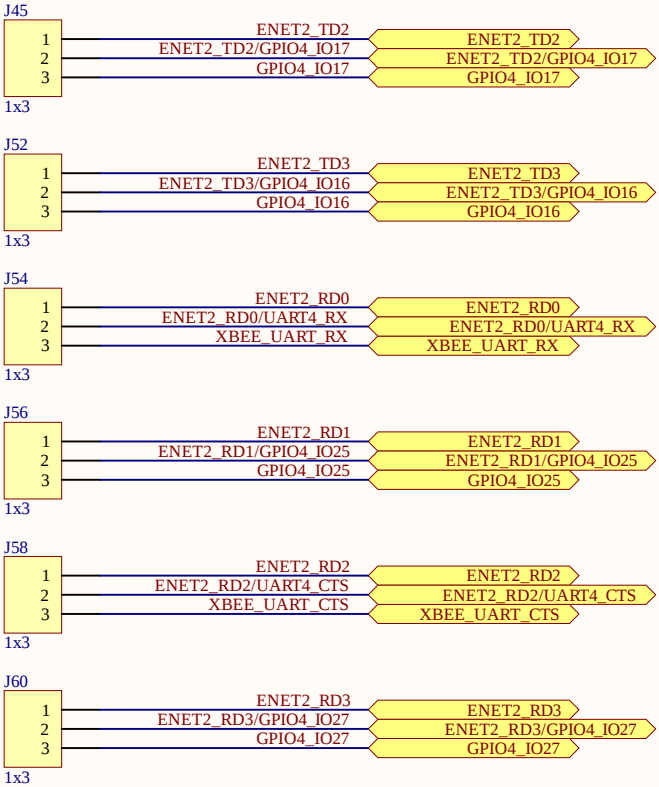
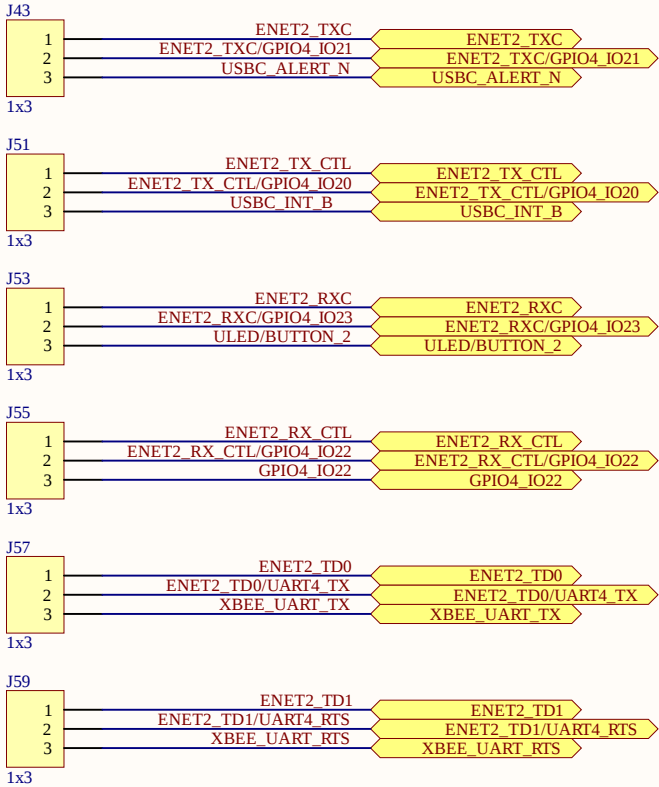


WLAN_SD3 works at 1.8V

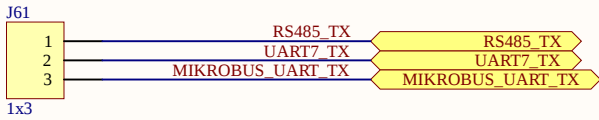


Shared interfaces lines selection

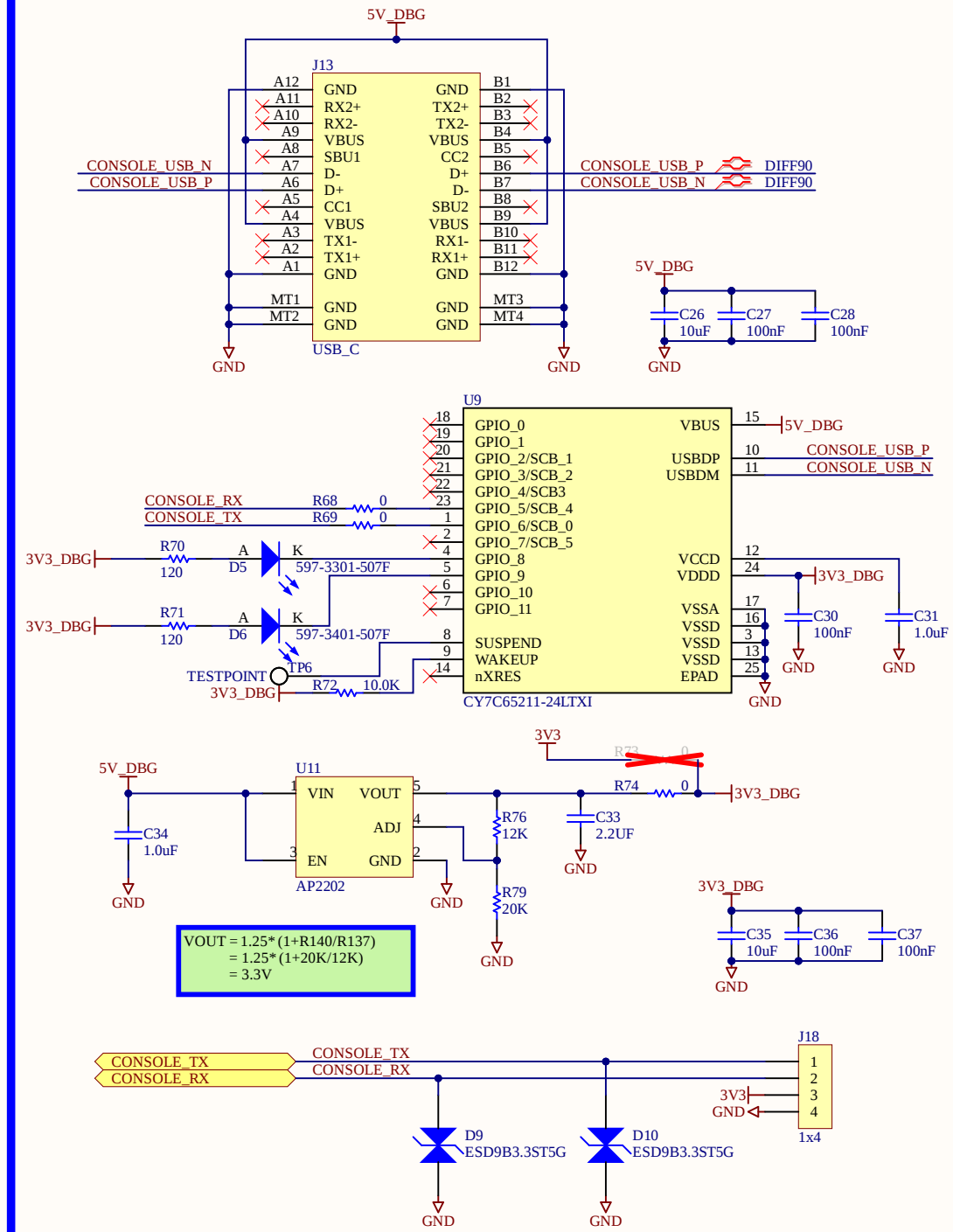
ENET2 shared lines



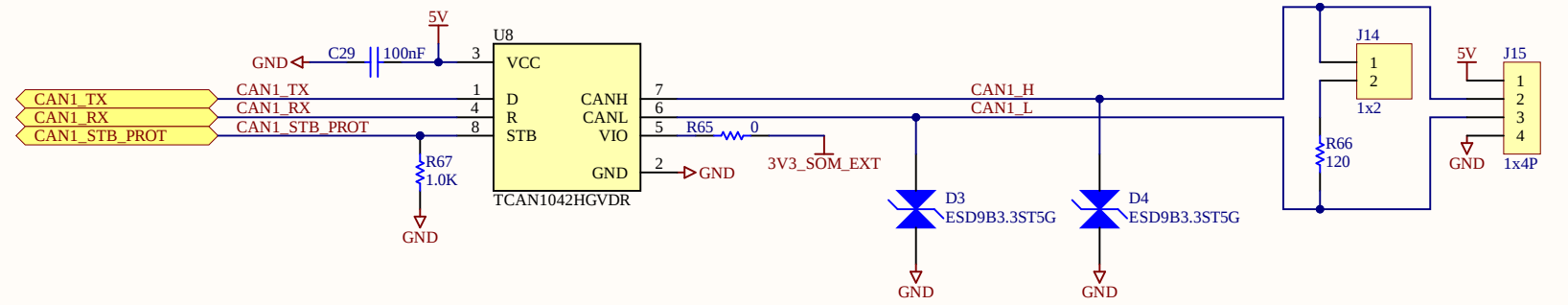
UART7 shared lines



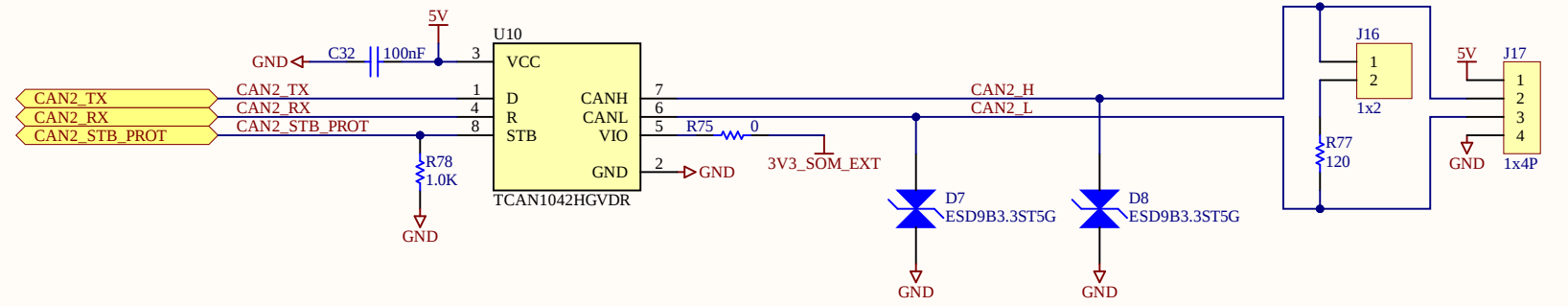
Console port



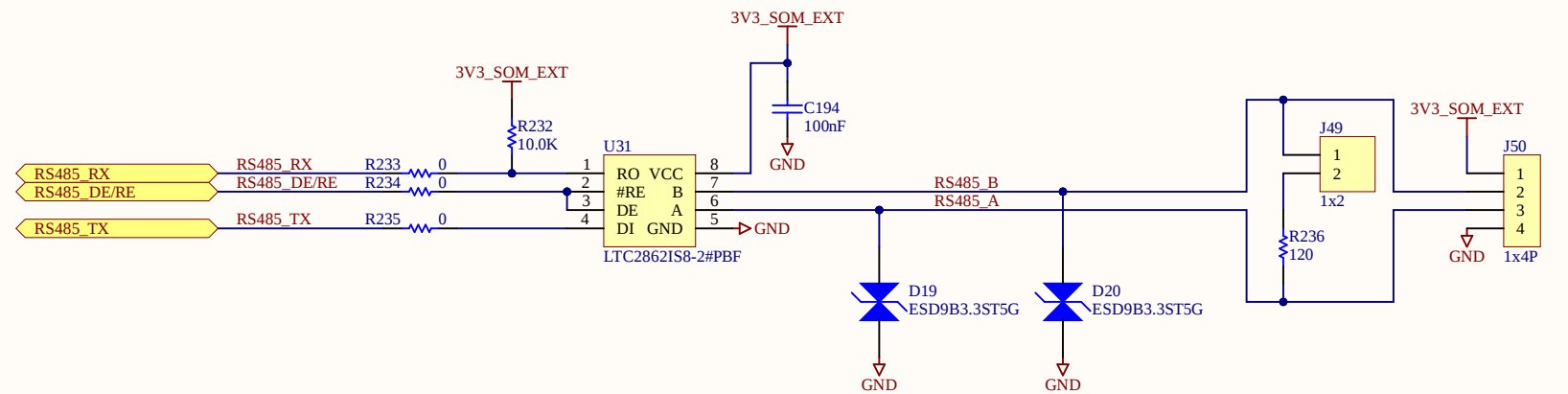
CAN1



CAN2



RS485



RTC

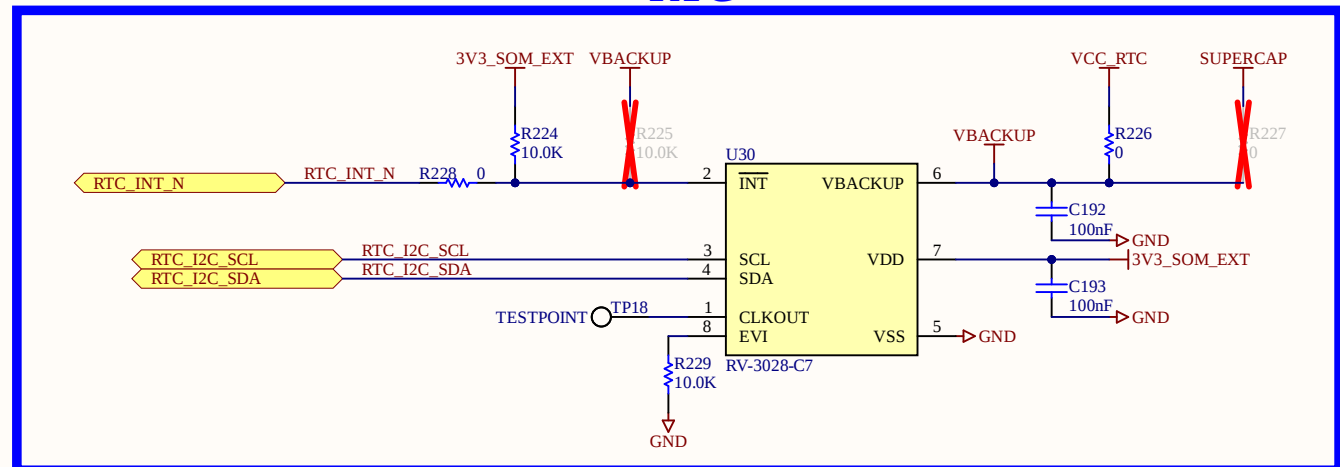


Diagram illustrating the JTAG connections for the FTSH-105-01-F-DV component. The component is labeled J20 and has pins 2, 1, 3, 4, 6, 5, 8, 7, 10, and 9. The connections are as follows:

- JTAG TMS is connected to pin 2.
- JTAG TCK is connected to pin 1.
- JTAG TDO is connected to pin 3.
- JTAG TDI is connected to pin 4.
- JTAG TDI is connected to pin 6.
- POR_B is connected to pin 8.
- 1V8_SOM_EXT is connected to pin 10.
- GND is connected to pin 9.

A red 'X' is marked over the connection between pin 7 and pin 5.

VCC_MCA

SWD1

1 6

2 7

3 8

4 9

5 10

SWD_DIO

SWD_CLK/PWR_IO

GND

VCC_MCA

SYS_RESET

SYS_RESET

TC2050-IDC-NL

VCC_MCA

J21

SWD_DIO

SWD_CLK/PWR_IO

SYS_RESET

GND

FTSH-105-01-F-DV

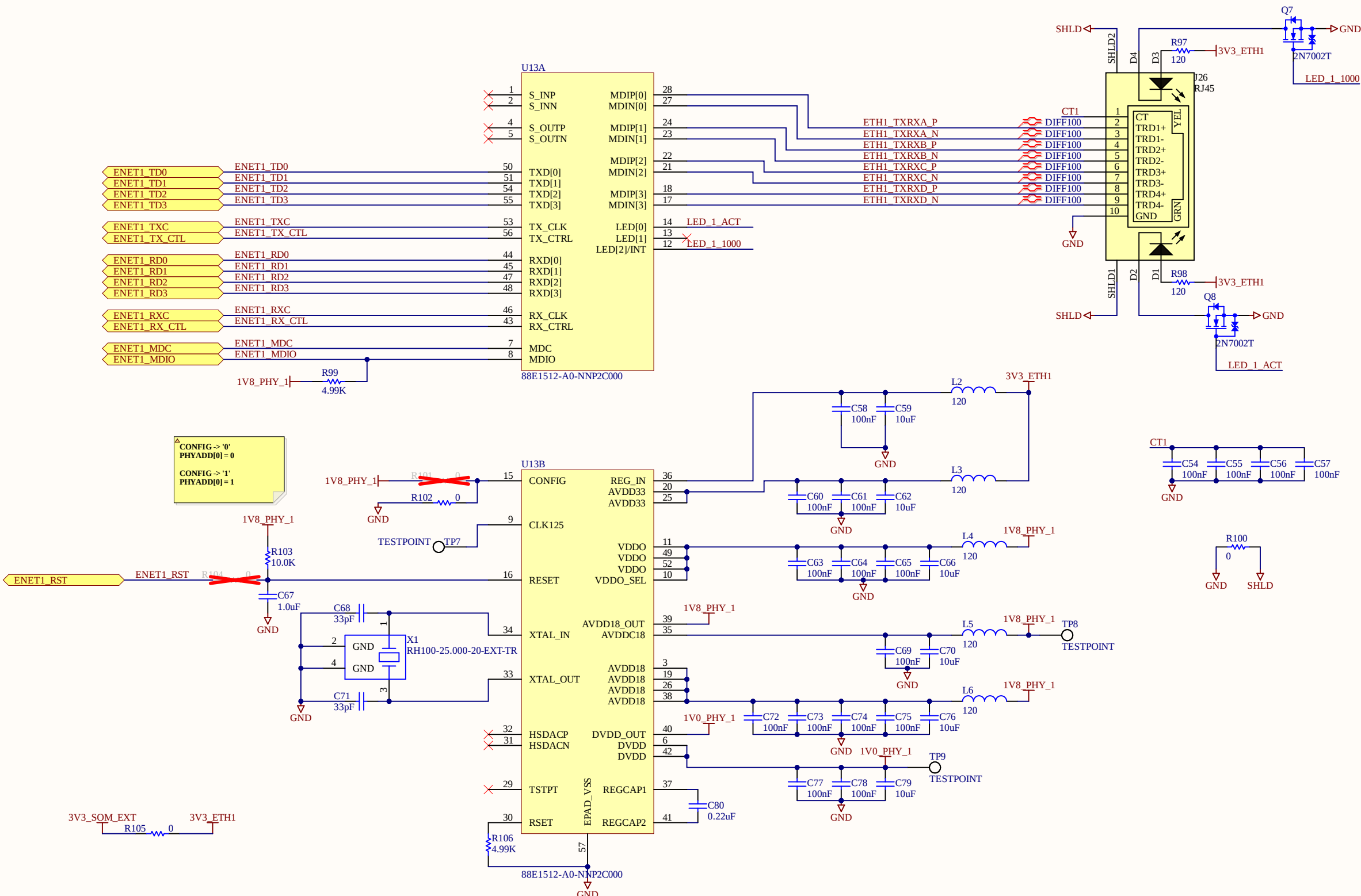
[illegible]

The diagram illustrates the PCB layout for the AS0B226-S68Q-7H module. Key components and connections include:

- Power Regulation:** A 3V3_BOARD input is connected to a 1.0uF capacitor (C39) and an AP2202 voltage regulator (U12). The regulator's output (VOUT) is connected to a 100K resistor (R82) and a 2.2uF capacitor (C38). The output voltage is calculated as:

$$V_{OUT} = 1.25 * (1 + R_{358} / R_{357}) = 1.25 * (1 + 20K / 100K) = 1.5V$$
- Connectors:**
 - J19:** A 52-pin connector with pins 1-15 labeled: 1 (3V3_BOARD), 2 (PCIE_1V5), 3 (PCIE_UIM_PWR), 4 (PCIE_UIM_DATA), 5 (PCIE_UIM_CLK), 6 (PCIE_UIM_RST), 7 (PCIE_UIM_VPP), 8 (3V3_BOARD), 9 (PCIE_1V5), 10 (3V3_BOARD), 11 (PCIE_1V5), 12 (3V3_BOARD), 13 (PCIE_1V5), 14 (3V3_BOARD), 15 (PCIE_1V5), 16 (3V3_BOARD), 17 (PCIE_1V5), 18 (3V3_BOARD), 19 (PCIE_1V5), 20 (3V3_BOARD), 21 (PCIE_1V5), 22 (3V3_BOARD), 23 (PCIE_1V5), 24 (3V3_BOARD), 25 (PCIE_1V5), 26 (3V3_BOARD), 27 (PCIE_1V5), 28 (3V3_BOARD), 29 (PCIE_1V5), 30 (3V3_BOARD), 31 (PCIE_1V5), 32 (3V3_BOARD), 33 (PCIE_1V5), 34 (3V3_BOARD), 35 (PCIE_1V5), 36 (3V3_BOARD), 37 (PCIE_1V5), 38 (3V3_BOARD), 39 (PCIE_1V5), 40 (3V3_BOARD), 41 (PCIE_1V5), 42 (3V3_BOARD), 43 (PCIE_1V5), 44 (3V3_BOARD), 45 (PCIE_1V5), 46 (3V3_BOARD), 47 (PCIE_1V5), 48 (3V3_BOARD), 49 (PCIE_1V5), 50 (3V3_BOARD), 51 (PCIE_1V5), 52 (3V3_BOARD).
 - J22:** A 7-pin connector with pins 1-7 labeled: 1 (GND1), 2 (GND2), 3 (GND3), 4 (GND4), 5 (GND5), 6 (GND6), 7 (D_CONTACT D_SPRING).
 - J24:** A U.FL-R-SMT(01) antenna connector.
 - J25:** An SMA A700T antenna connector.
- Signal Traces:**
 - PCIE_I2C_SCL:** Connected to PCIE_I2C_SCL.
 - PCIE_I2C_SDA:** Connected to PCIE_I2C_SDA.
 - USB_PCIE_D_N:** Connected to USB_PCIE_D_N.
 - USB_PCIE_D_P:** Connected to USB_PCIE_D_P.
 - PCIE_UIM_PWR:** Connected to PCIE_UIM_PWR.
 - PCIE_UIM_RST:** Connected to PCIE_UIM_RST.
 - PCIE_UIM_CLK:** Connected to PCIE_UIM_CLK.
 - PCIE_UIM_VPP:** Connected to PCIE_UIM_VPP.
 - PCIE_UIM_DATA:** Connected to PCIE_UIM_DATA.
- Other Components:**
 - Capacitors:** C40, C41, C42 (100uF), C43, C44, C45, C46, C47 (100nF), C50, C51, C52, C53 (100nF).
 - Resistors:** R80 (10.0K), R81 (0), R82 (100K), R83 (20K), R86 (22), R89 (22), R94 (0), R95 (0), R96 (0).
 - Diodes:** D11, D12, D13, D14 (ESD9B3.3ST5G).

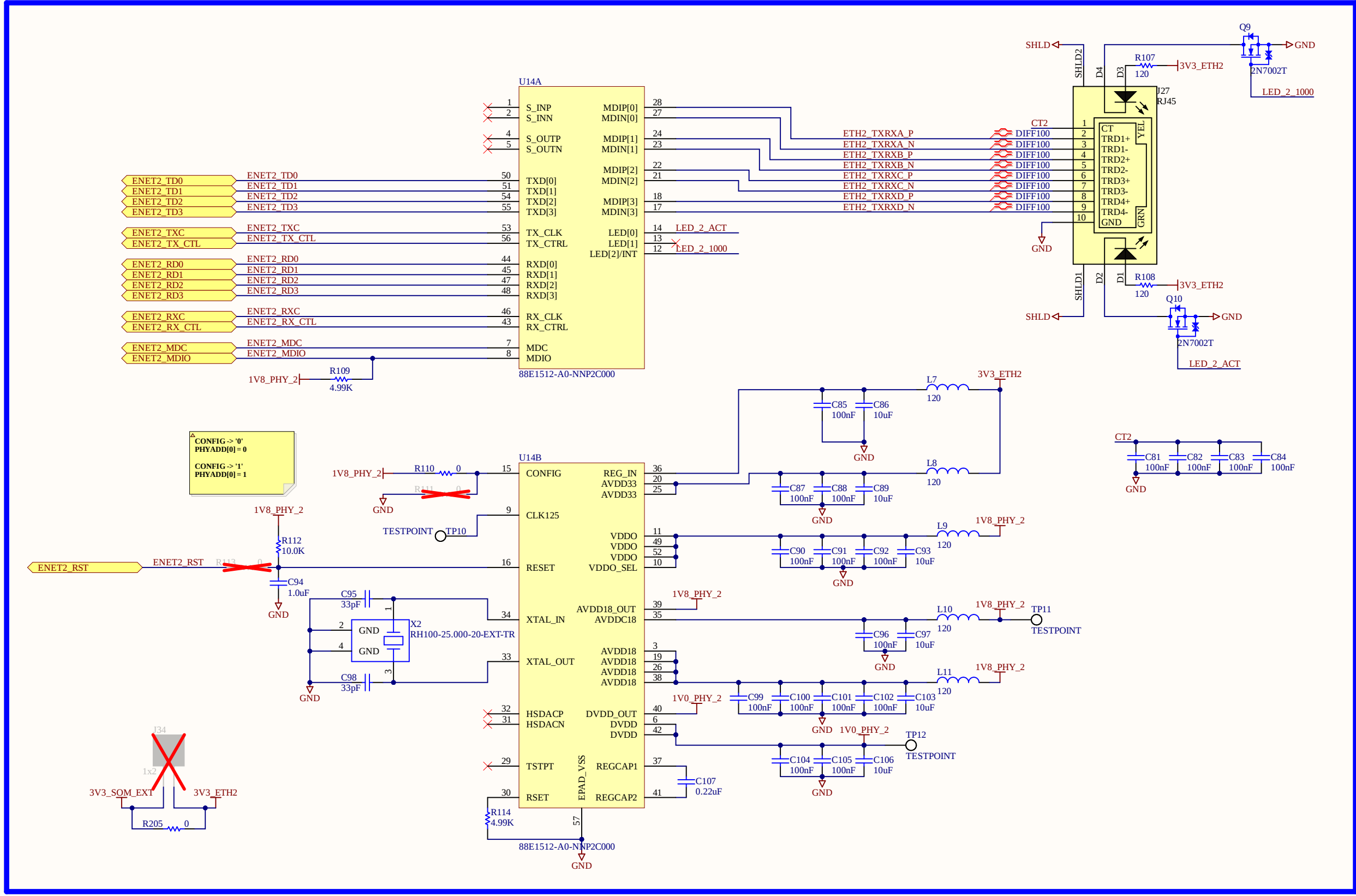
10/100/1000M Ethernet 1



Title: Gigabit Ethernet 1	
Designer: Juan Anzola	Sheet: 9 of 20
Variant: 55002179-01	Rev: 1P
Description: ConnectCore 93 Development board	



10/100/1000M Ethernet 2



The diagram illustrates the PCB layout for the LT3591 evaluation board. Key components and connections include:

- Power Supply:** A 3V3_SOM_EXT power supply is connected to the board. A 5V power supply is also shown, connected to the board via a 100nF capacitor (C189).
- Connectors:** J28 (1x2) and J29 (1x40) are shown. J28 is connected to the 3V3_SOM_EXT power supply. J29 is connected to the 5V power supply.
- Resistors:** R115 (10.0K), R116 (0), R117 (10.0K), R212 (0), R213 (0), R220 (0), R221 (0), R222 (0), R223 (0), R224 (0), R214 (10.0K), R218 (10.0K), R219 (0), R216 (0), R215 (10.0K), R217 (10.0), R210 (0), R211 (0), R212 (0), R213 (0), R214 (0), R215 (0), R216 (0), R217 (0), R218 (0), R219 (0), R220 (0), R221 (0), R222 (0), R223 (0), R224 (0).
- Capacitors:** C108 (100nF), C109 (100nF), C189 (100nF), C190 (2.2 UF 50V 10% X7R), L42 (22uH).
- ICs:** U15 (LT8912B), U16 (LT8912B), U29 (LT3591).
- Signals:** MIPI_SWITCH_SEL, MIPI_SWITCH_OE, MIPI_SWITCH_SEL, MIPI_DS11_CLK_P, MIPI_DS11_CLK_N, MIPI_DS11_DATA2_P, MIPI_DS11_DATA2_N, MIPI_DS11_DATA3_P, MIPI_DS11_DATA3_N, MIPI_DS11_DATA0_P, MIPI_DS11_DATA0_N, MIPI_DS11_DATA1_P, MIPI_DS11_DATA1_N, MIPI_EXT_CLK_P, MIPI_EXT_CLK_N, MIPI_EXT_DATA2_P, MIPI_EXT_DATA2_N, MIPI_EXT_DATA3_P, MIPI_EXT_DATA3_N, MIPI_EXT_DATA0_P, MIPI_EXT_DATA0_N, MIPI_EXT_DATA1_P, MIPI_EXT_DATA1_N, DISP_RESET.

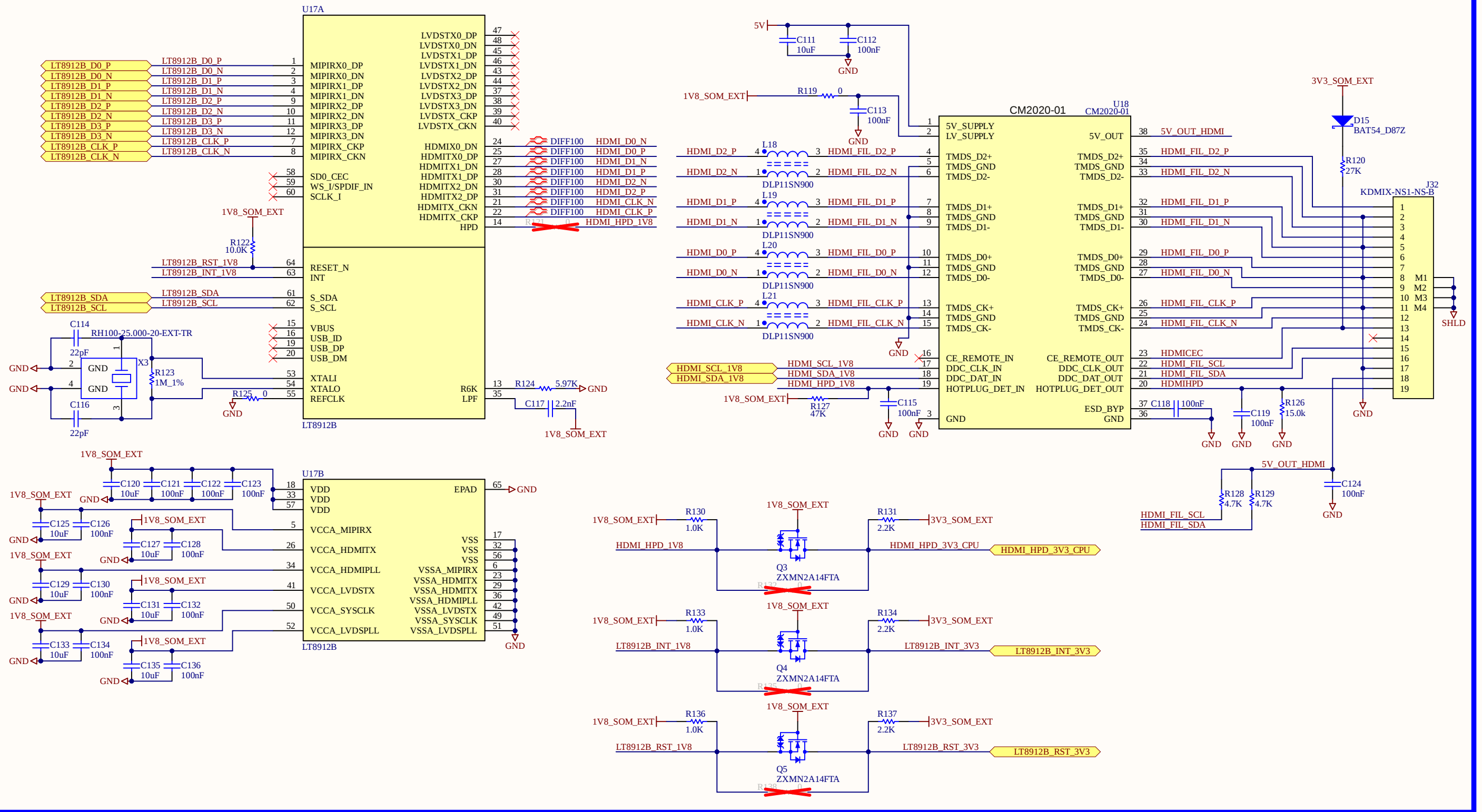
Pinout mirrored compared to Raspberry Pi

Signal	Pin
MIPI_CSI1_DATA0_N	15
MIPI_CSI1_DATA0_P	14
MIPI_CSI1_DATA1_N	13
MIPI_CSI1_DATA1_P	12
MIPI_CSI1_CLK_N	11
MIPI_CSI1_CLK_P	10
MIPI_CSI1_RESET_N	9
MIPI_CSI1_I2C_SCL	8
MIPI_CSI1_I2C_SDA	7
3V3_SOM_EXT	6
GND	5
GND	4
GND	3
GND	2
GND	1

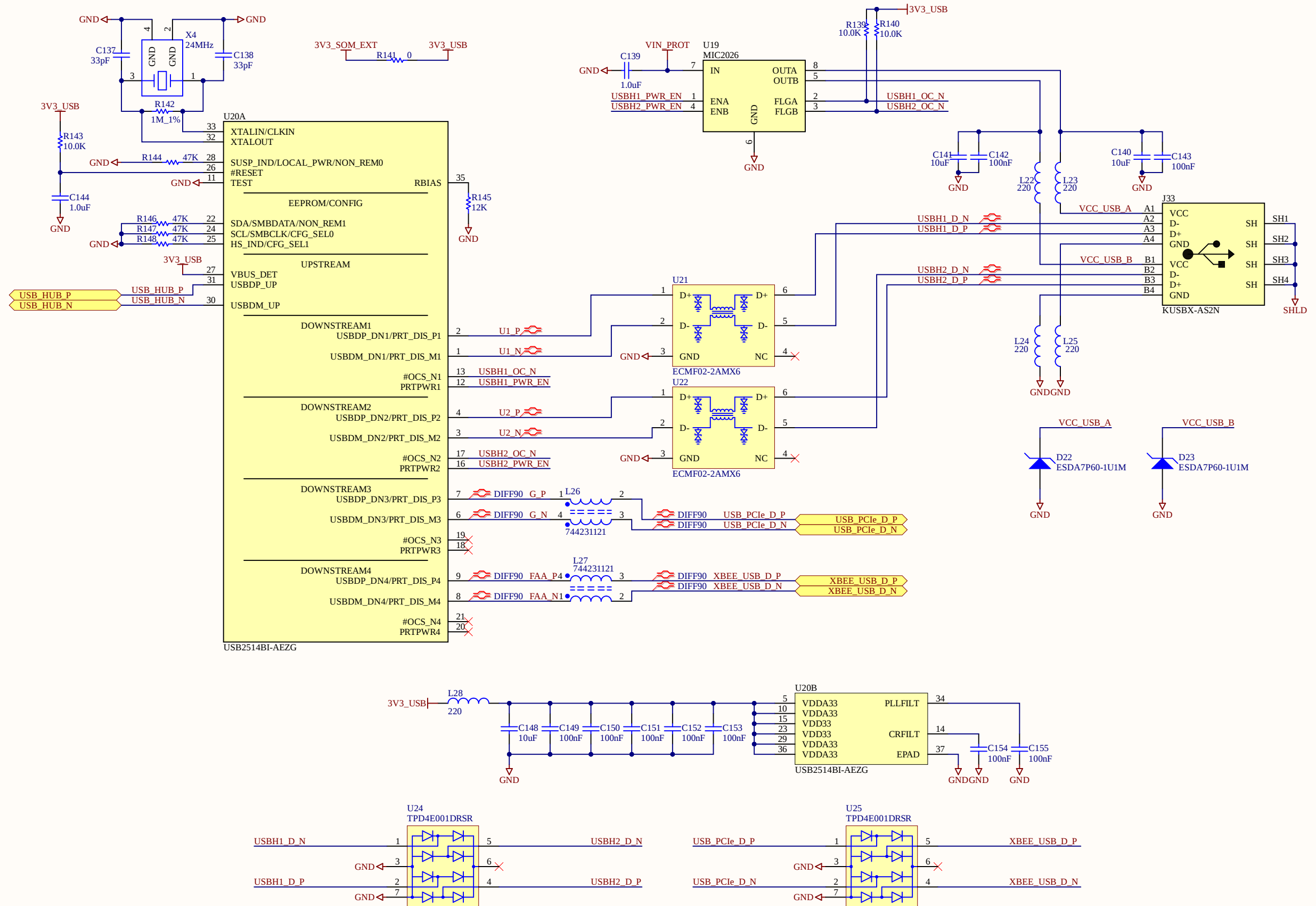
3V3_SOM_EXT is connected to a 100nF capacitor (C110) to GND.

DF14A-20P-1.25H(25)

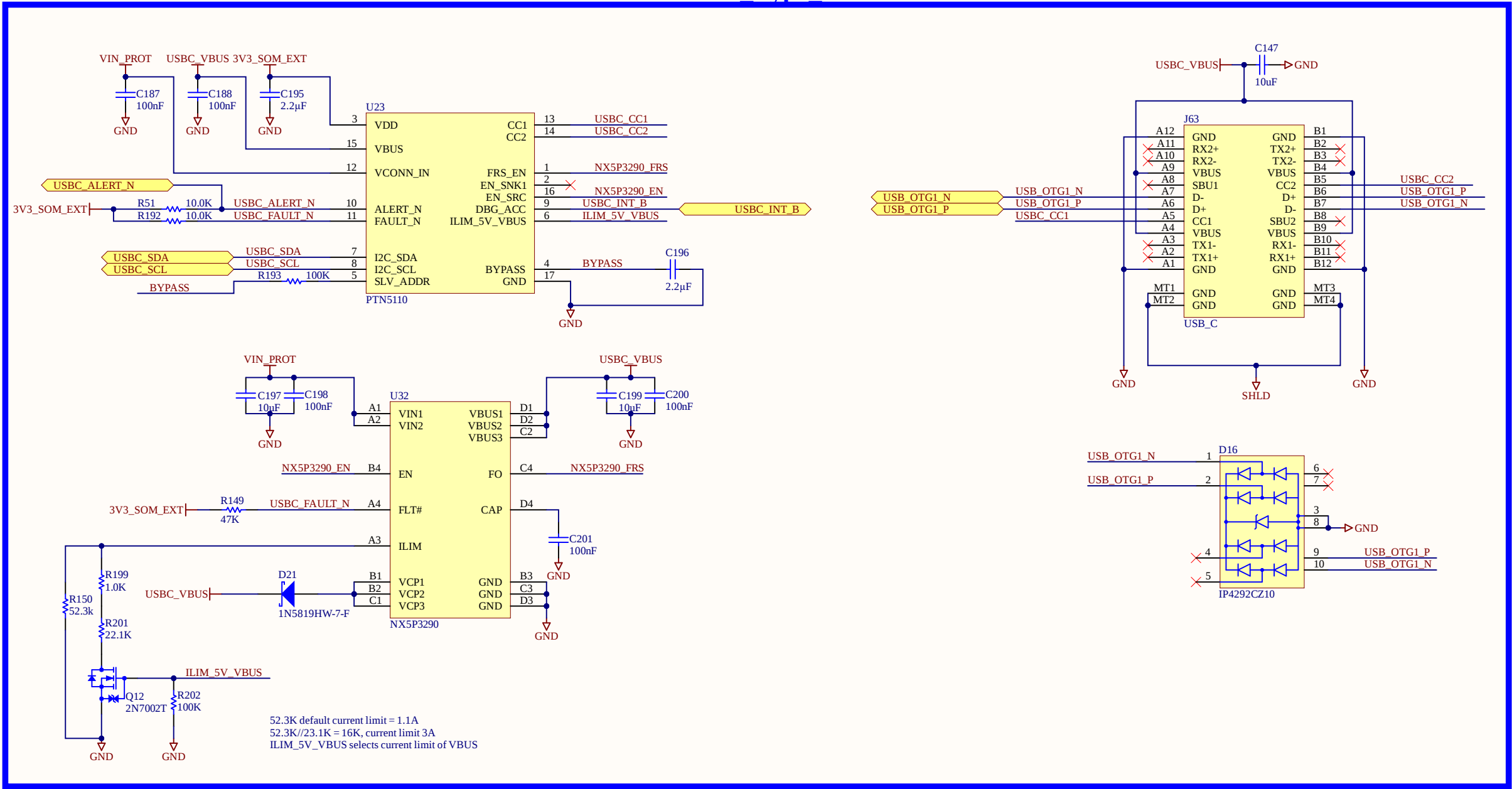
LT8912 MIPI to HDMI bridge



USB HUB



USB Type C

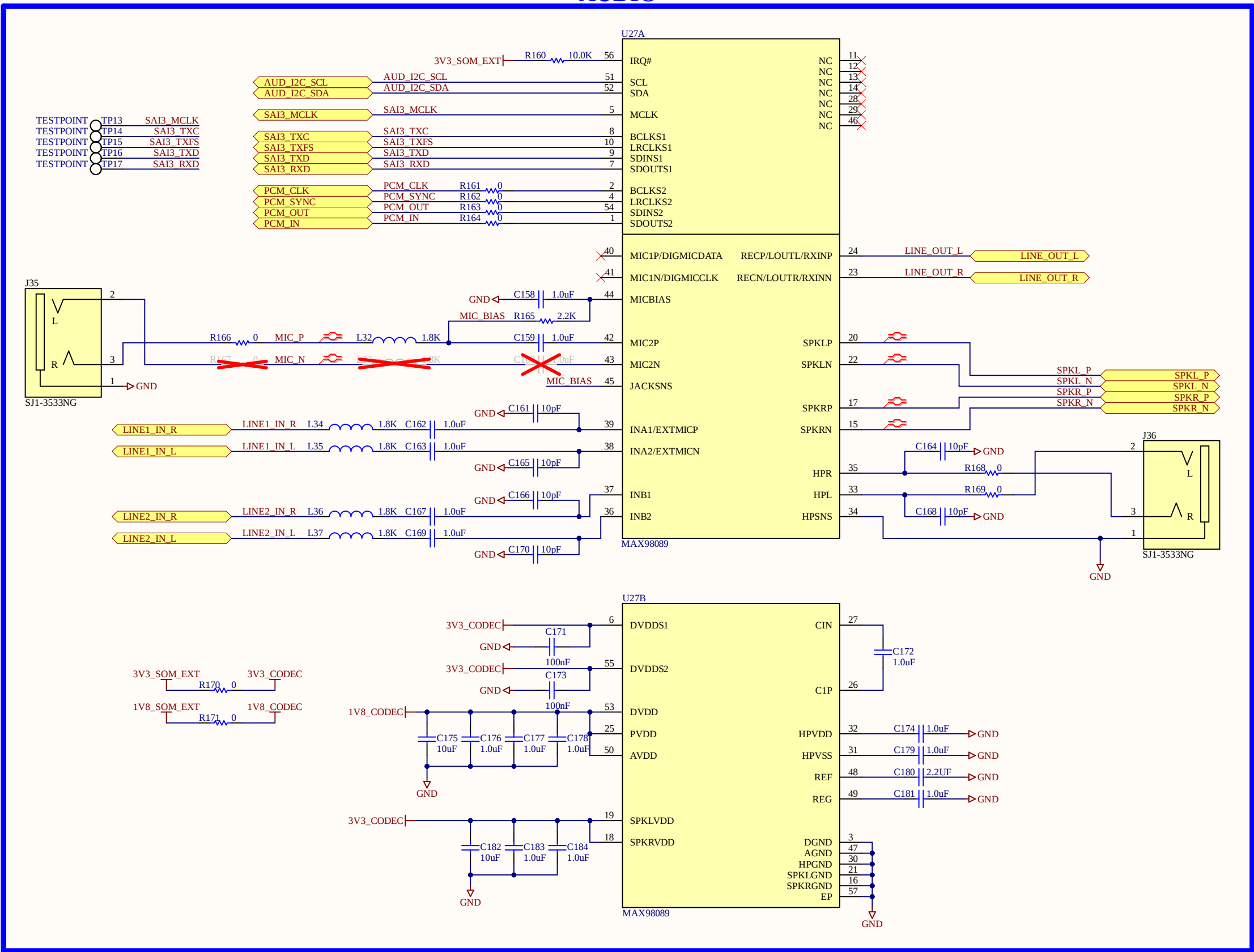


The schematic diagram illustrates the boot loader circuit for the SN74CB3Q3245PWR. The circuit includes a POR_B input, a 3V3 supply, a 10.0K resistor (R151), a 316K resistor (R152), a 2.2UF capacitor (C156), a 100nF capacitor (C157), a MOSFET (Q6, ZXMN2A14FTA), and a 219-4LPSTR switch (SW3). The switch is connected to the boot loader pins (A1-A8, B1-B8) and the 3V3 supply. The boot loader pins are also connected to the BT UART1 TX, BT UART1 RTS, CAN1_STB, and CAN2_STB signals. The boot loader pins are also connected to the 3V3 supply through resistors R153 (4.7K), R11 (0), R155 (4.7K), and R156 (4.7K). The boot loader pins are also connected to the 3V3 supply through resistors R157 (100K), R158 (100K), and R159 (100K). The boot loader pins are also connected to the 3V3 supply through resistors R153 (4.7K), R11 (0), R155 (4.7K), and R156 (4.7K). The boot loader pins are also connected to the 3V3 supply through resistors R157 (100K), R158 (100K), and R159 (100K).

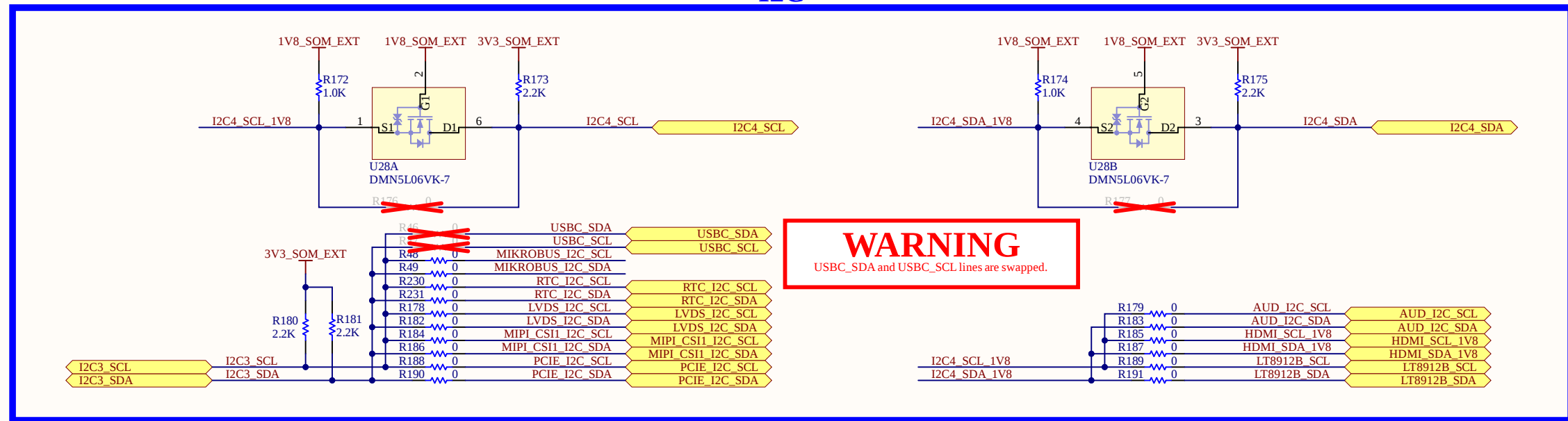
SW3.1	SW3.2	SW3.3	SW3.4	Description
OFF	OFF	OFF	X	USDHC1 8-bit eMMC 5.1
OFF	OFF	ON	X	Infinite Loop
OFF	ON	OFF	X	From internal fuses
OFF	ON	ON	X	FlexSPI Serial NOR
ON	OFF	OFF	X	USDHC2 4-bit SD3.0
ON	OFF	ON	X	Test Mode
ON	ON	OFF	X	Serial Downloader
ON	ON	ON	X	FlexSPI Serial NAND 2K page

SW3.1	SW3.2	SW3.3	SW3.4	Description
OFF	OFF	OFF	X	USDHC1 8-bit eMMC 5.1
OFF	OFF	ON	X	Infinite Loop
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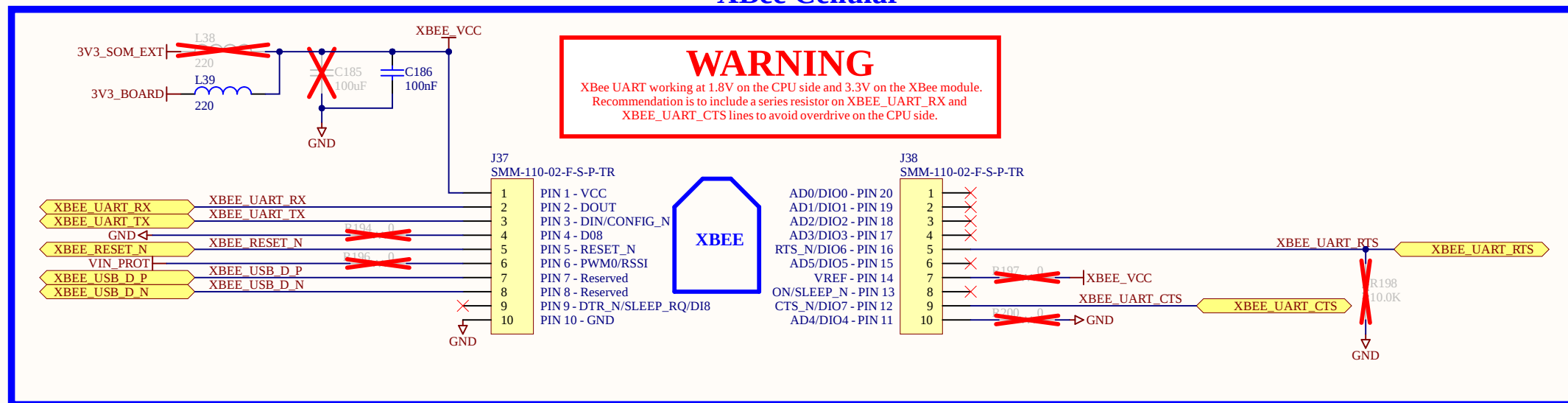
AUDIO



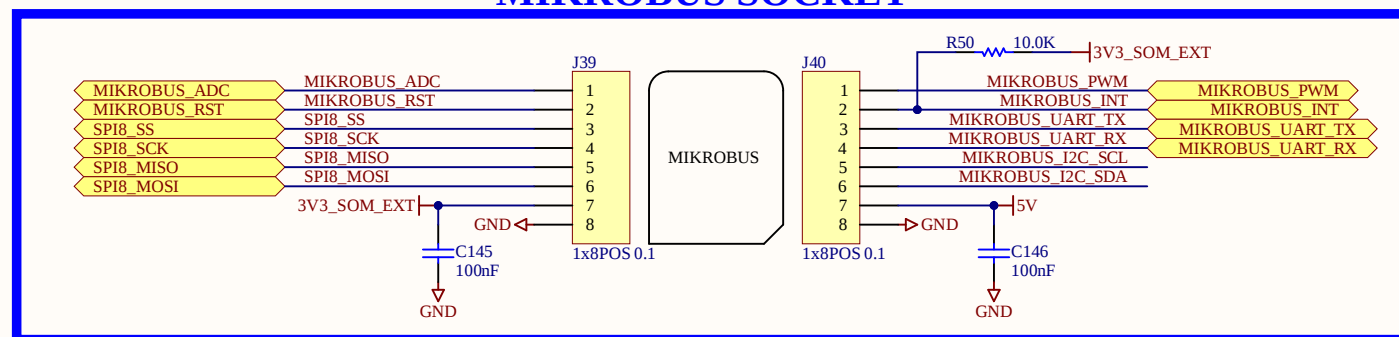
I2C



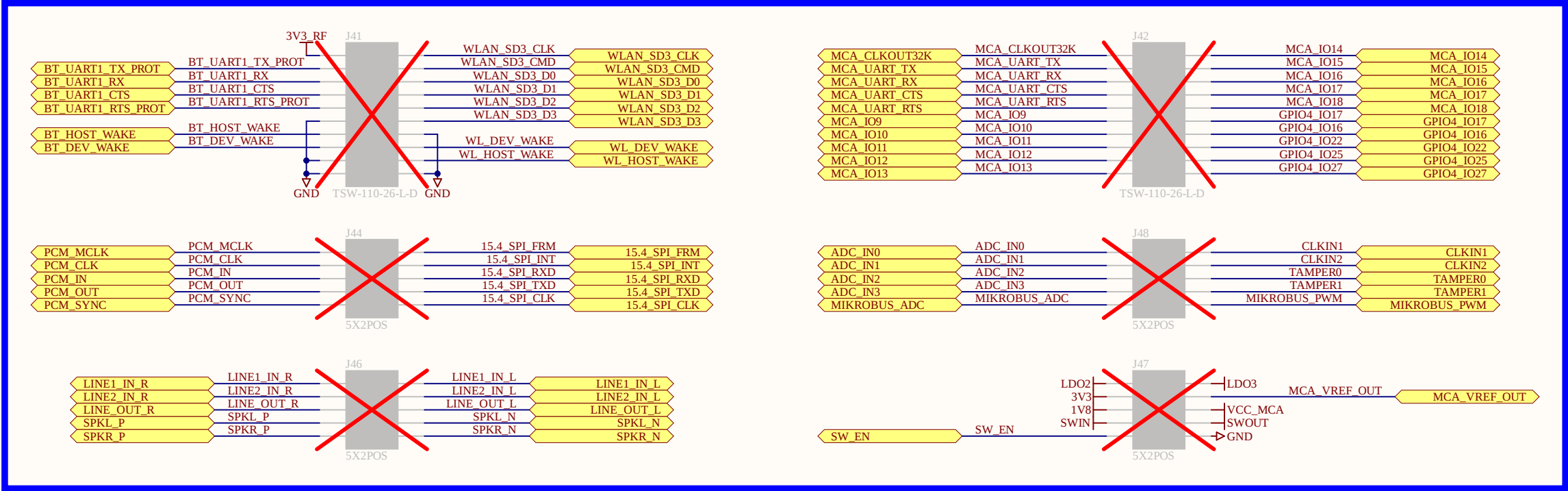
XBee Cellular



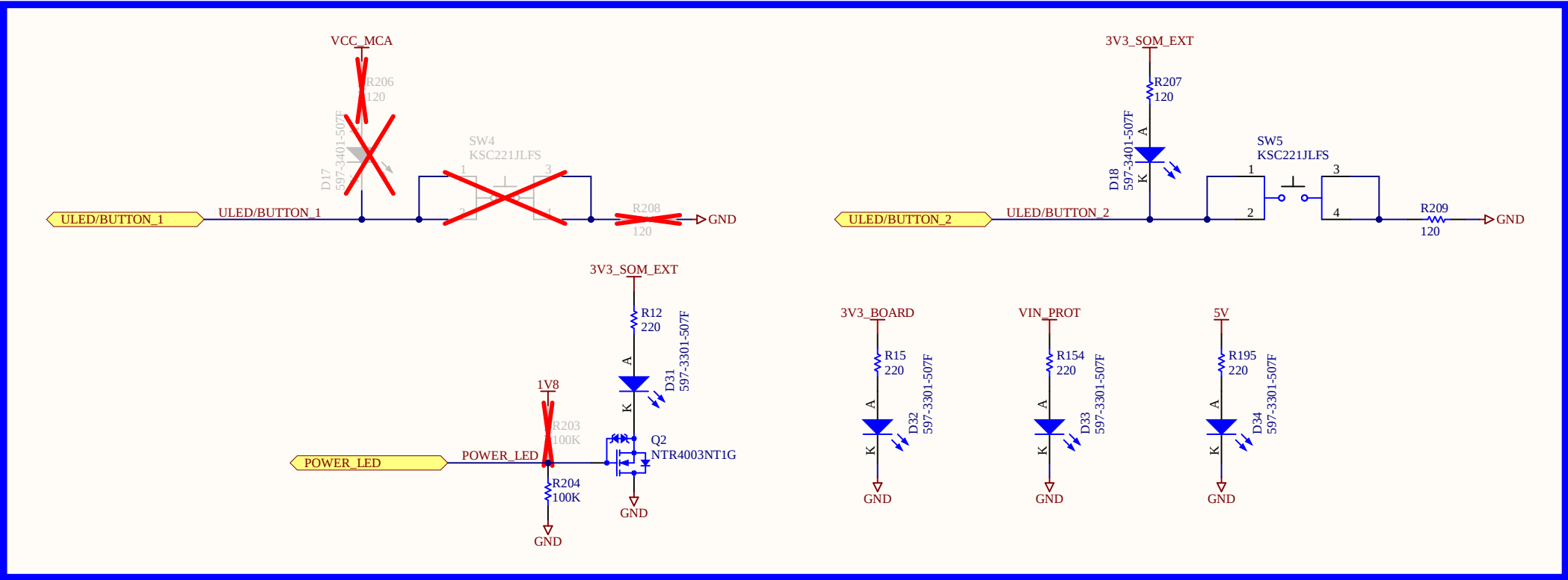
MIKROBUS SOCKET



Expansion connectors



User LEDs & Buttons



System Power Rails

Voltage (V)	Supply Name	Block	Generated by	Current Capability (mA)
5.0	VIN	Input power protection	External DC supply	-
		MCA LDO		
	VIN_PROT	ConnectCore 93	Overvoltage protection	-
		5V load switch		
		3.3V board regulator		
		USB Host		
		USB Type C		
	5V	CAN	Load switch (U5)	-
		MIPI		
		LVDS		
		HDMI		
		Mikrobus		
3.3	3V3_SOM_EXT	RS485	CC93	3A Used also inside the SOM
		MicroSD		
		Ethernet		
		MIPI CSI		
		LVDS		
		USB HUB		
		USB Type C		
		Audio		
		XBee		
		Mikrobus		
	3V3_BOARD	PCIe	Switching regulator (U6)	3A
		XBee		
	VCC_MCA	MCA	AP2202	150mA
3.0	VCC_RTC	RTC	J4	
1.8	1V8_SOM_EXT	HDMI	CC93	2A Used also inside the SOM
		Audio		
1.5	PCIE_1V5	PCIe	3V3_BOARD	150mA

GPIO Table

Signal Name	GPIO
3V3_BOARD_EN	GPIO4_IO28
5V_DVK_PWR_ON	GPIO1_IO14
CAN1_STB	GPIO1_IO11
CAN2_STB	GPIO1_IO13
DISP_RESET	GPIO2_IO06
ENET1_RST	GPIO3_IO26
ENET2_RST	GPIO3_IO27
HDMI_HPD_3V3_CPU	GPIO1_IO12
LT8912B_INT_3V3	GPIO1_IO02
LT8912B_RST_3V3	GPIO1_IO03
LVDS_PWM_OUT	GPIO2_IO23
LVDS_IRQ_N	GPIO2_IO24
MIKROBUS_INT	GPIO2_IO11
MIKROBUS_RST	GPIO1_IO10
MIPI_CSI1_RESET_N	GPIO2_IO22
POWER_LED	GPIO4_IO29
RTC_INT_N	GPIO2_IO18
RS485_DE/RE	GPIO2_IO10
ULED/BUTTON_1	GPIO3_IO07
ULED/BUTTON_2	GPIO4_IO23
USBC_ALERT_N	GPIO4_IO21
USBC_INT_B	GPIO4_IO20
XBEE1_RESET_N	GPIO2_IO19

	1	2	3	4	5	6	7	8
A	Format: DD/MM/YYYY 19/12/2022 - CC93 Development Board * Revision: 01 - Initial version. 08/02/2023 - CC93 Development Board * Revision: 02 - PCB spin: 3001753x-01 rev A => 3001753x-02 rev A 27/04/2023 - CC93 Development Board * Revision: 1P - NPRO006375 - Remove Ethernet PHY reset connection to the CPU. Add the RC network on the reset pin: populate R103, R112, C67, C94 and remove R104 and R113. - Disconnect USB Type-C controller from the I2C bus: remove R46 and R47. - Change USB Type-C I2C address by populating R193 with 100K value - Fix USB Host ESD protections orientation: update symbol and rotate D22 and D23. - Remove MIPI display connector and LED driver. - Remove SW4, R206, R208 and D17. - Remove MCA SWD connector J21. - Remove R40.							A
B								B
C	LBL1 LABEL 28000351_LABEL TXT1 LABEL TEXT 95023240							C
D								D
	1	2	3	4	5	6	7	8