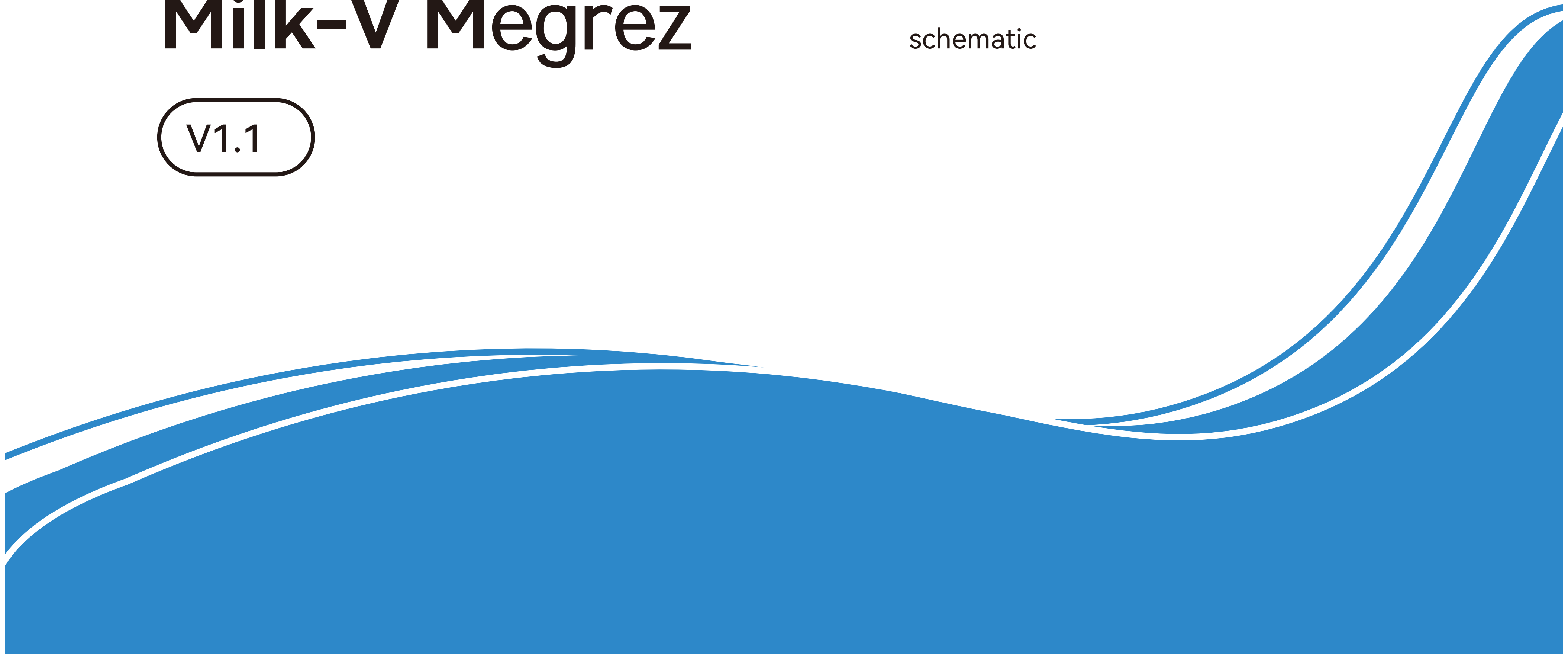


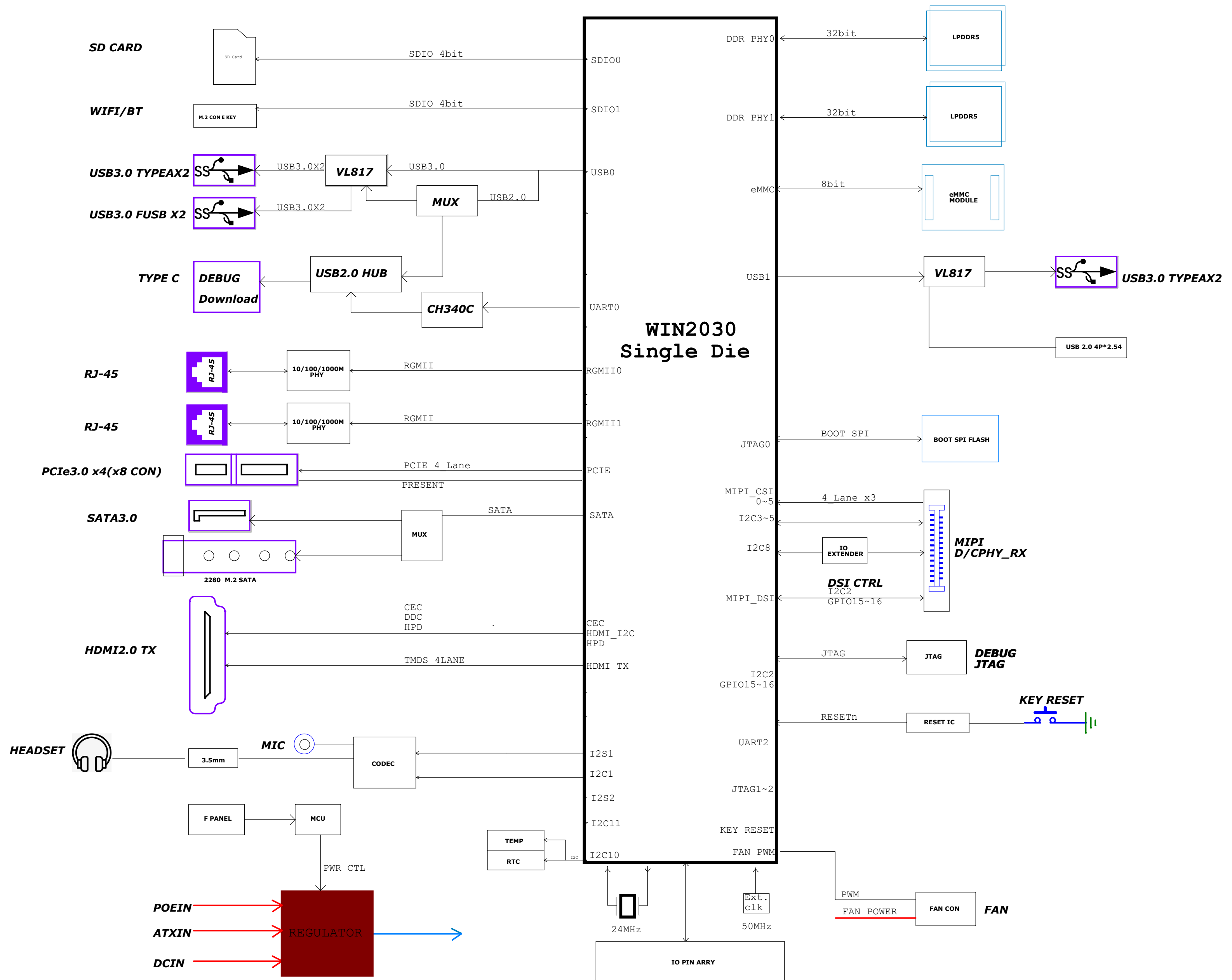


Milk-V Megrez

V1.1

schematic





GPIO NUMBER	FUNCTION IN DESIGN	DIRECTION	ACTIVE
GPIO00	PCIE30_FPM0nA	Input	Low : Inserted High: remove
GPIO01	GPIO Function Unused		
GPIO02	GPIO Function Unused		
GPIO03	GPIO Function Unused		
GPIO04	GPIO Function Unused		
GPIO05	LED Back Light power ON/OFF control	Output	High
GPIO06	SYSTEM KEY	Input	Low
GPIO07	GPIO Function Unused		
GPIO08	GPIO Function Unused		
GPIO09	GPIO Function Unused		
GPIO10	TOUCH_INT	Input	Low
GPIO11	Head phone plug/unplug detection 2	Input	Low : Inserted High: uninserted
GPIO12	TF card power ON/OFF	Output	High
GPIO13	GPIO Function Unused		
GPIO14	BT WAKE HOST	Input	High
GPIO15	WLAN WAKE HOST	Input	High
GPIO16	GPIO16 Resetn	Output	Low
GPIO17	GPIO Function Unused		
GPIO18	GPIO Function Unused		
GPIO19	GPIO Function Unused		
GPIO20	GPIO Function Unused		
GPIO21	GPIO Function Unused		
GPIO22	GPIO Function Unused		
GPIO23	GPIO Function Unused		
GPIO24	GPIO Function Unused		
GPIO25	GPIO Function Unused		
GPIO26	GPIO Function Unused		
GPIO27	GPIO Function Unused		
GPIO28	Head phone plug/unplug detection 1	Input	Low : Inserted High: uninserted
GPIO29	GPIO Function Unused		
GPIO30	GPIO Function Unused		
GPIO31	GPIO Function Unused		

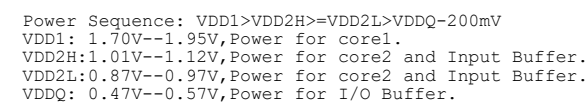
GPIO NUMBER	FUNCTION IN DESIGN	DIRECTION	ACTIVE
GPIO32	GPIO Function Unused		
GPIO33	GPIO Function Unused		
GPIO34	M.2 POWER ON/OFF	Output	High
GPIO35	GPIO Function Unused		
GPIO36	GPIO Function Unused		
GPIO37	GPIO Function Unused		
GPIO38	GPIO Function Unused		
GPIO39	GPIO Function Unused		
GPIO40	GPIO Function Unused		
GPIO41	GPIO Function Unused		
GPIO42	GPIO Function Unused		
GPIO43	GPIO Function Unused		
GPIO44	GPIO Function Unused		
GPIO45	GPIO Function Unused		
GPIO46	GPIO Function Unused		
GPIO47	GPIO Function Unused		
GPIO48	GPIO Function Unused		
GPIO49	GPIO Function Unused		
GPIO50	GPIO Function Unused		
GPIO51	GPIO Function Unused		
GPIO52	GPIO Function Unused		
GPIO53	GPIO Function Unused		
GPIO54	GPIO Function Unused		
GPIO55	GPIO Function Unused		
GPIO56	GPIO Function Unused		
GPIO57	GPIO Function Unused		
GPIO58	GPIO Function Unused		
GPIO59	GPIO Function Unused		
GPIO60	GPIO Function Unused		
GPIO61	GPIO Function Unused		
GPIO62	GPIO Function Unused		
GPIO63	GPIO Function Unused		

Port	Pin name	Bus name	Pull-up voltage	Slave Device	Device Vtoltage	Slave Addr (MS 7Bits)	Note
I2C0	I2C0_SCL/GP1044 I2C0_SDA/GP1045	I2C0_SCL I2C0_SDA	1.8V	U92(E88388)	1.8V	0010001	
				U45(E88388)	1.8V	0010000	
I2C1	I2C1_SCL/GP1046 I2C1_SDA/GP1047	I2C1_SCL I2C1_SDA	1.8V	U61(M9Q8785QAU7)	1.8V	010_0000	VDD_NFIC PMIC config and monitor
I2C2	I2C2_SCL/GP1048 I2C2_SDA/GP1049	I2C2_SCL I2C2_SDA	3.3V	MIPI DSI	1.8V	xxx	
I2C3	I2C3_SCL/GP1050 I2C3_SDA/GP1051	I2C3_SCL I2C3_SDA	1.8V	MIPI CSI0/MIPI_CSI1	1.8V	xxx	
I2C4	I2C4_SCL/GP1052 I2C4_SDA/GP1053	I2C4_SCL I2C4_SDA	1.8V	MIPI CSI2/MIPI_CSI3	1.8V	xxx	
I2C5	I2C5_SCL/GP1054 I2C5_SDA/GP1055	I2C5_SCL I2C5_SDA	1.8V	MIPI CSI4/MIPI_CSI5	1.8V	xxx	
I2C6	UART1_CTS/I2C6_SCL/GP1060 UART1_RTS/I2C6_SDA/GP1061			Function Not Used			
I2C7	UART2_TX/I2C7_SCL/GP1062 UART2_RX/I2C7_SDA/GP1063			Function Not Used			
I2C8	I2C8_SCL/MIPI_CBI_XTR1G0/GP1092/UART3_TX I2C8_SDA/MIPI_CBI_XTR1G1/GP1093/UART3_RX		1.8V	I/O Extended chip (U86)	1.8V	0100000	I/O Extender for MIPI CBI
				I/O Extended chip (U87)	1.8V	0100001	I/O Extender for MIPI CBI
I2C9	SP11_D0/I2C9_SCL/GP1037/UART4_TX SP11_D1/I2C9_SDA/GP1038/UART4_RX			Function Not Used			
I2C10	I2C10_SCL/GP10102 I2C10_SDA/GP10103	I2C10_SCL I2C10_SDA	1.8V	U6 (RTC clk)	1.8V	1010001	Real Time Clock
				U90 (Temp sensor)	1.8V	1001000	Monitor ambient temperature
I2C11	I2C11_SCL/GP10104 I2C11_SDA/GP10105	I2C11_SCL I2C11_SDA	3.3V	U80 (INA226)	3.3V	100_0101	Monitor VDD_CPU Voltage and Current
				U82 (INA226)	3.3V	100_0100	Monitor VDD_SoC Voltage and Current
				U83 (INA226)	3.3V	100_0001	Monitor VDD_IPOD4 Voltage and Current
				U99 (INA226)	3.3V	100_1000	Monitor DC IN Voltage and Current

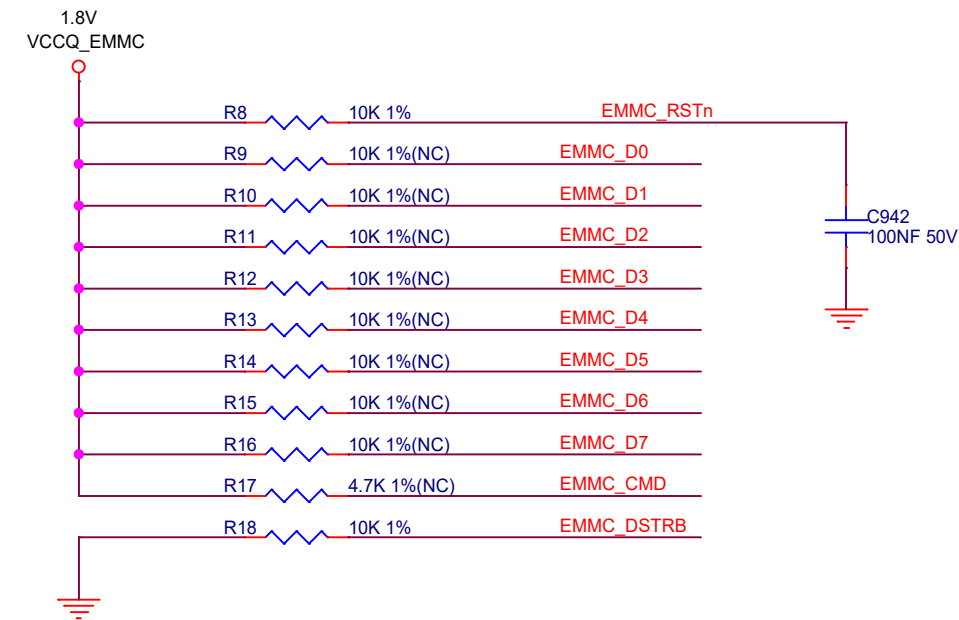
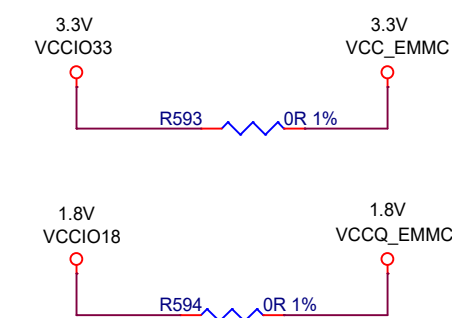
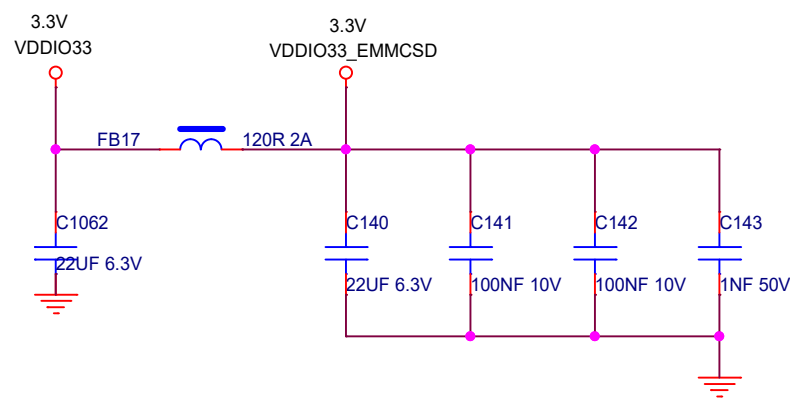
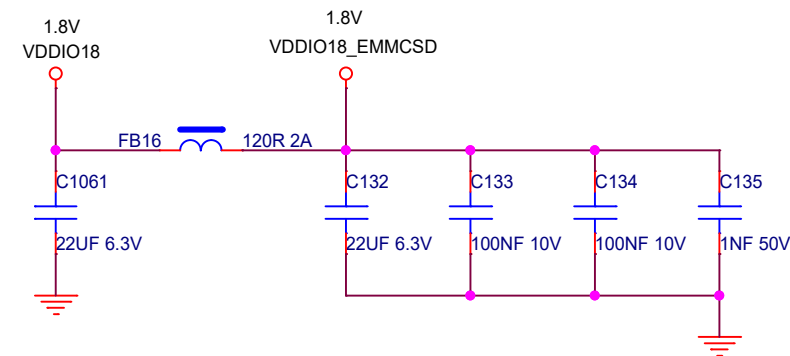
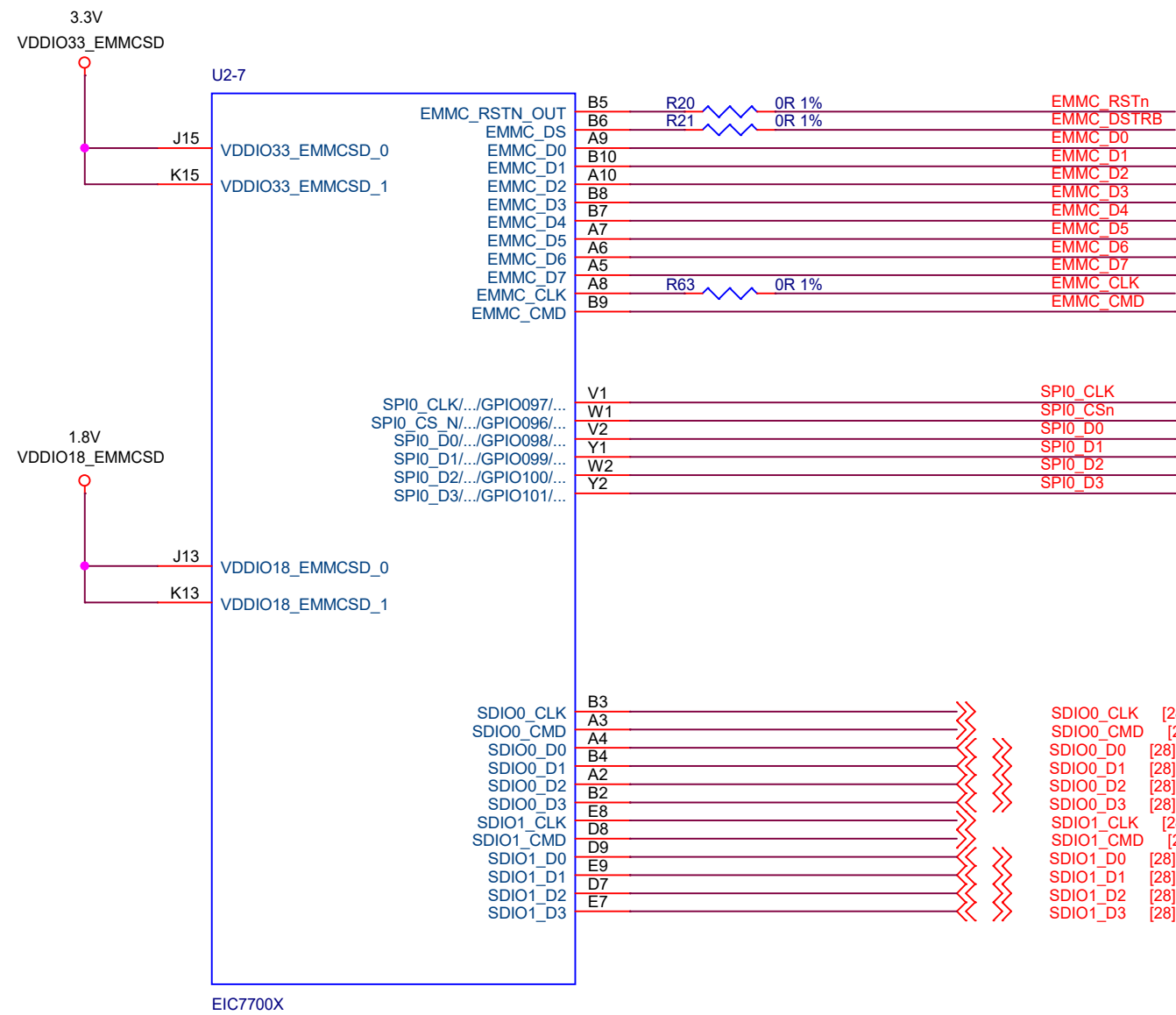
GPI0 NUMBER	FUNCTION IN DESIGN	DIRECTION	ACTIVE
GPI064	GPIO Function Unused		
GPI065	GPIO Function Unused		
GPI066	GPIO Function Unused		
GPI067	GPIO Function Unused		
GPI068	GPIO Function Unused		
GPI069	GPIO Function Unused		
GPI070	GPIO Function Unused		
GPI071	GPIO Function Unused		
GPI072	GPIO Function Unused		
GPI073	GPIO Function Unused		
GPI074	GPIO Function Unused		
GPI075	GPIO Function Unused		
GPI076	GPIO Function Unused		
GPI077	GPIO Function Unused		
GPI078	GPIO Function Unused		
GPI079	GPIO Function Unused		
GPI080	GPIO Function Unused		
GPI081	GPIO Function Unused		
GPI082	GPIO Function Unused		
GPI083	GPIO Function Unused		
GPI084	GPIO Function Unused		
GPI085	GPIO Function Unused		
GPI086	GPIO Function Unused		
GPI087	GPIO Function Unused		
GPI088	GPIO Function Unused		
GPI089	GPIO Function Unused		
GPI090	GPIO Function Unused		
GPI091	GPIO Function Unused		
GPI090	GPIO Function Unused		
GPI093	GPIO Function Unused		
GPI094	GPIO Assertn	Output	Low
GPI095	GPIO Function Unused		

[illegible]

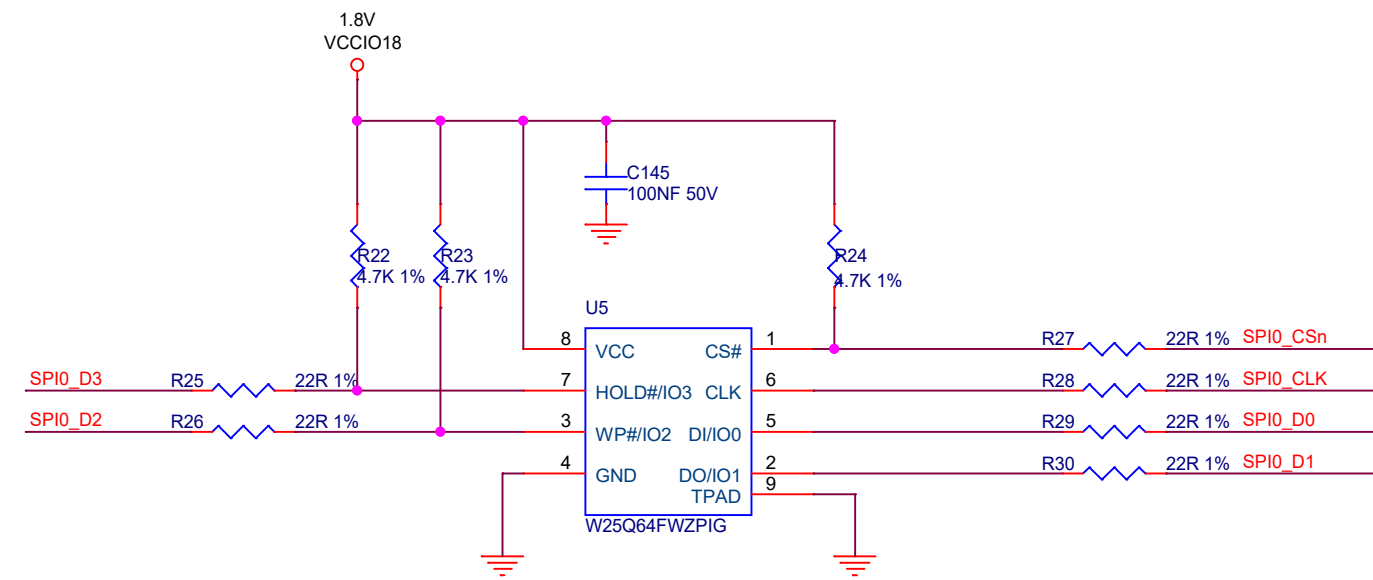
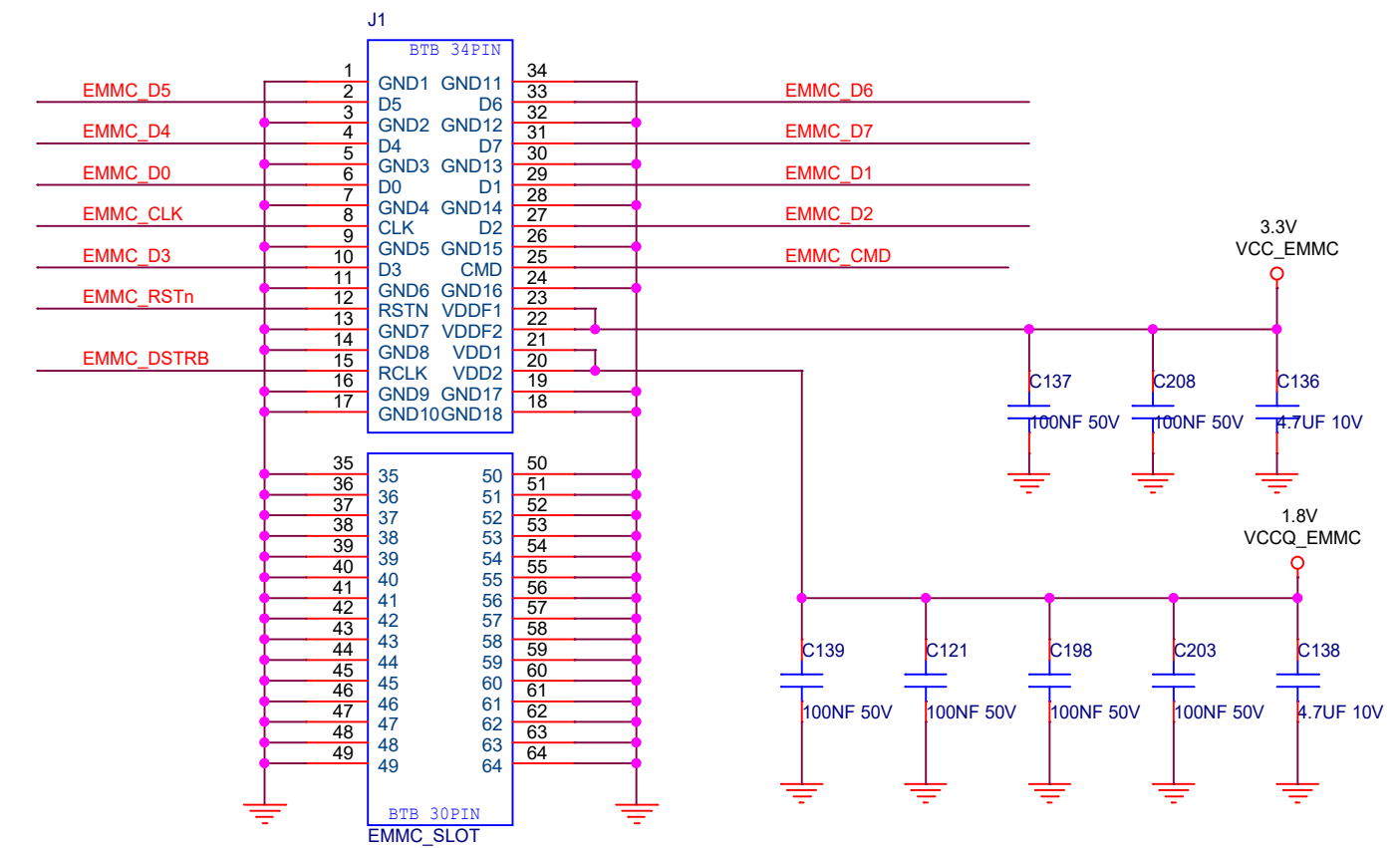
Port	Pin name	Bus name	Voltage	FUNC Device	Note
UART0	UART0_TX/GP1056 UART0_RX/GP1057	UART0_TX UART0_RX	1.8V	FT4232 USB-C to UART	Debug UART
UART1	UART1_TX/GP1058 UART1_RX/GP1059 UART1_CTS/CLK_SCL/GP1060 UART1_RTS/CLK_SDA/GP1061	UART1_TX UART1_RX UART1_CTS UART1_RTS	1.8V	BT M.2 KEY-E CON	
UART2	UART2_TX/CLK_SCL/GP1062 UART2_RX/CLK_SDA/GP1063	UART2_TX UART2_RX	1.8V	R8232 DB9 CON	
UART3	I2C8_MSP1_CS1_XTR1G0/GP1092/UART3_TX I2C8_SDA/MSP1_CS1_XTR1G1/GP1093/UART3_RX	Function Not Used			
UART4	SP11_D0/I2C9_SCL/GP1037/UART4_TX SP11_D1/I2C9_SDA/GP1038/UART4_RX	Function Not Used			

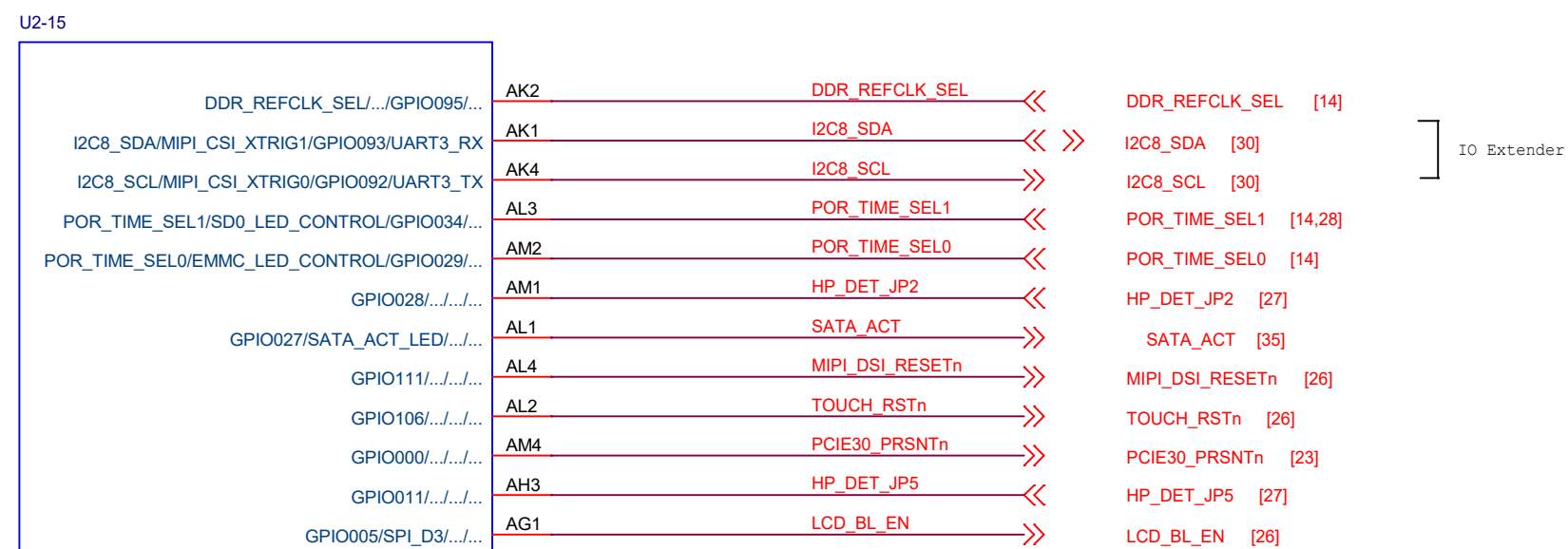




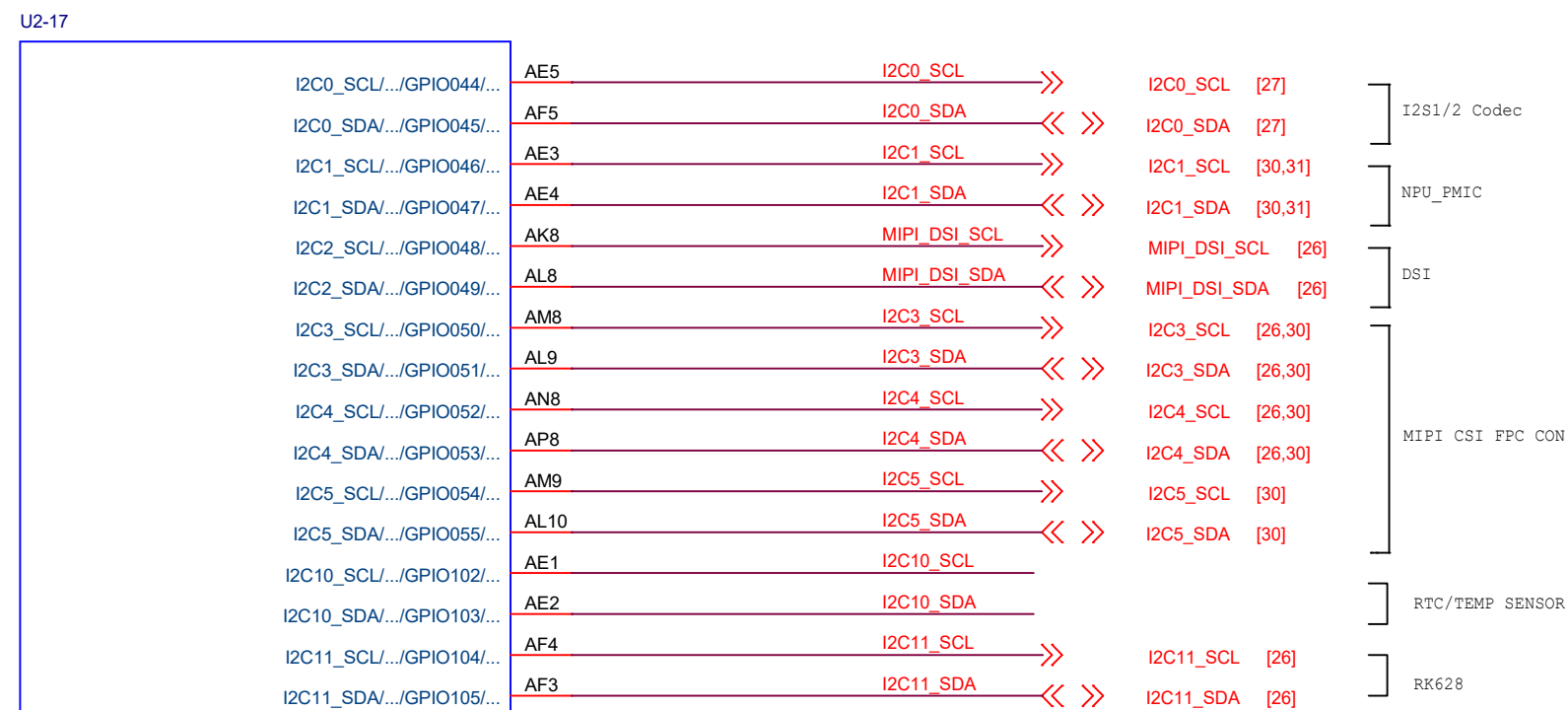


EMMC

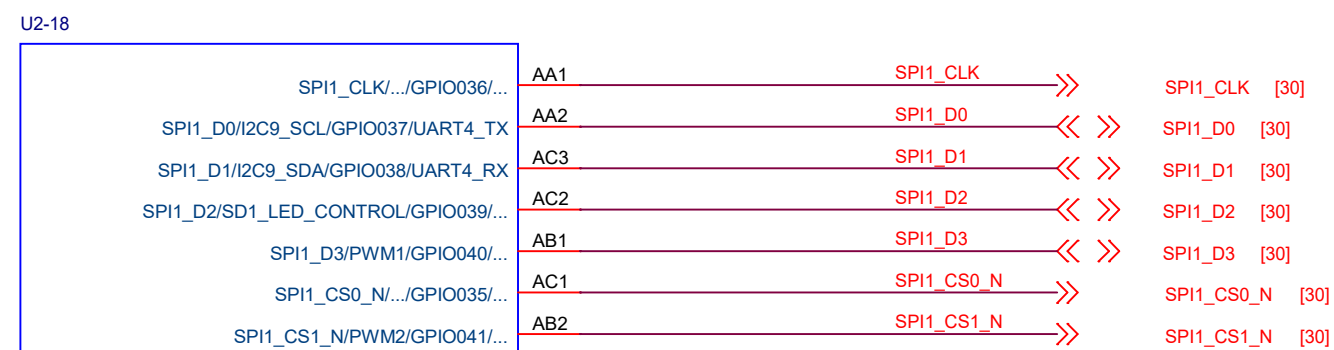




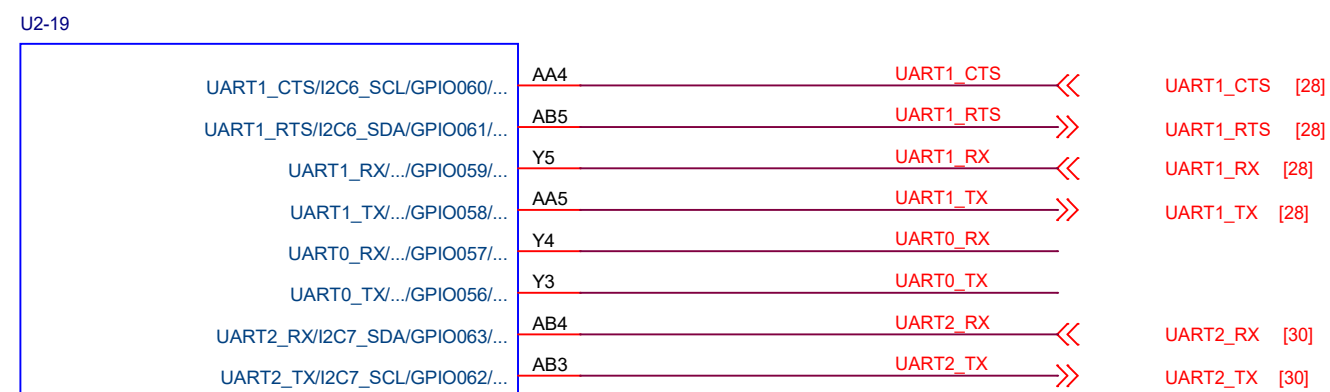
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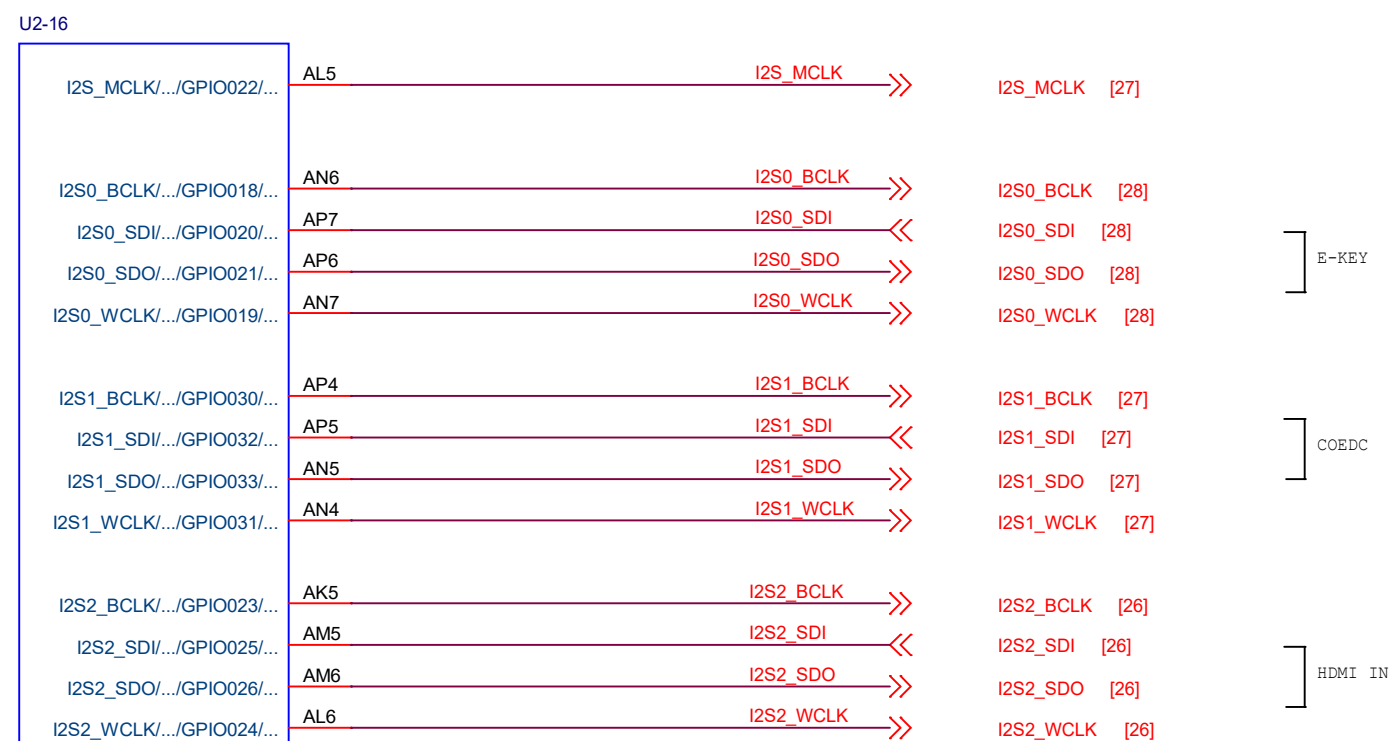
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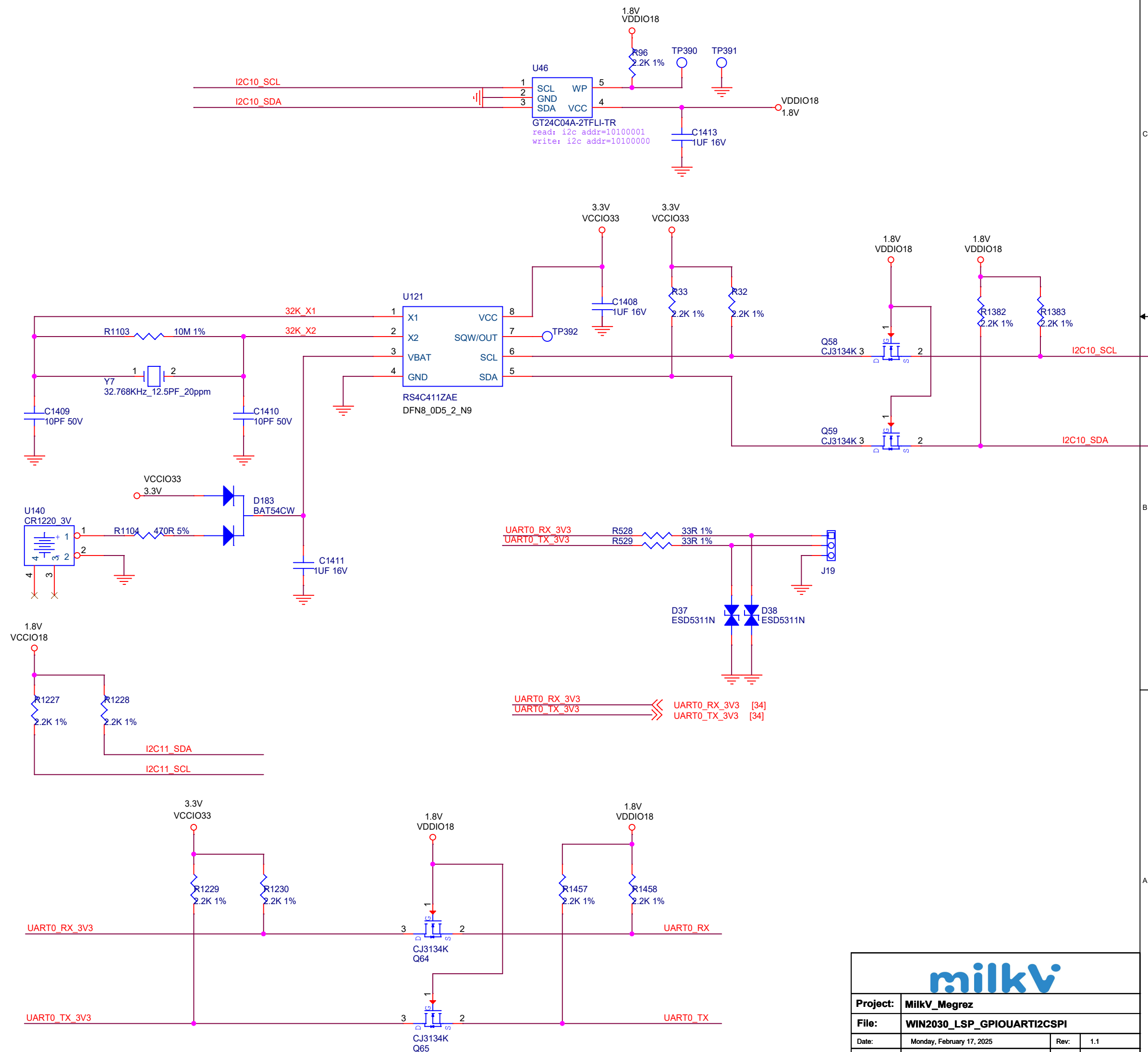
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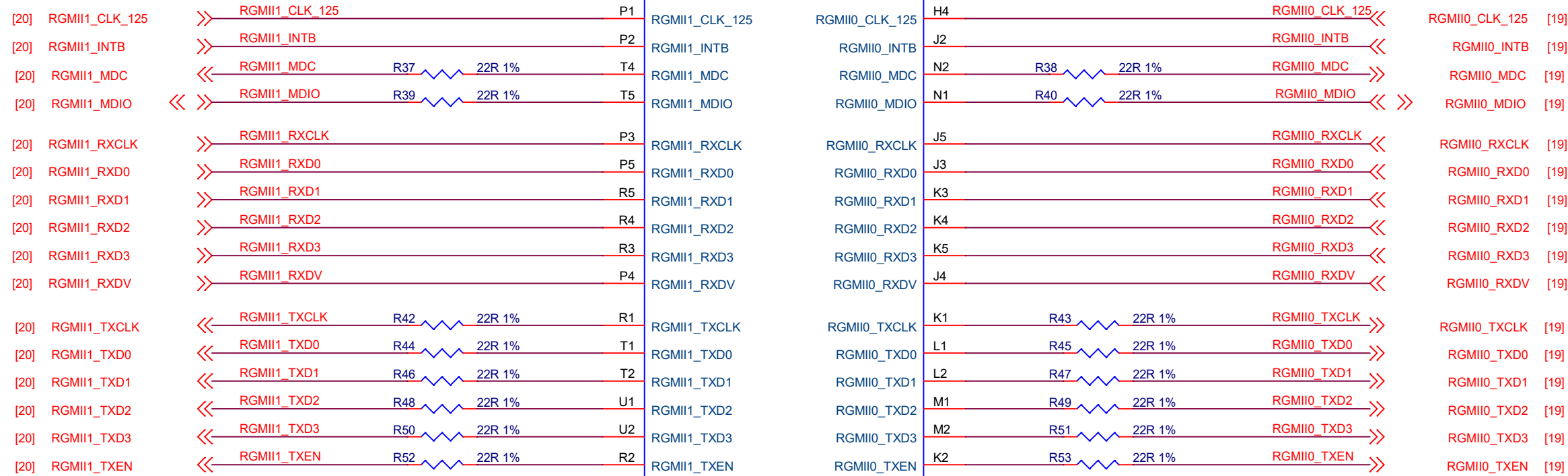
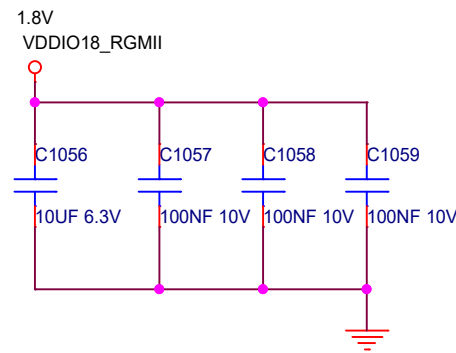
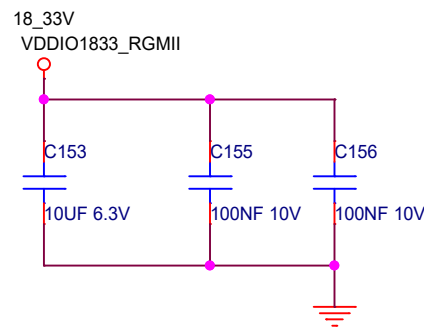
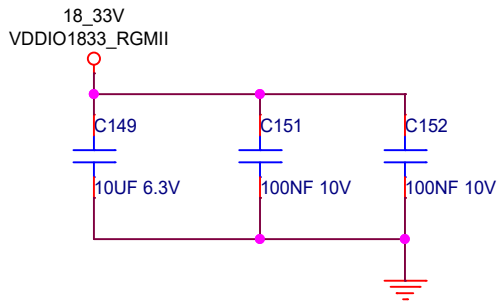


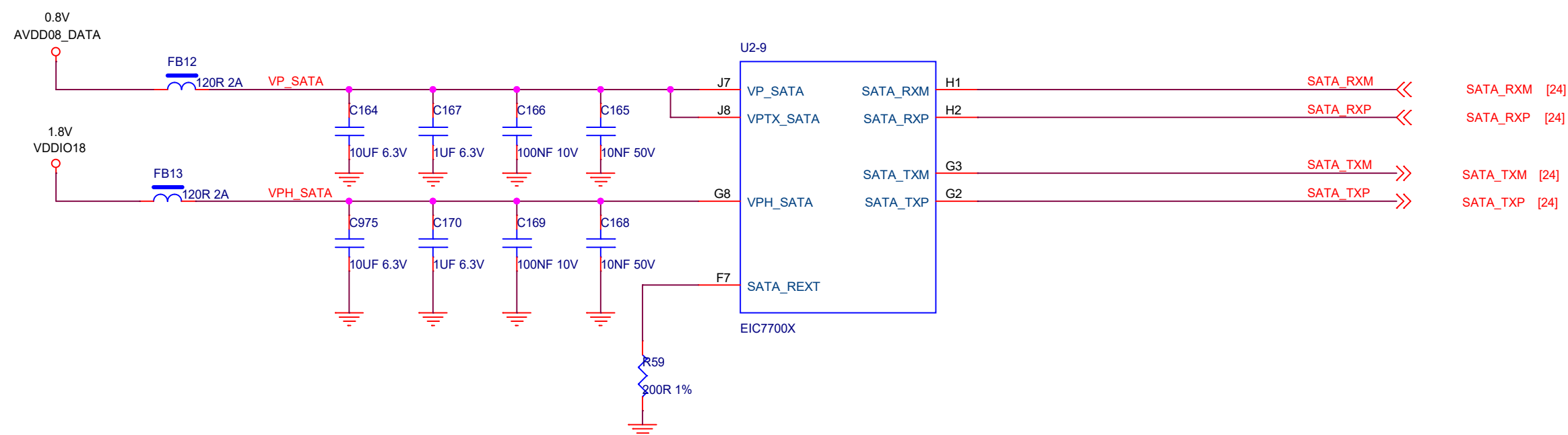
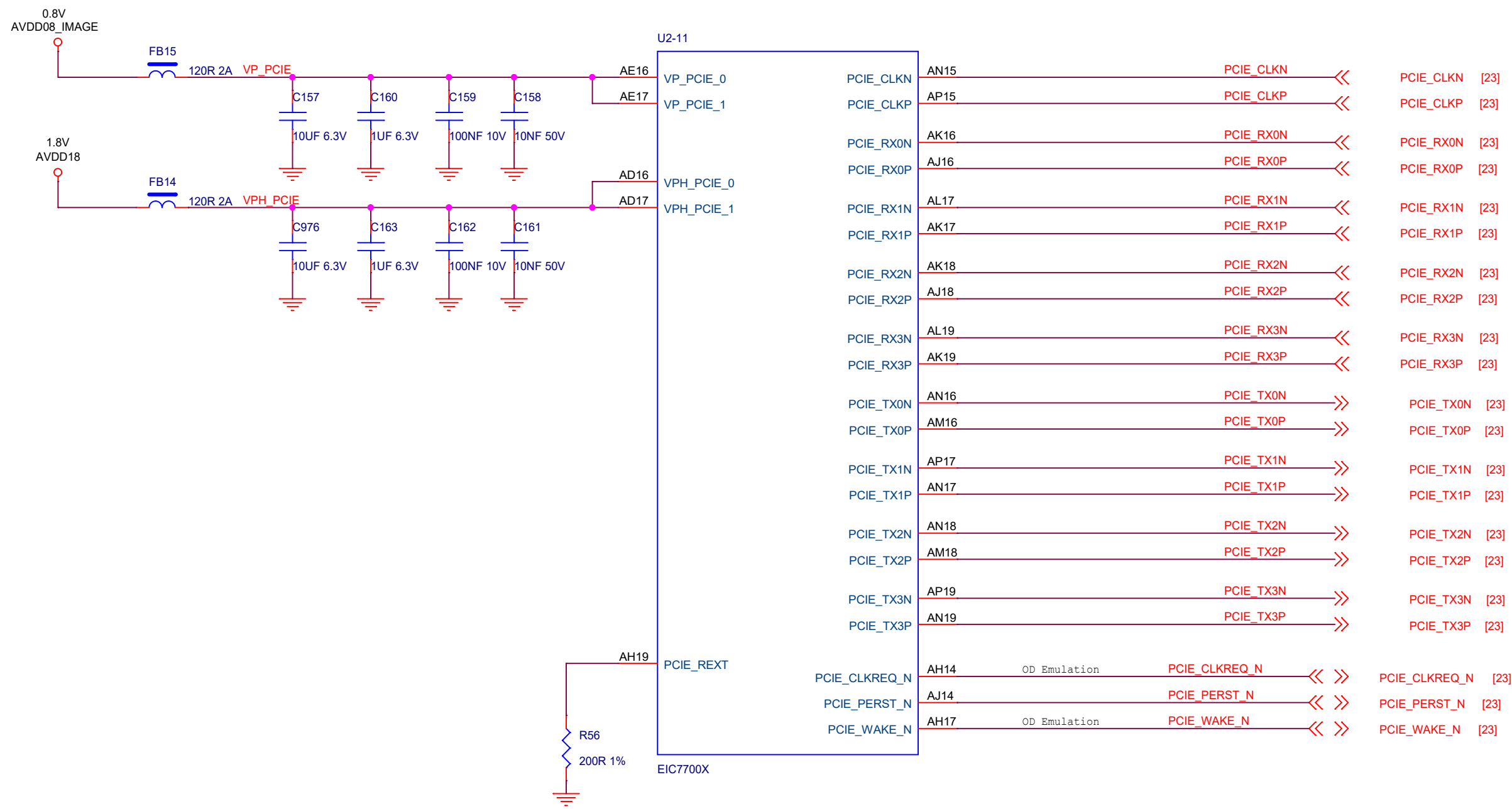
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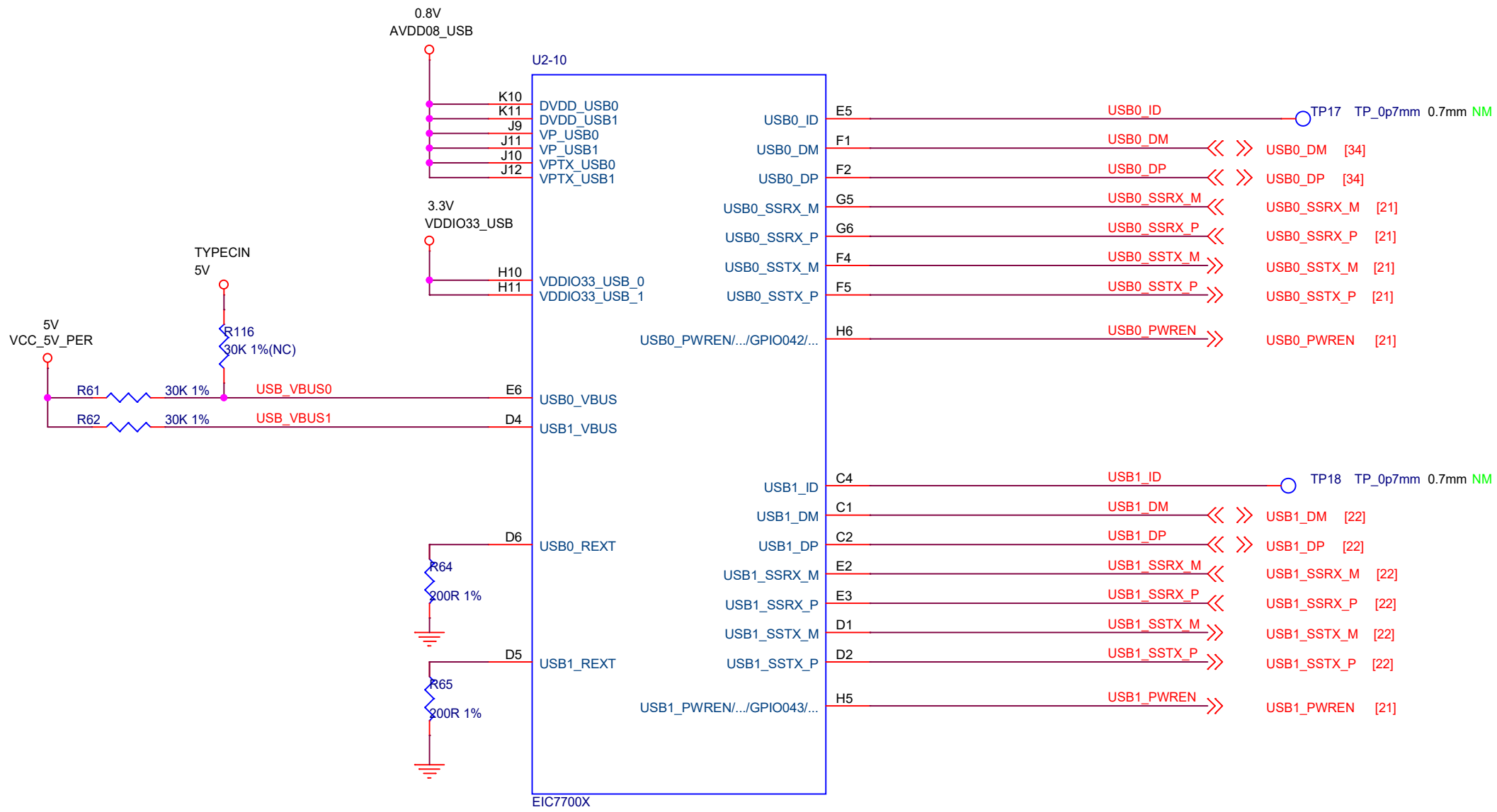
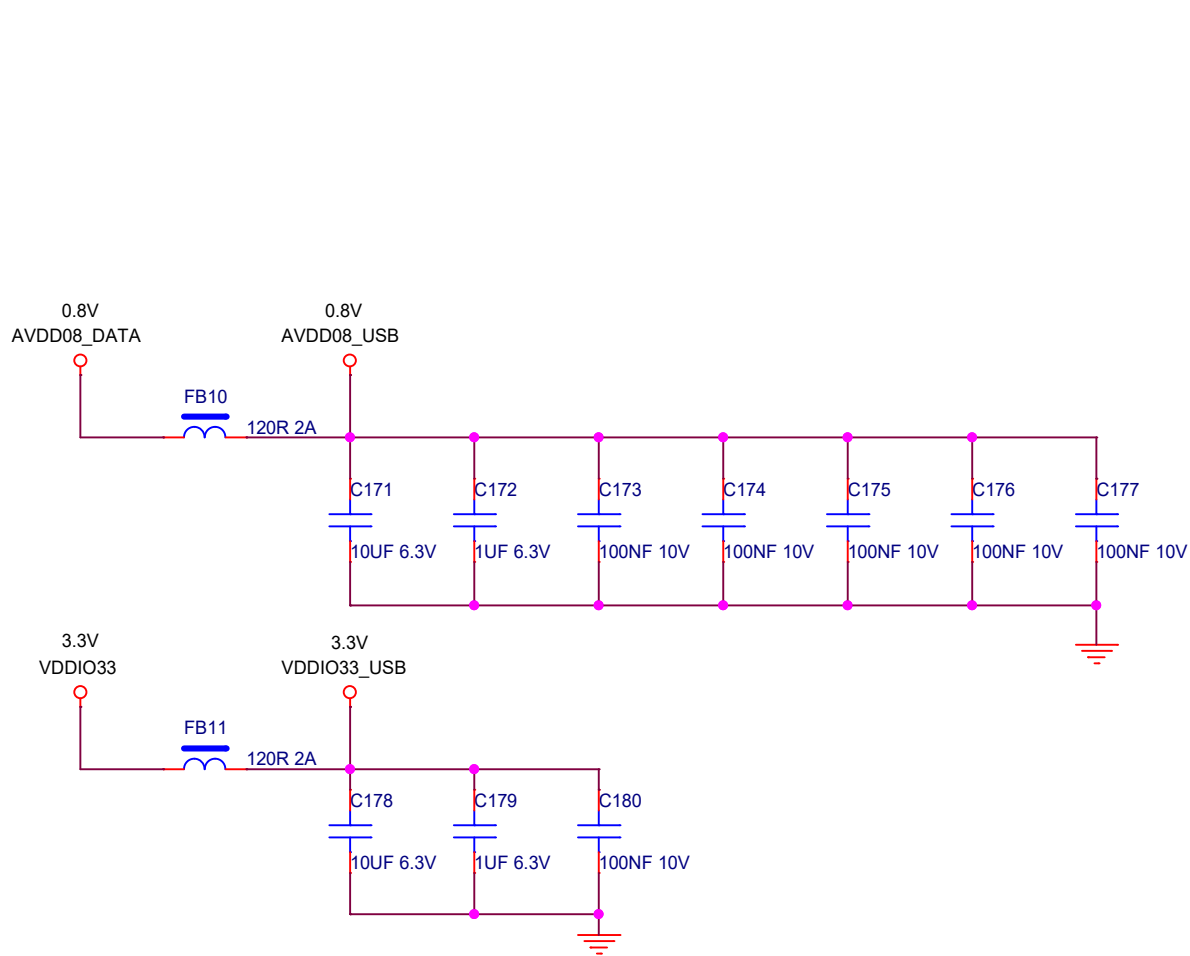


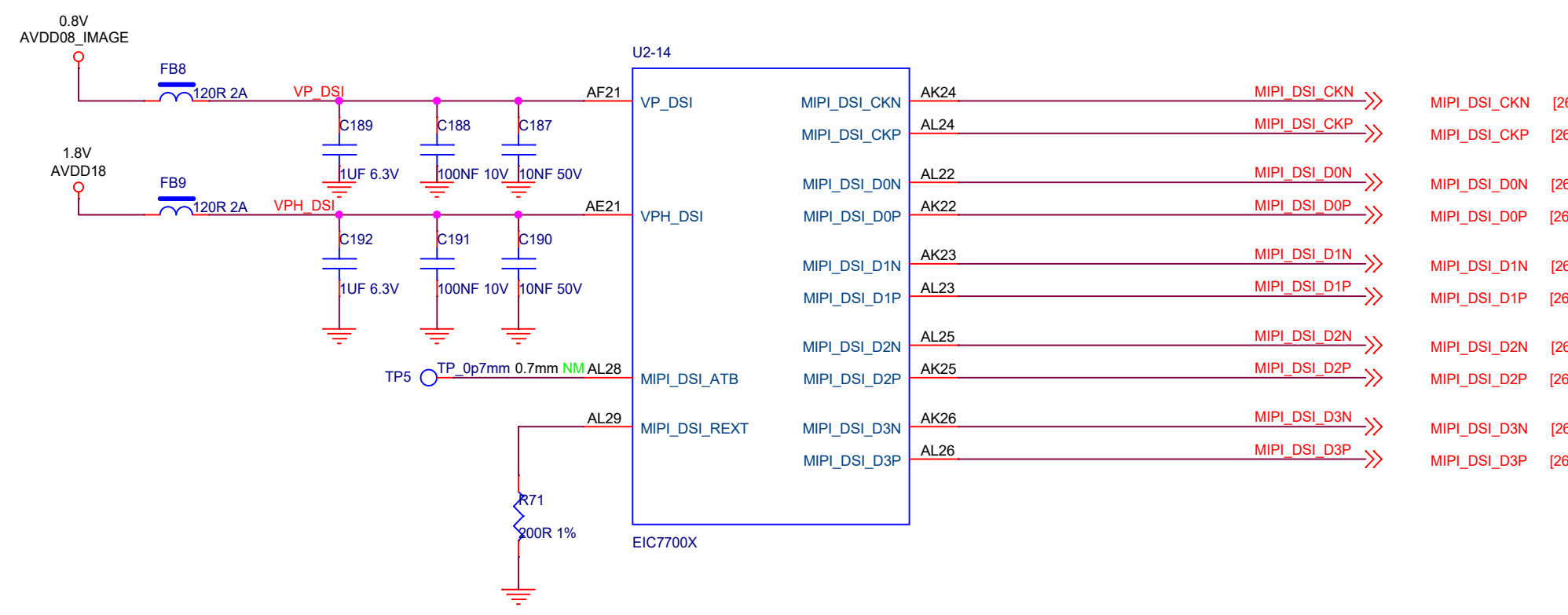
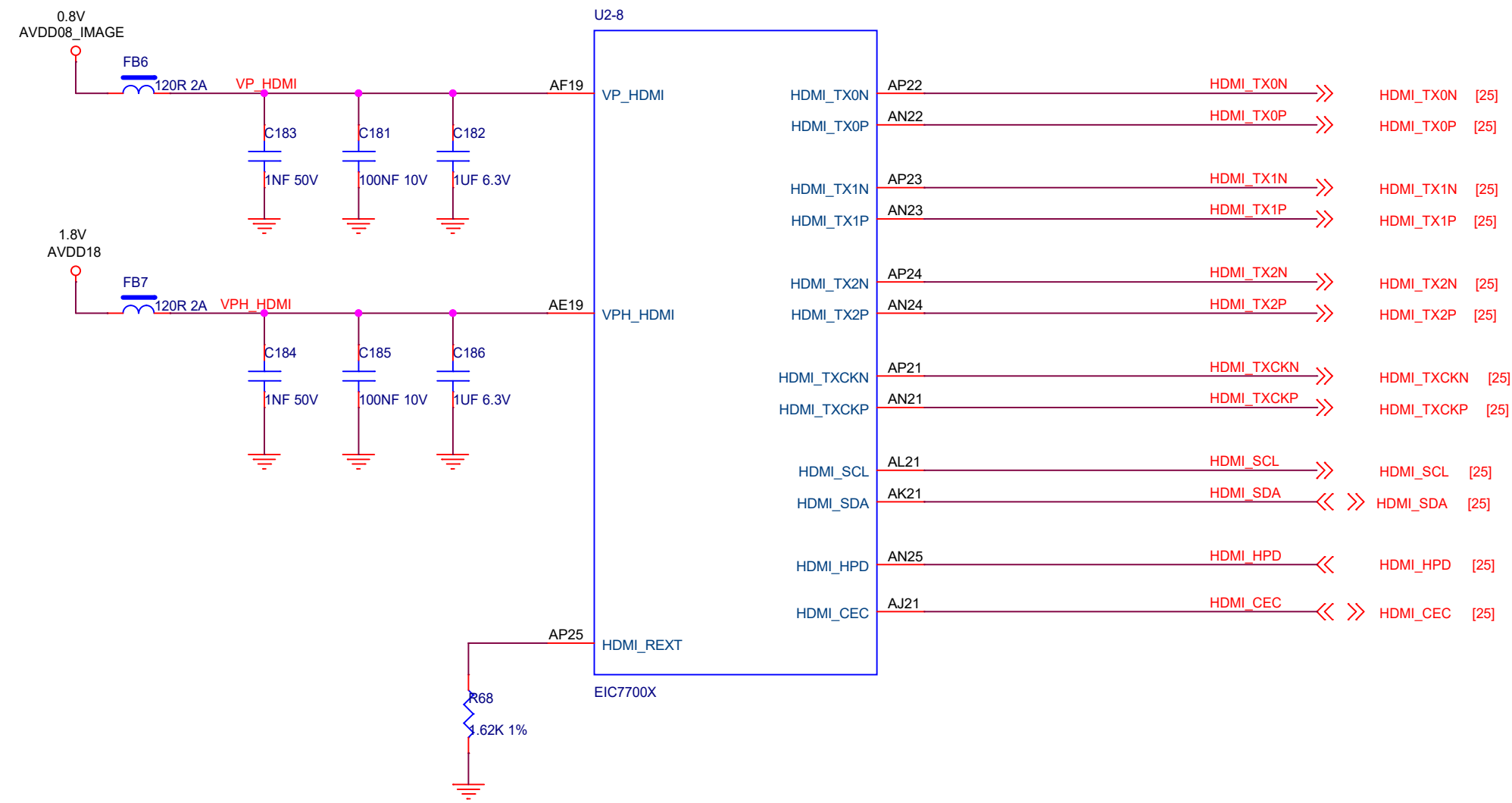
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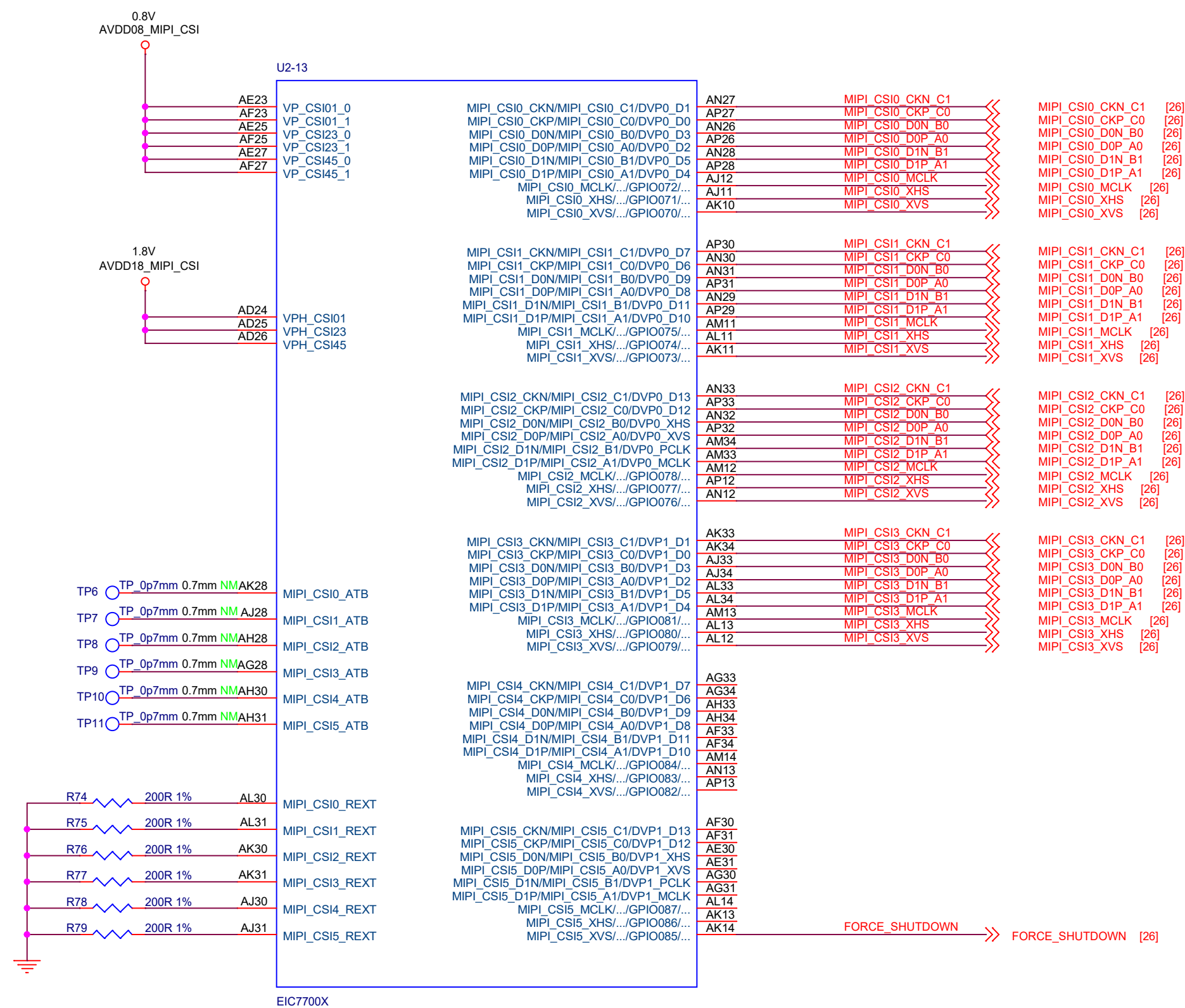
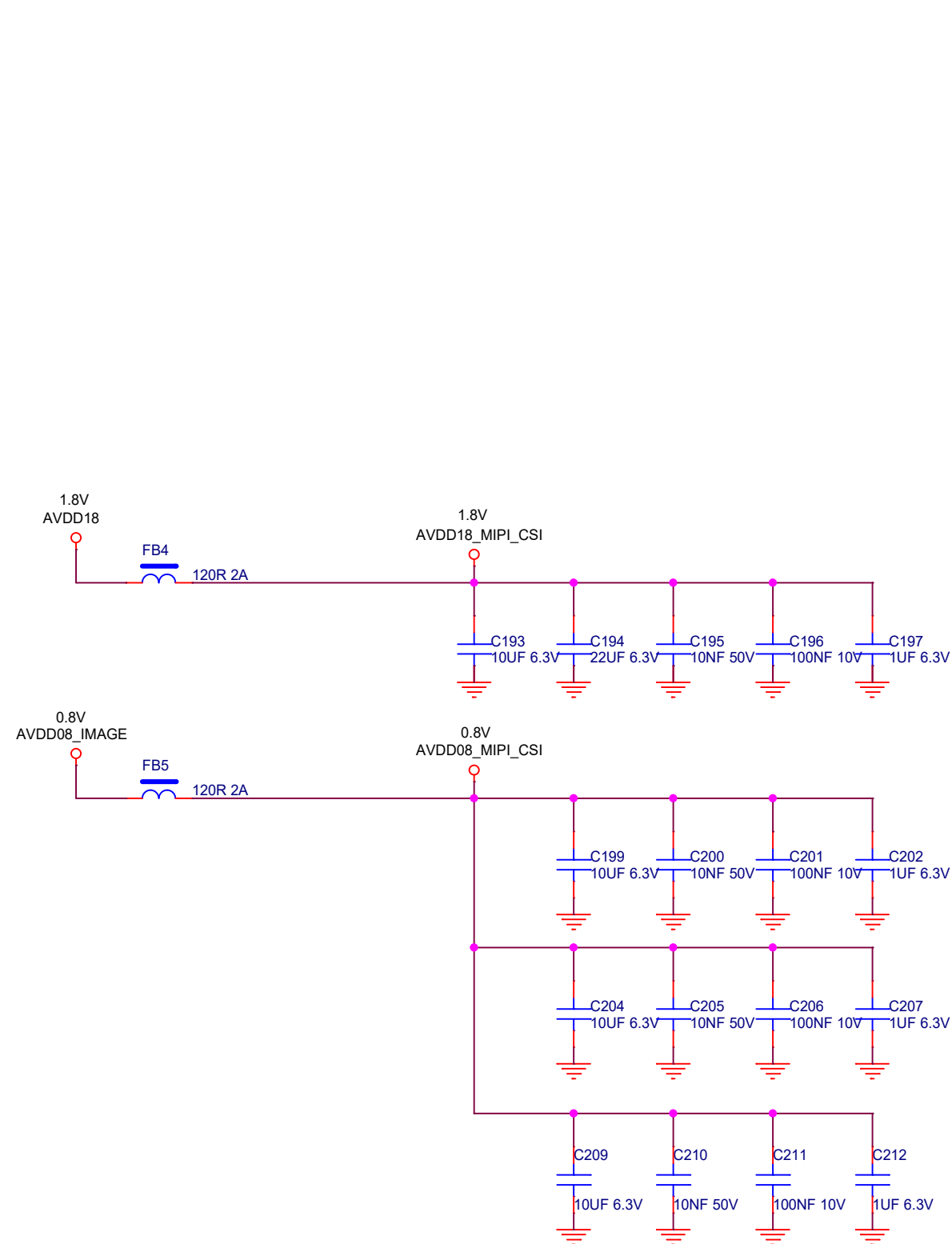




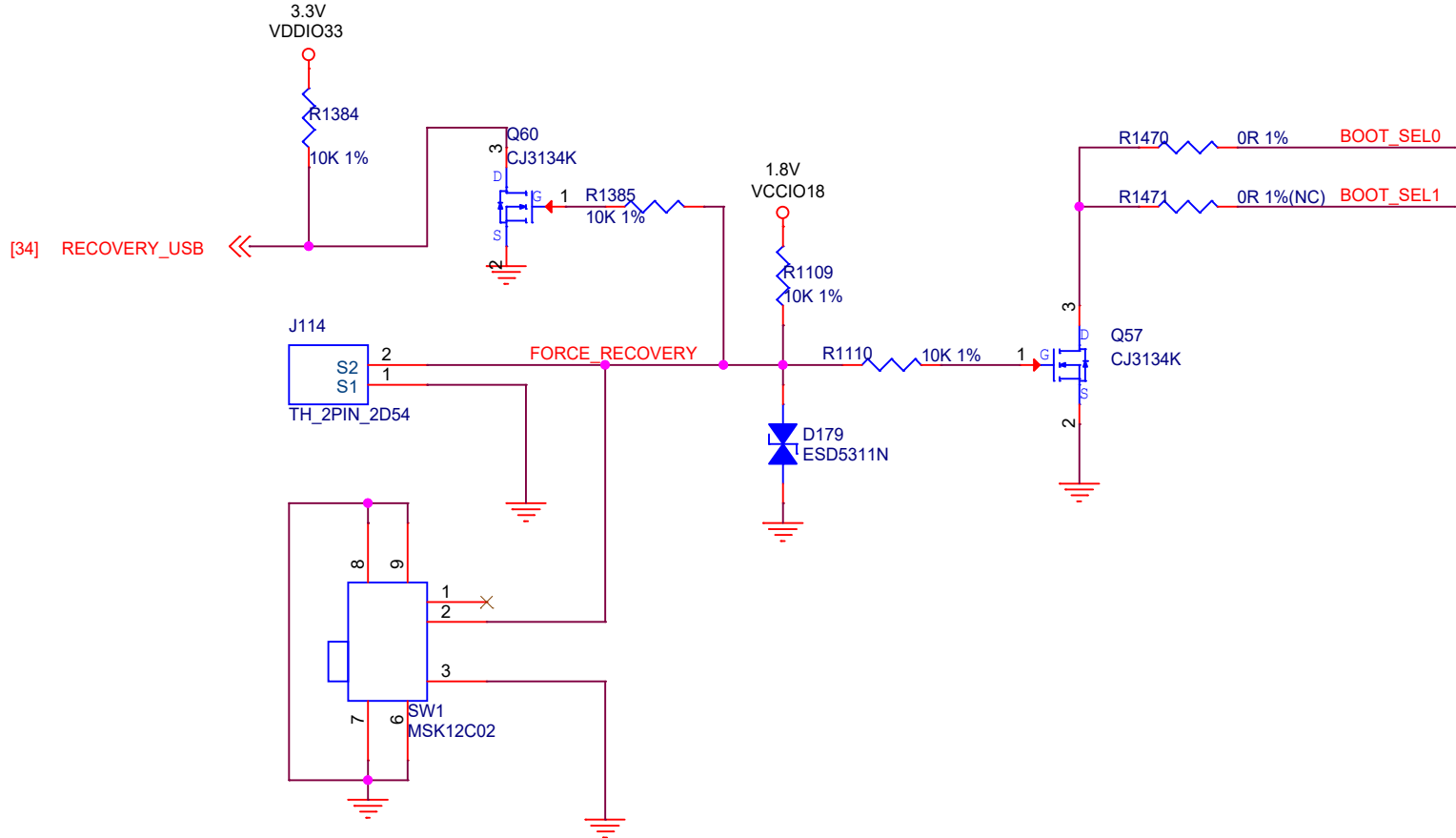
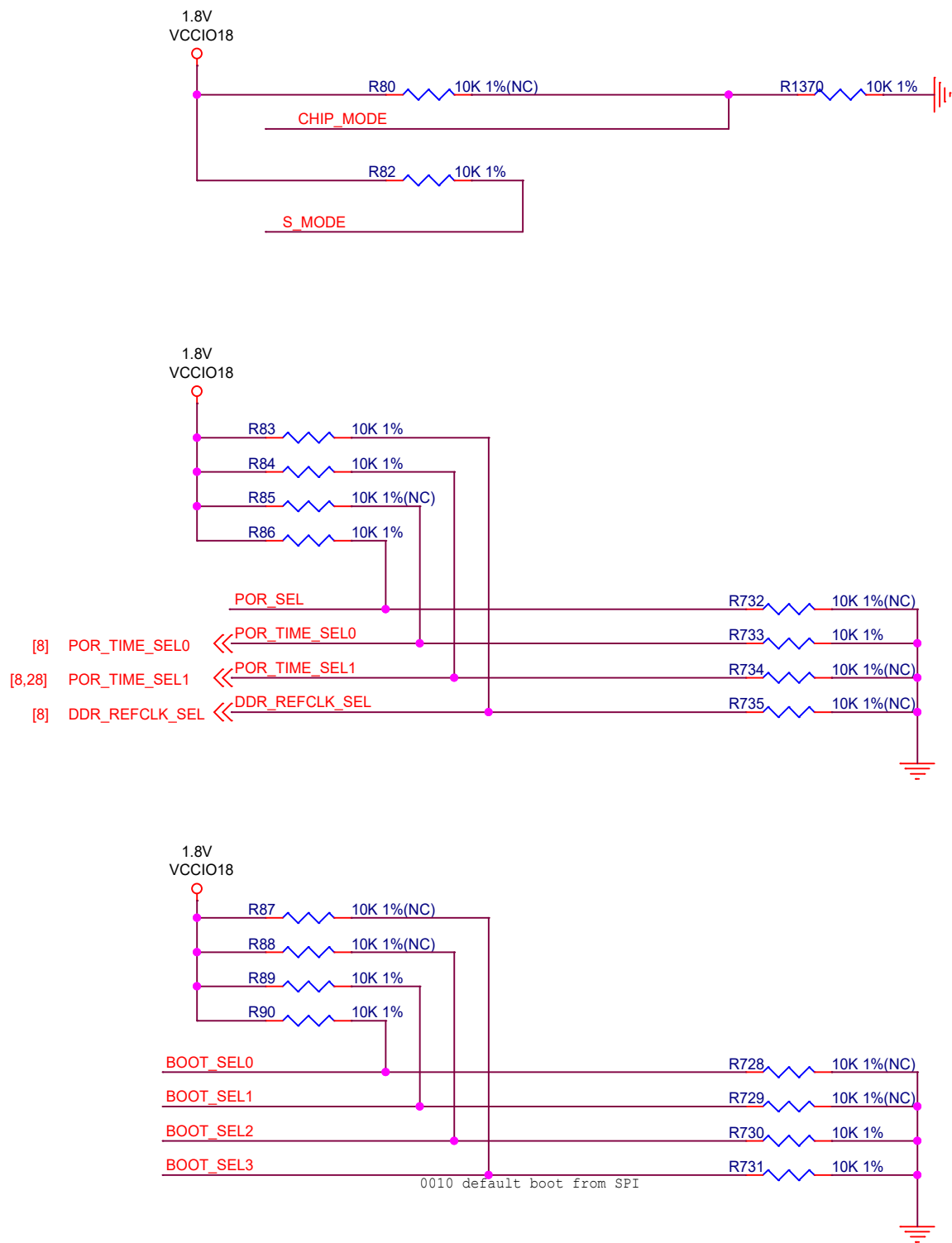
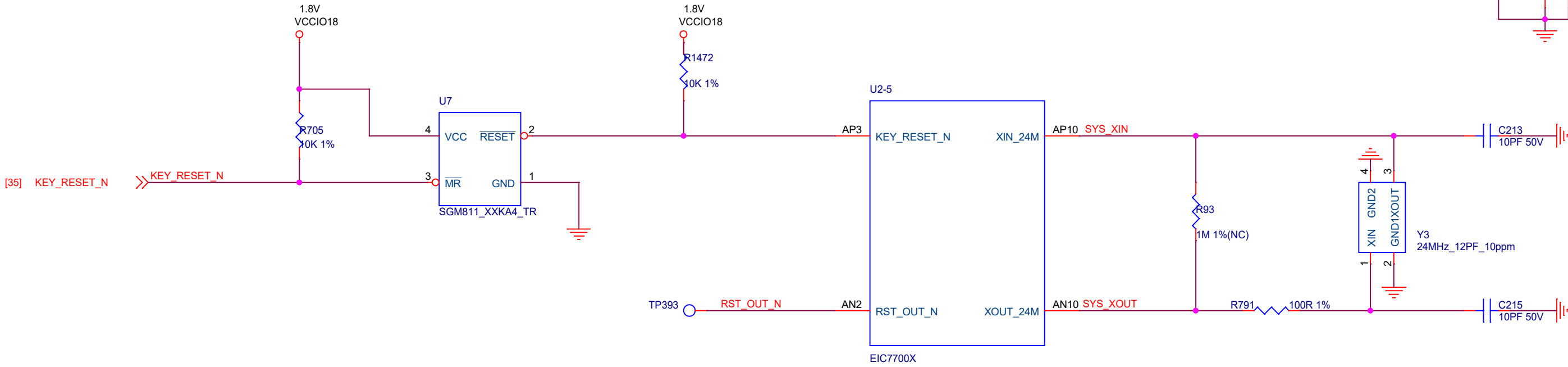
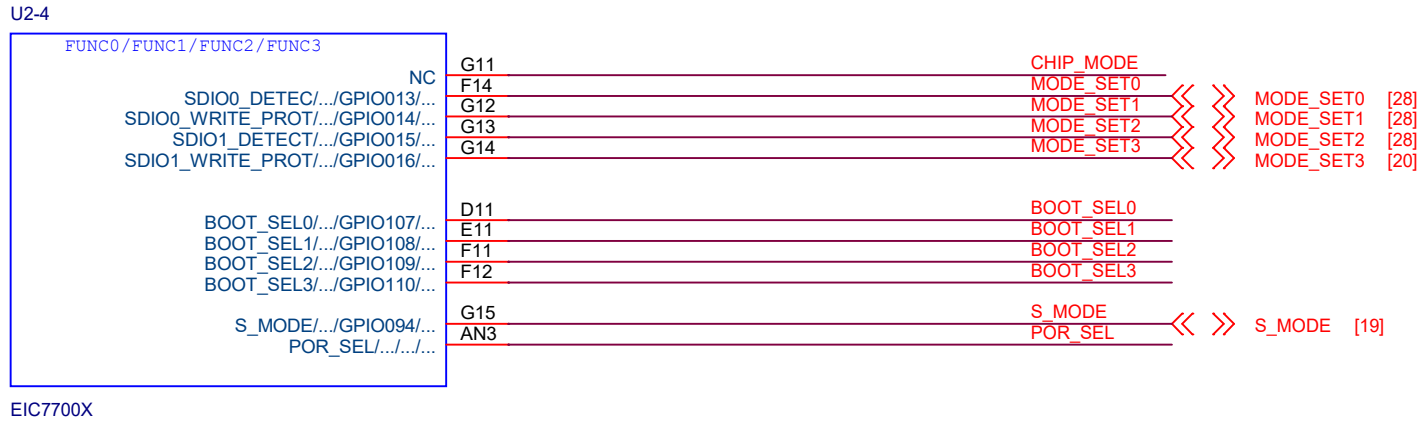








Strap Bit	Description	Pin	Default	Comments
CHIP MODE MODE SET3 MODE SET2 MODE SET1 MODE SET0	0xxxx : function mode 10000 : test0 10001 : test1 10010 : test2 10011 : test3 . . 11111 : test15	G11: CHIP_MODE G14: MODE_SET3 G13: MODE_SET2 G12: MODE_SET1 F14: MODE_SET0	0xxxx	
POR SELECT	0 : Bypass Internal POR 1 : Internal POR	AN3: POR_SEL	1	
POR WAIT TIME[1] POR WAIT TIME[0]	00 : 2560us 01 : 20480us 10 : 81920us 11 : 327680us	AL3: GPIO34 AM2: GPIO29	10	
BOOT SELECT 3 BOOT SELECT 2 BOOT SELECT 1 BOOT SELECT 0	if OTP security bit = 1 bits : boot cpu : first boot : second boot xx00 : SCPU : ROM : UART xx01 : SCPU : ROM : eMMC xx10 : SCPU : ROM : SPI NOR xx11 : SCPU : ROM : USB if OTP security bit = 0 bits : boot cpu : first boot : second boot 0000 : SCPU : ROM : UART 0001 : SCPU : ROM : eMMC 0010 : SCPU : ROM : SPI NOR 0011 : SCPU : ROM : USB 1x00 : U84 : SPI NOR : UART 1x01 : U84 : SPI NOR : eMMC 1x10 : U84 : SPI NOR : SPI NOR 1x11 : U84 : SPI NOR : USB	F12: BOOT SELECT 3 F11: BOOT SELECT 2 E11: BOOT SELECT 1 D11: BOOT SELECT 0	0010	
S_MODE	1 : Signle Die mode 0 : Dual Die mode	G15: S_MODE	1	This design is only for single die mode
LPDDR_REF_CLK	0 : Backup clock 1 : Main clock	AK2:GPIO95	1	

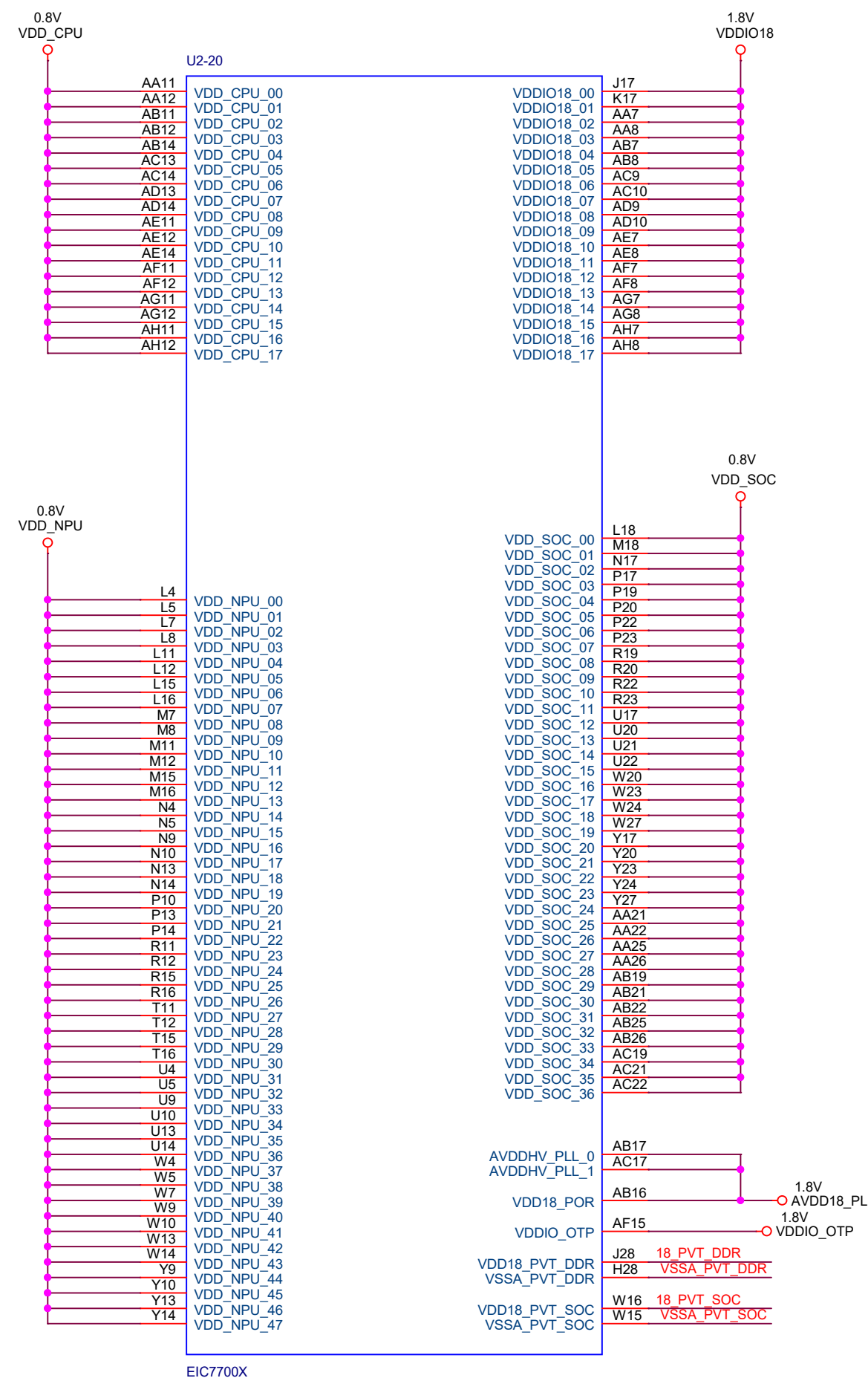
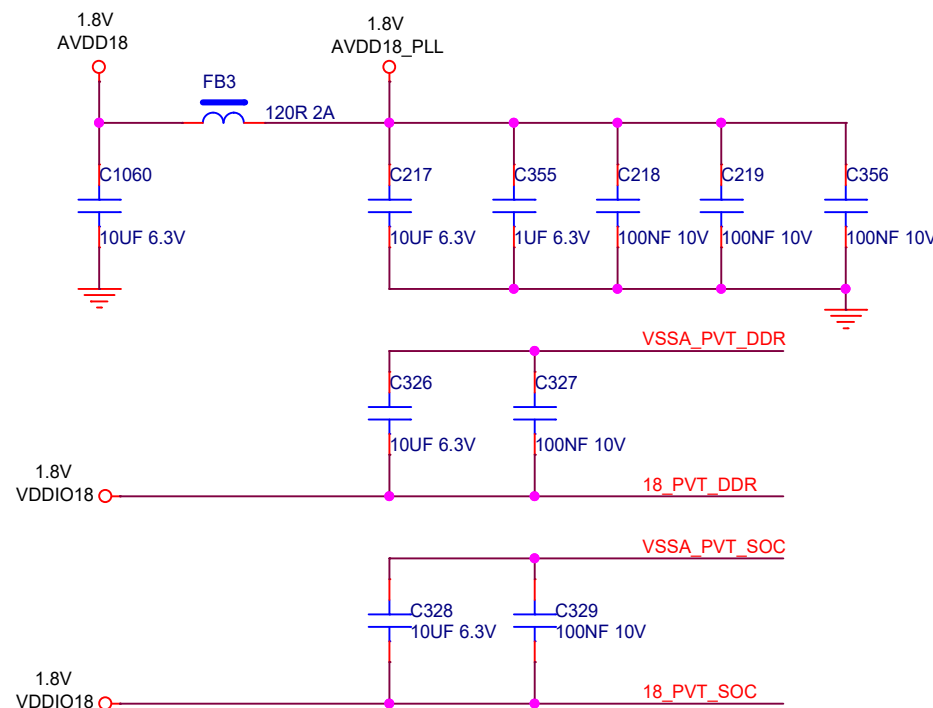
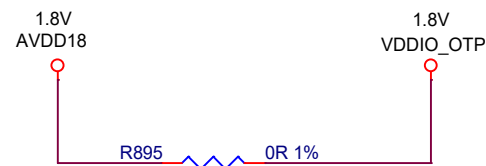


milkV			
Project:	MilkV_Megrez		
File:	WIN2030_BSP_SYSCON		
Date:	Monday, February 17, 2025	Rev:	1.1
Designed by:	<designer>	Sheet:	13 of 34

U2-6

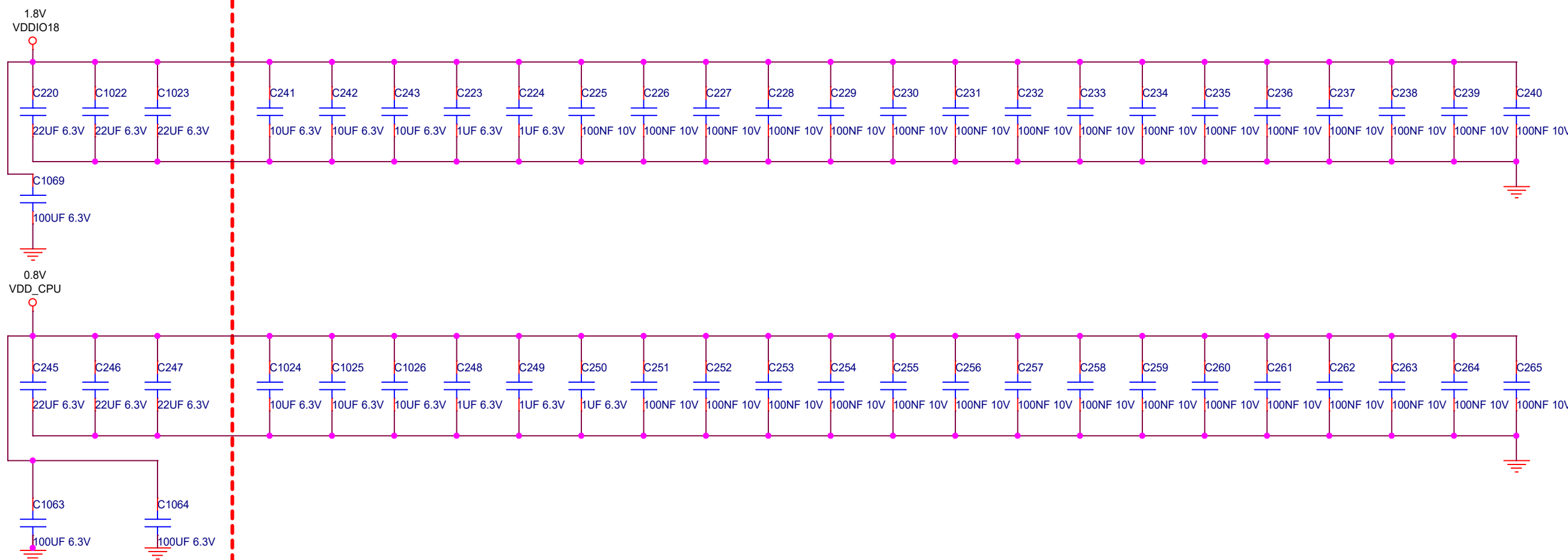


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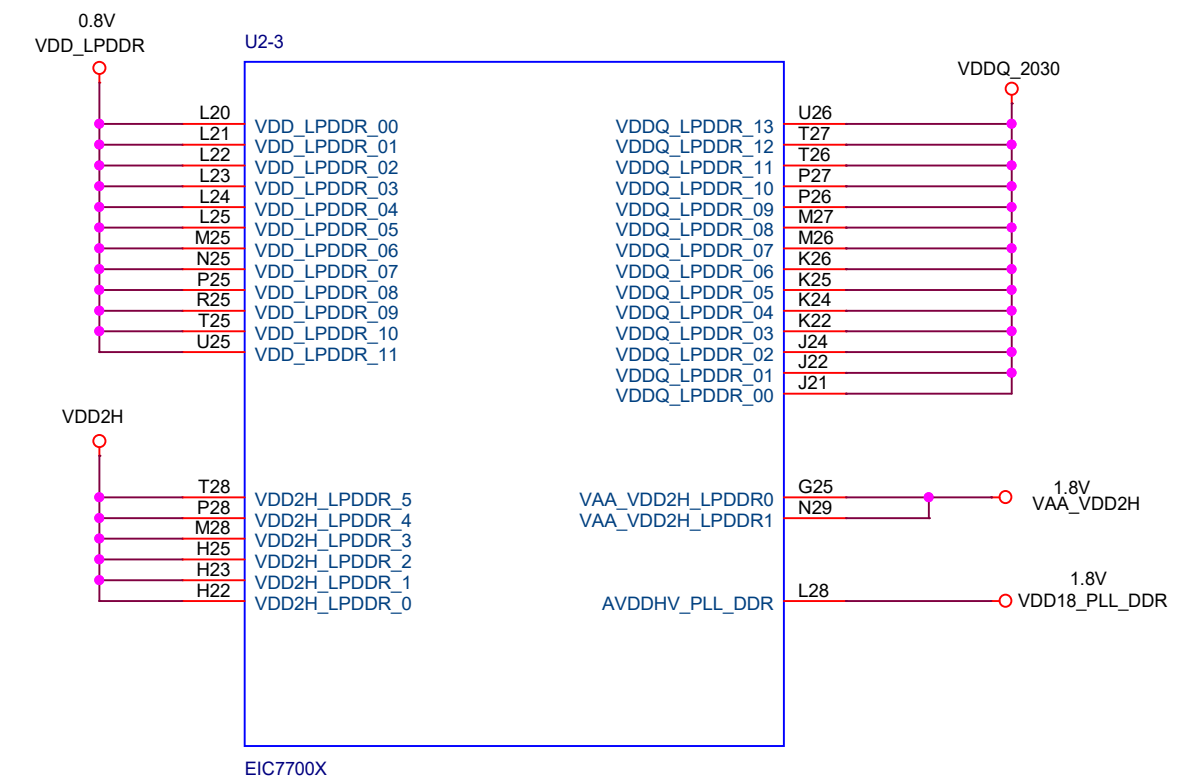
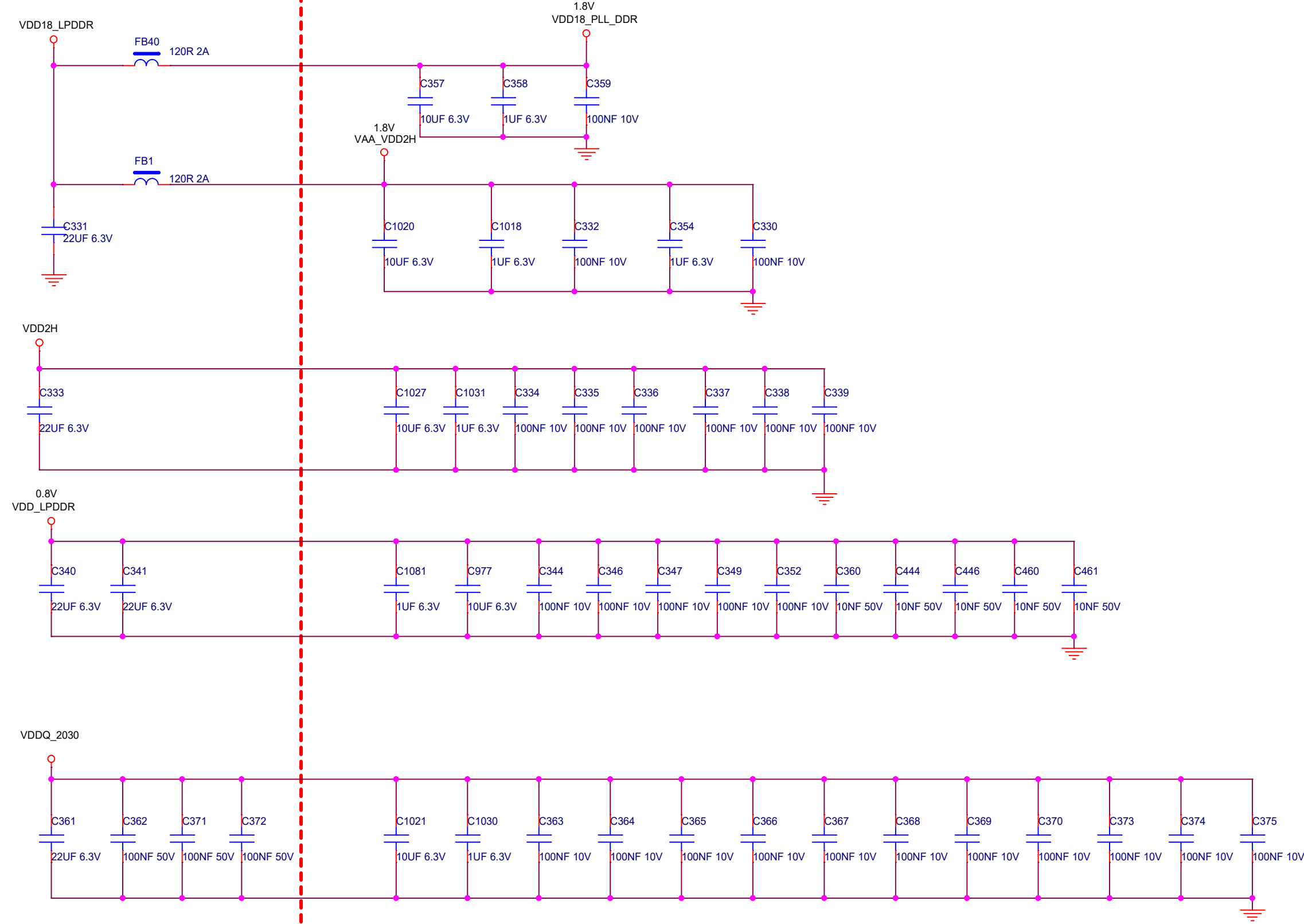
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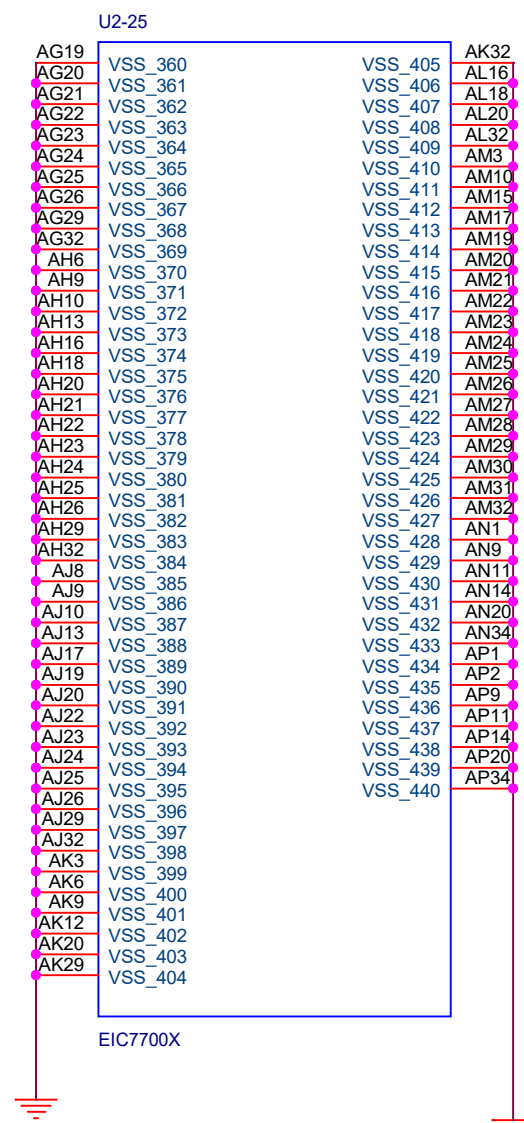
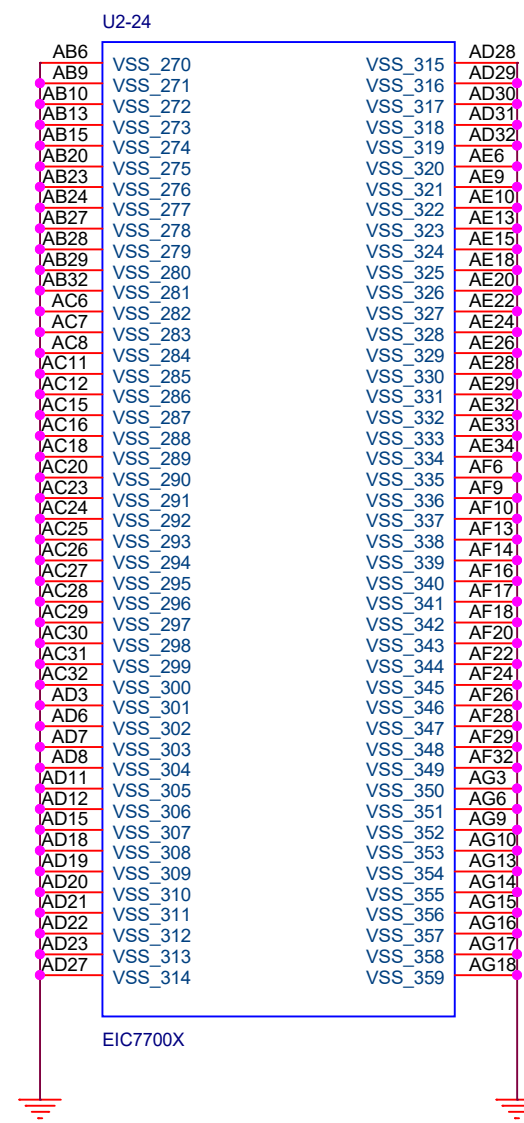
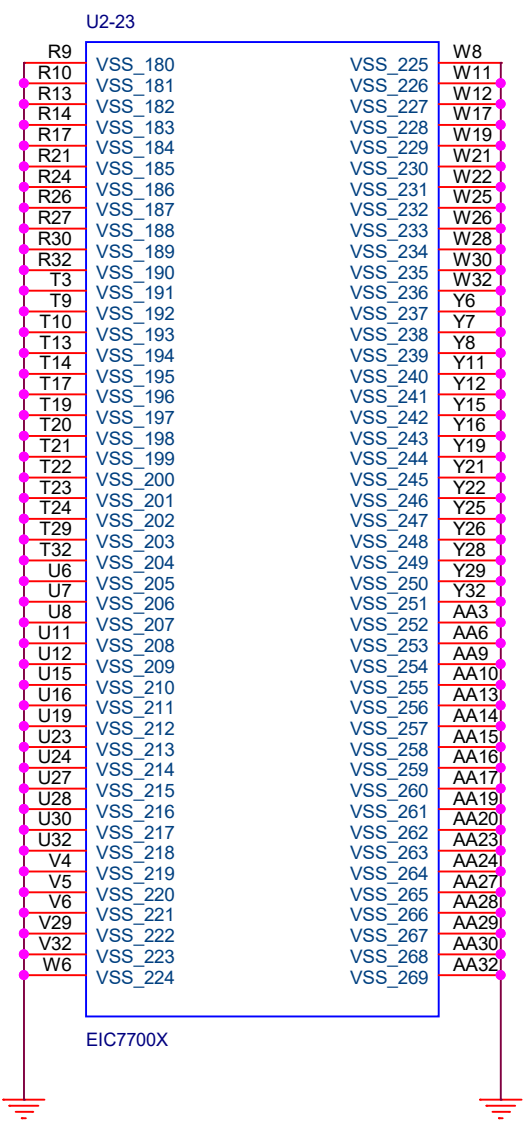
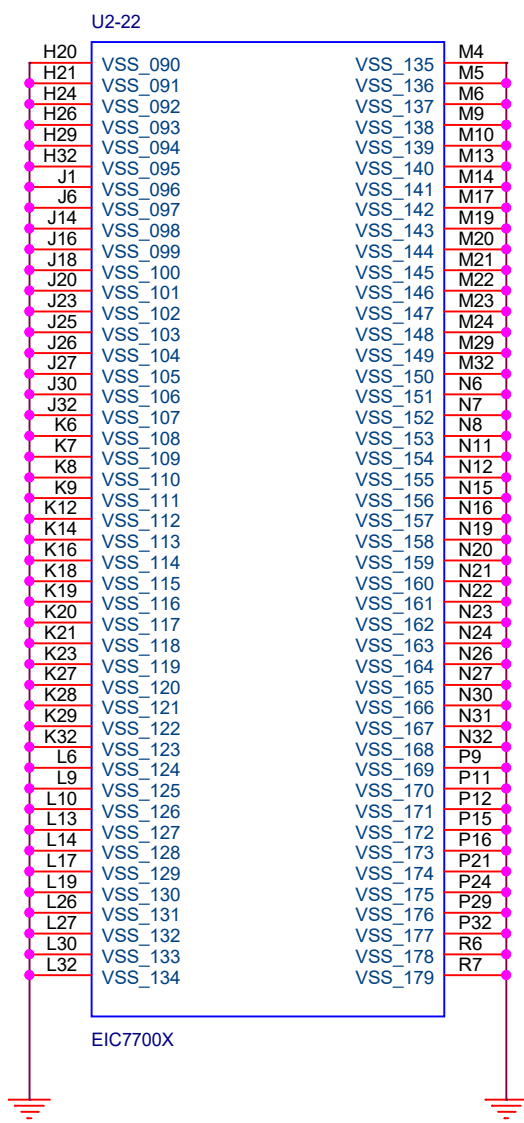
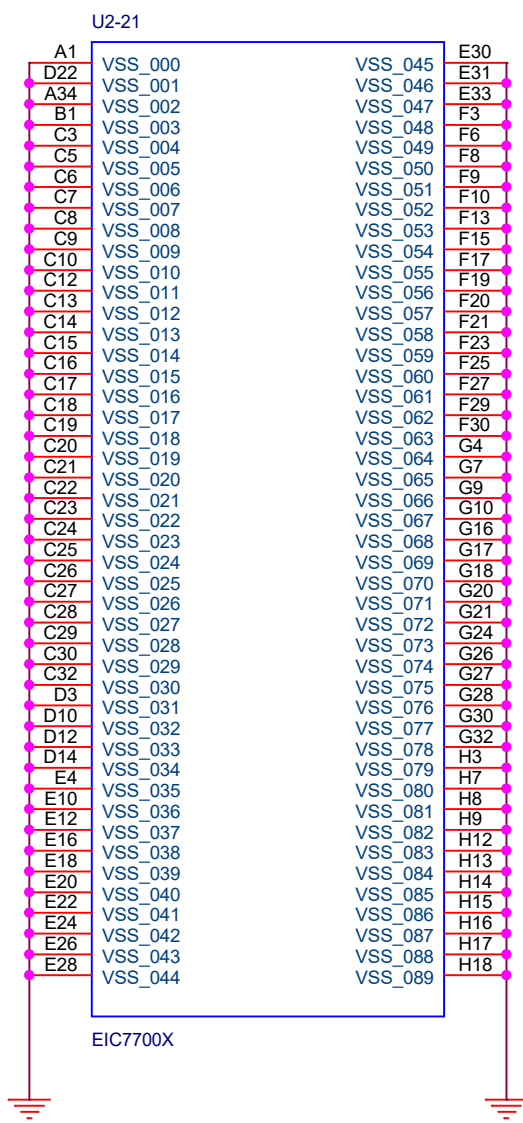
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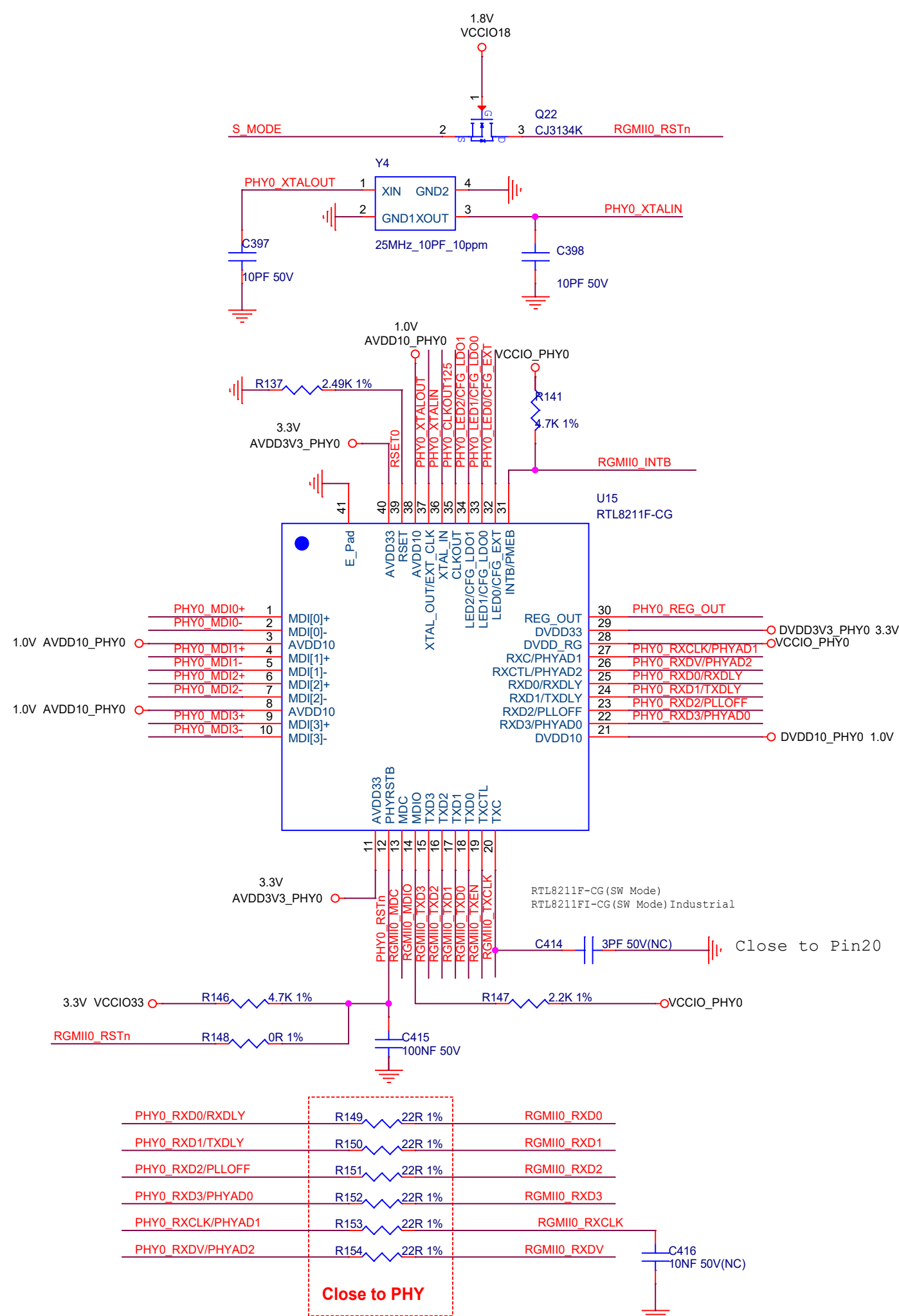
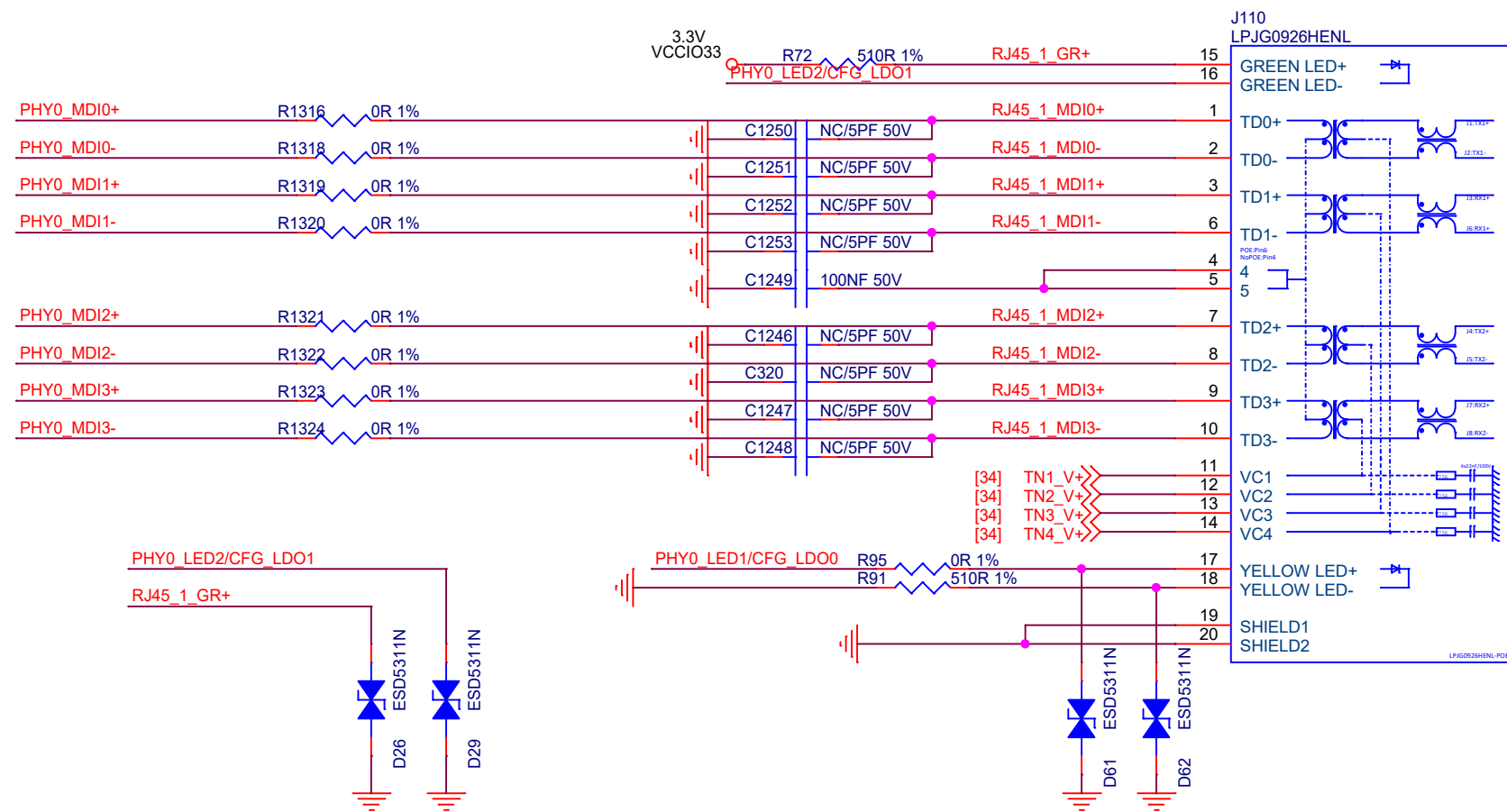
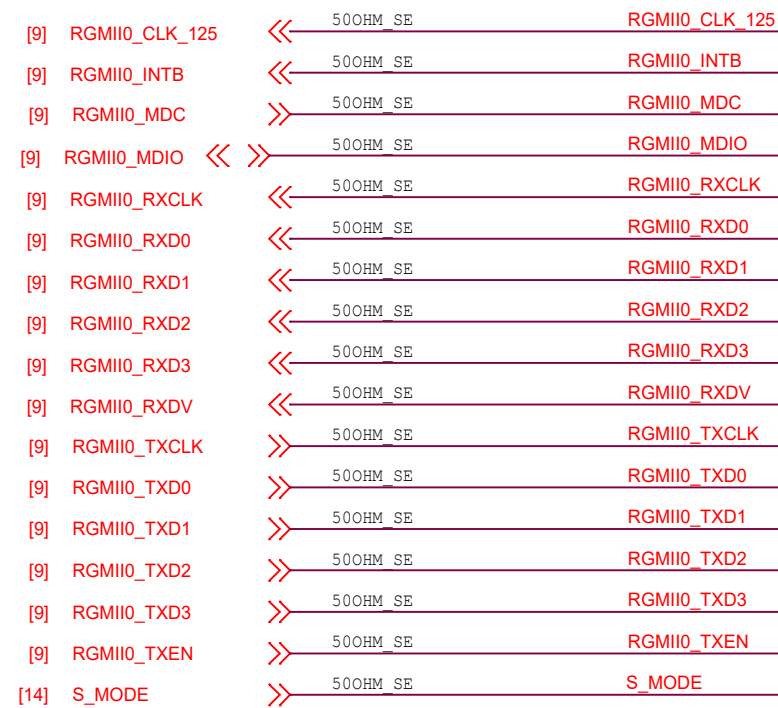


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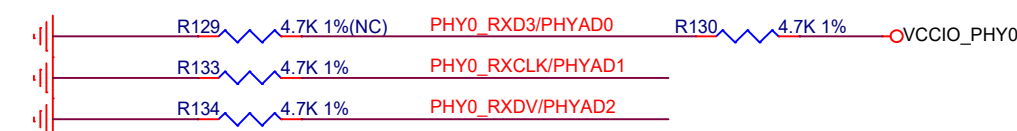
Under Package







RGMII Power Source	CFG_EXT	CFG_LDO[1:0]	COMMENTS
External 3.3V	1'b1	2'b00	CFG_EXT: 1:External Power Source for IO pad. 0:Integrated LDO for IO pad
External 1.8V	1'b1	2'b10	CFG_LDO(1:1:0) 10:1.8V 00:3.3V
Internal 1.8V (default)	1'b0	2'b10	



PHY Address Config



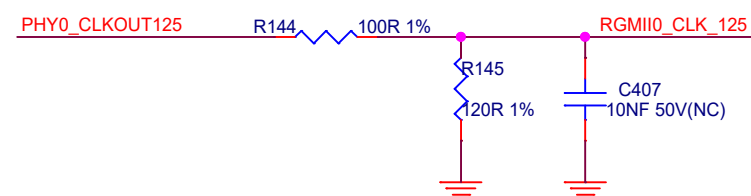
Pull-up for additional 2ns delay to RXC for data latching



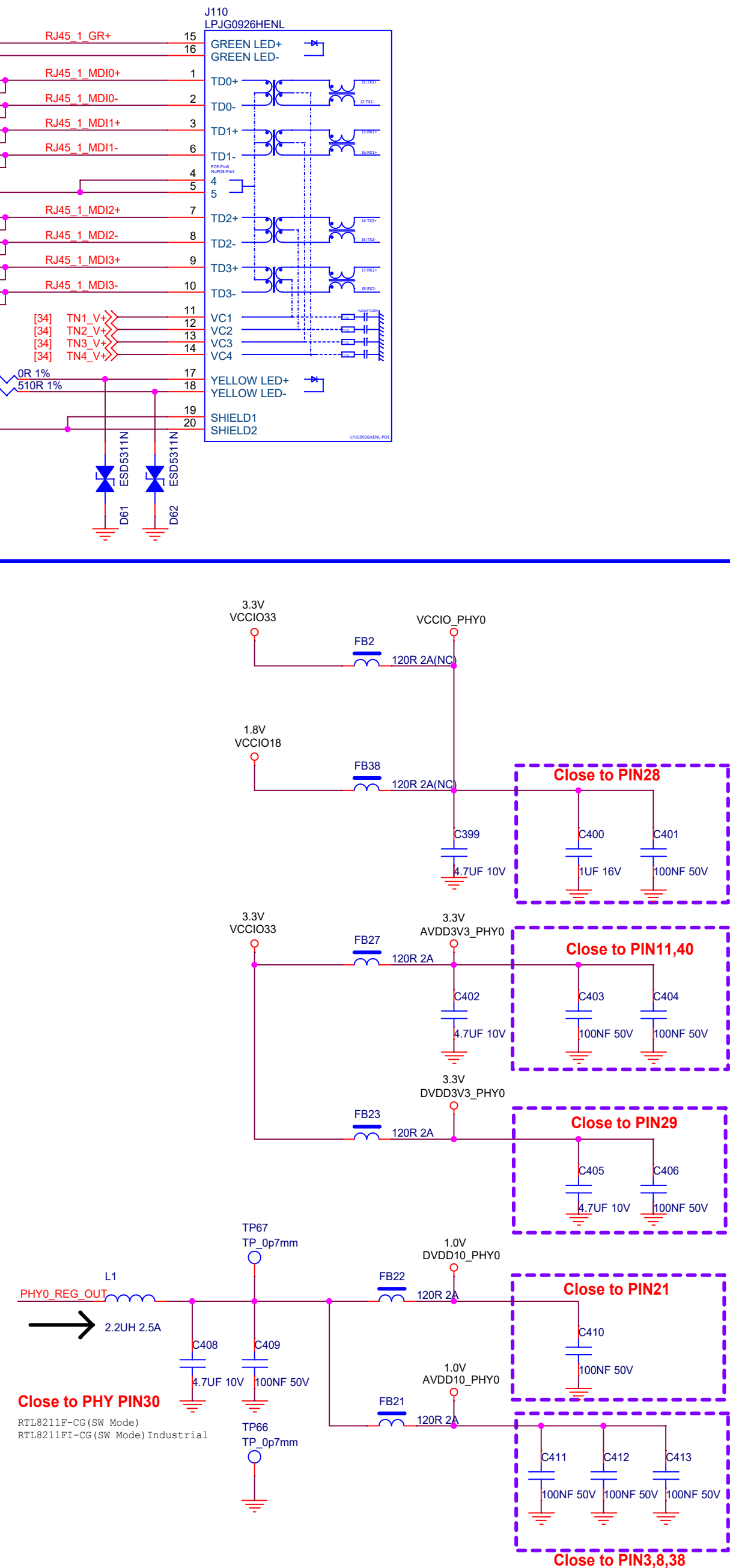
Pull-up for additional 2ns delay to TXC for data latching

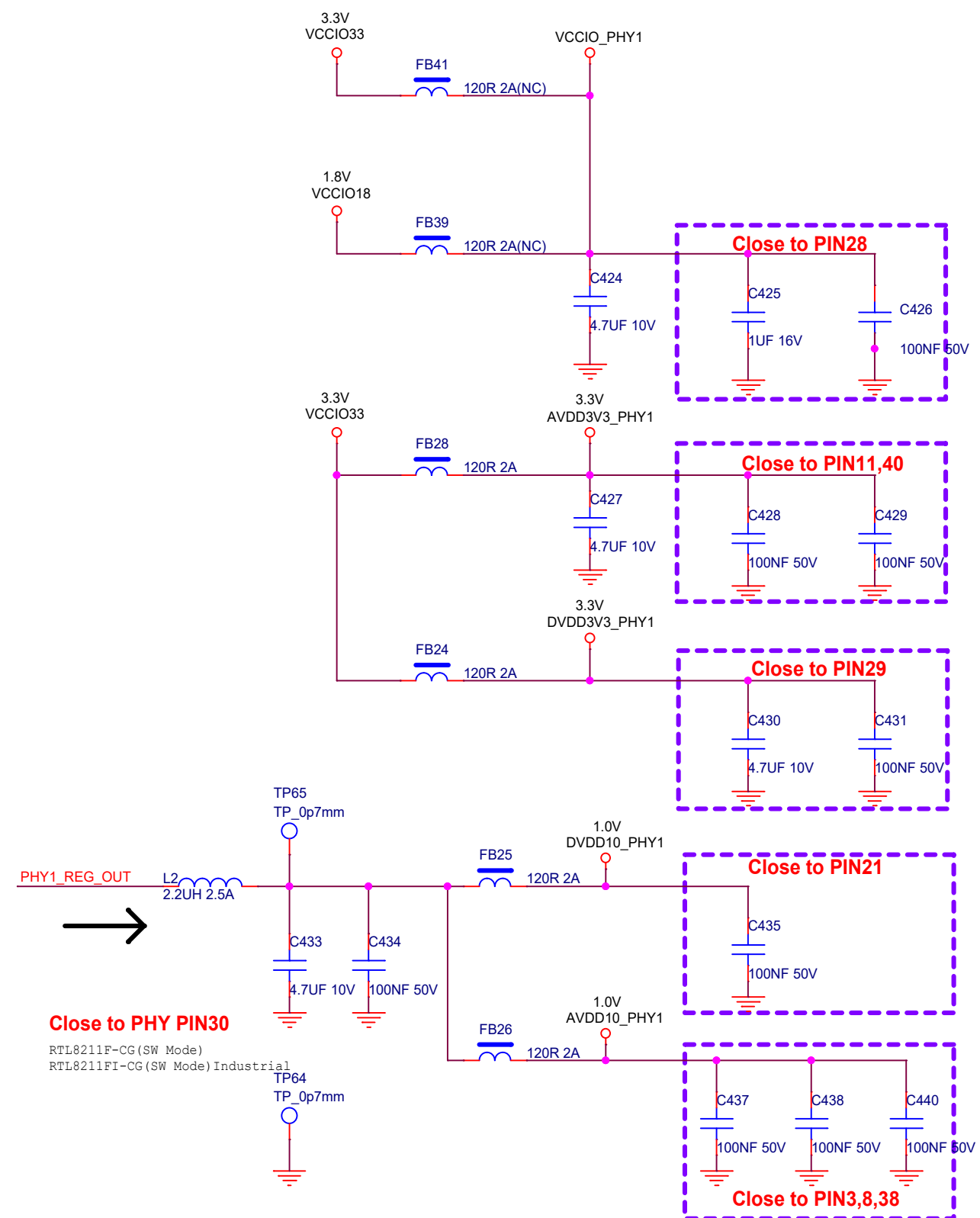
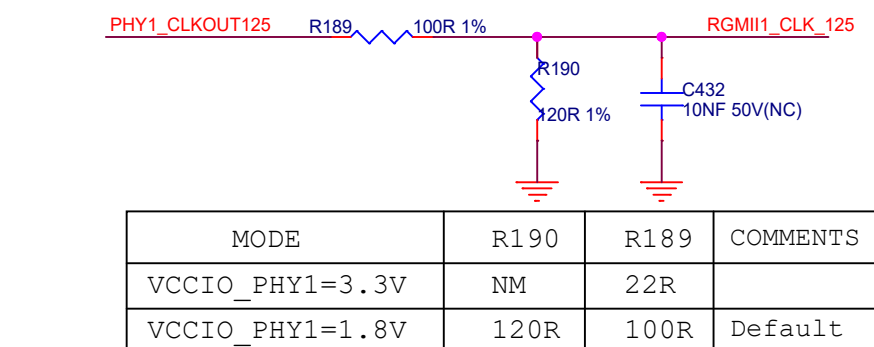
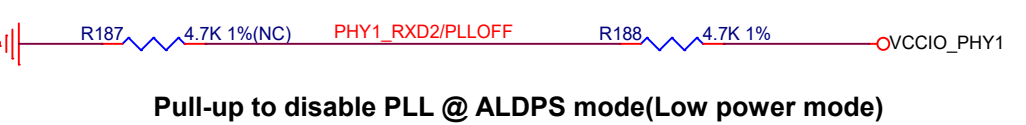
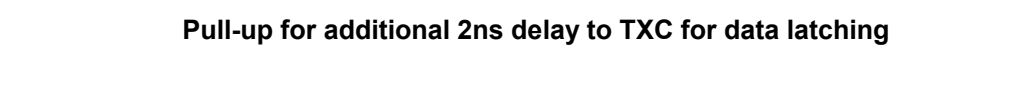
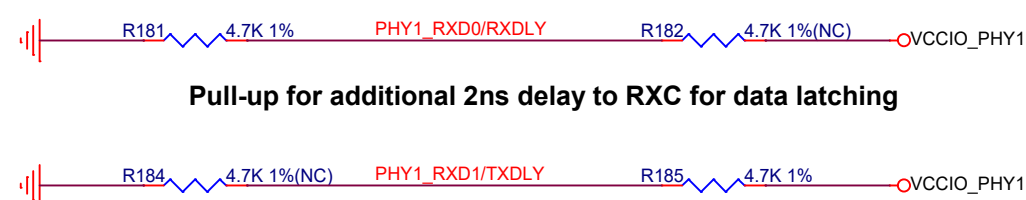
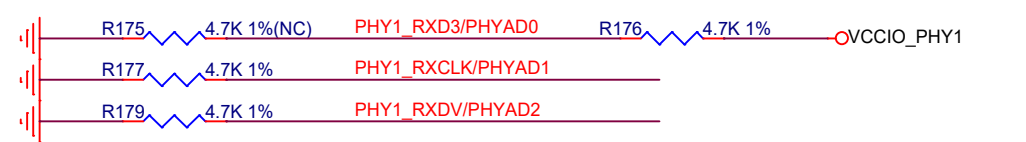
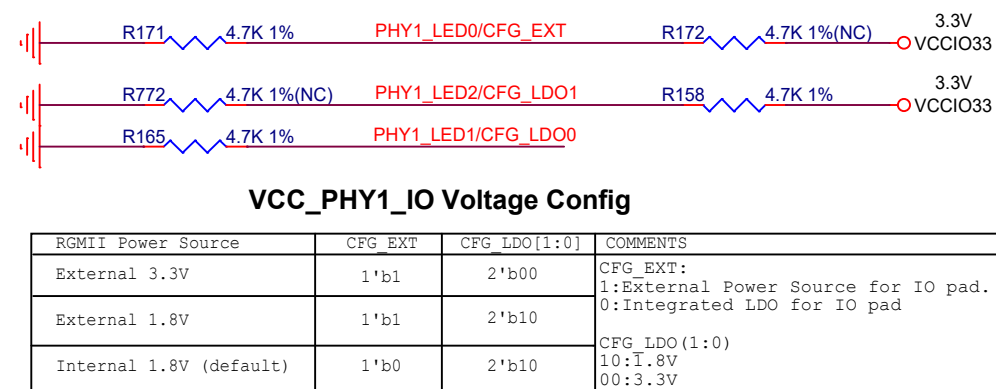
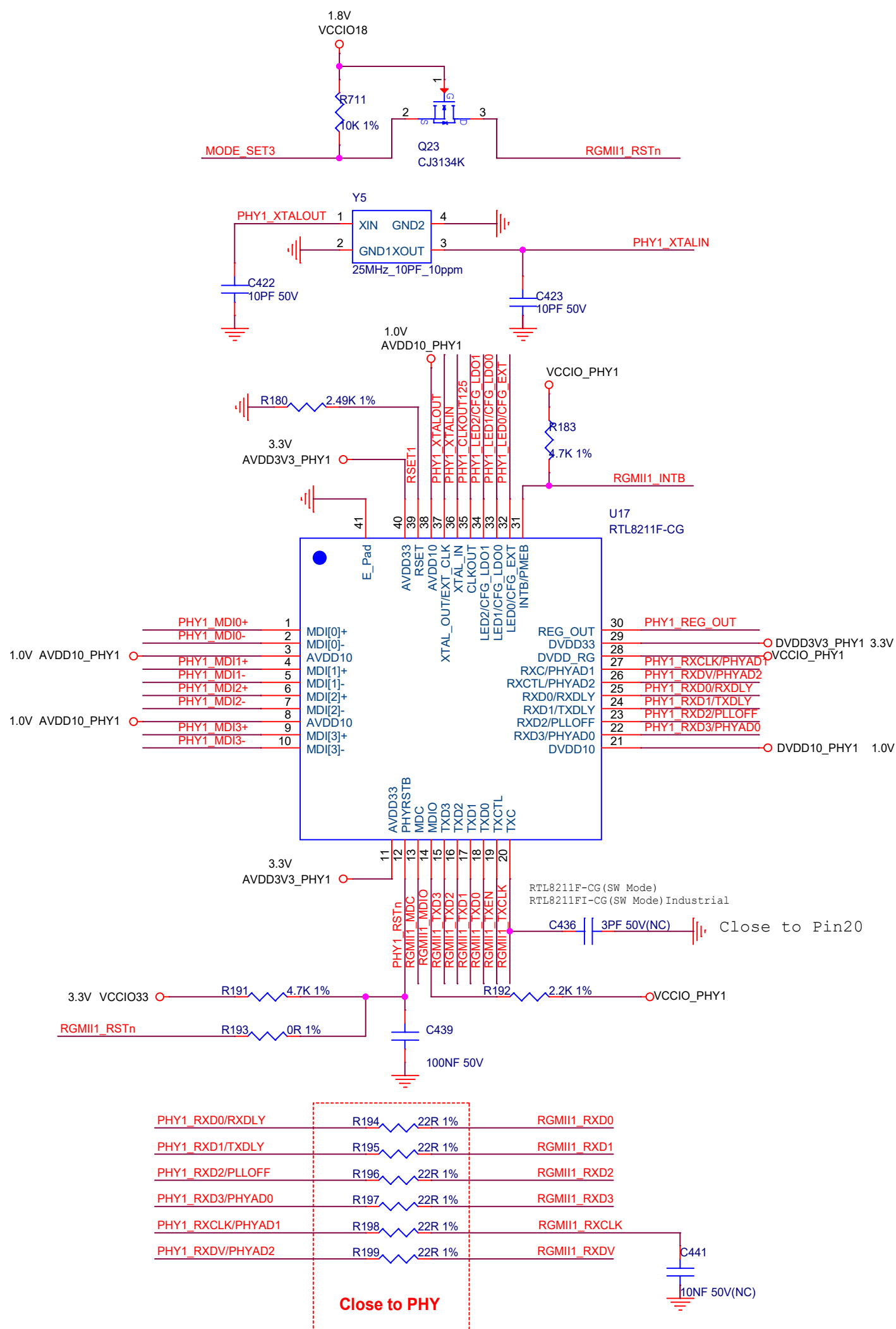
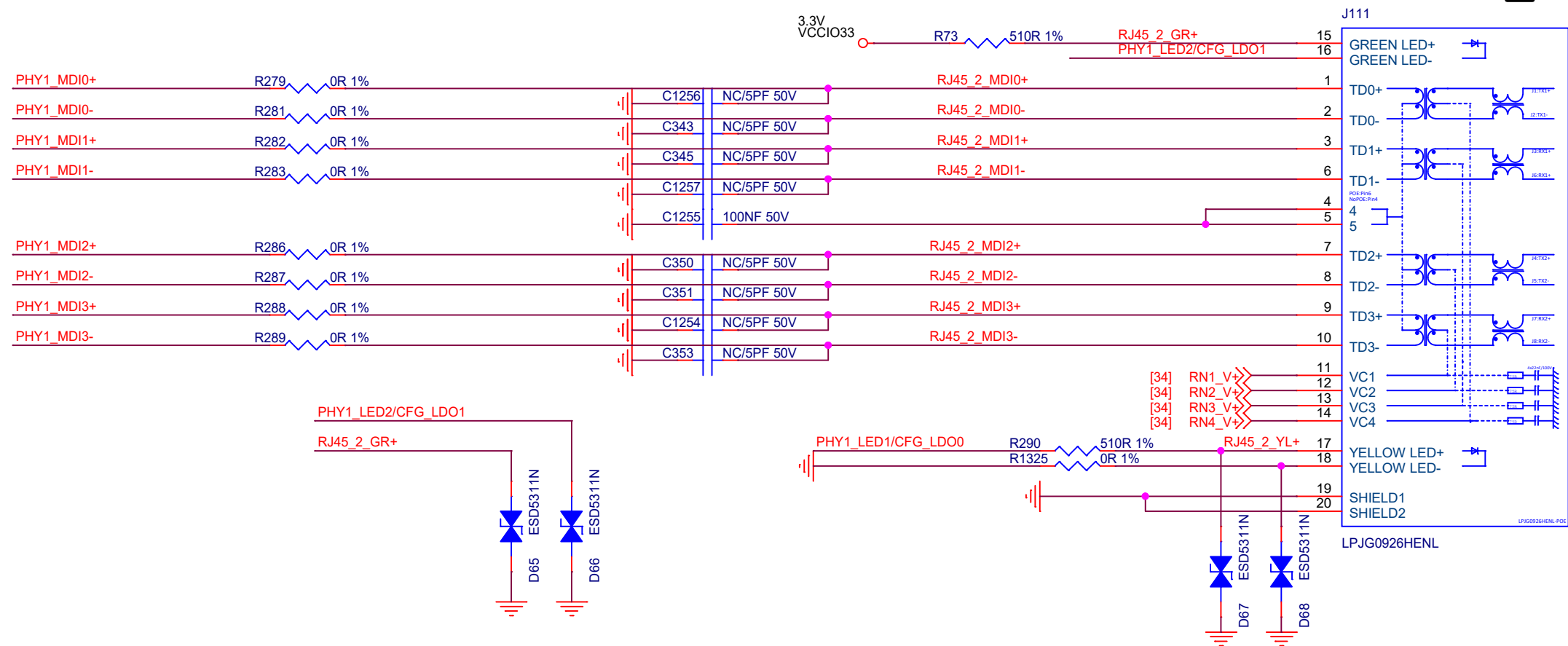
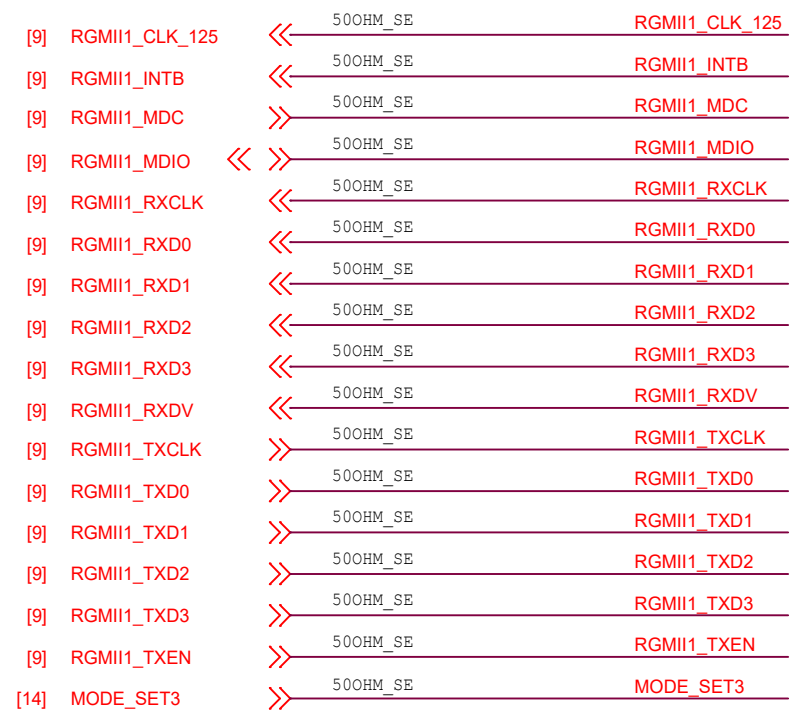


Pull-up to disable PLL @ ALDPS mode(Low power mode)

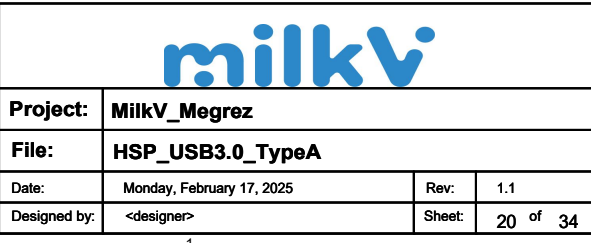


MODE	R145	R144	COMMENTS
VCCIO_PHY1=3.3V	NM	22R	
VCCIO_PHY1=1.8V	120R	100R	Default

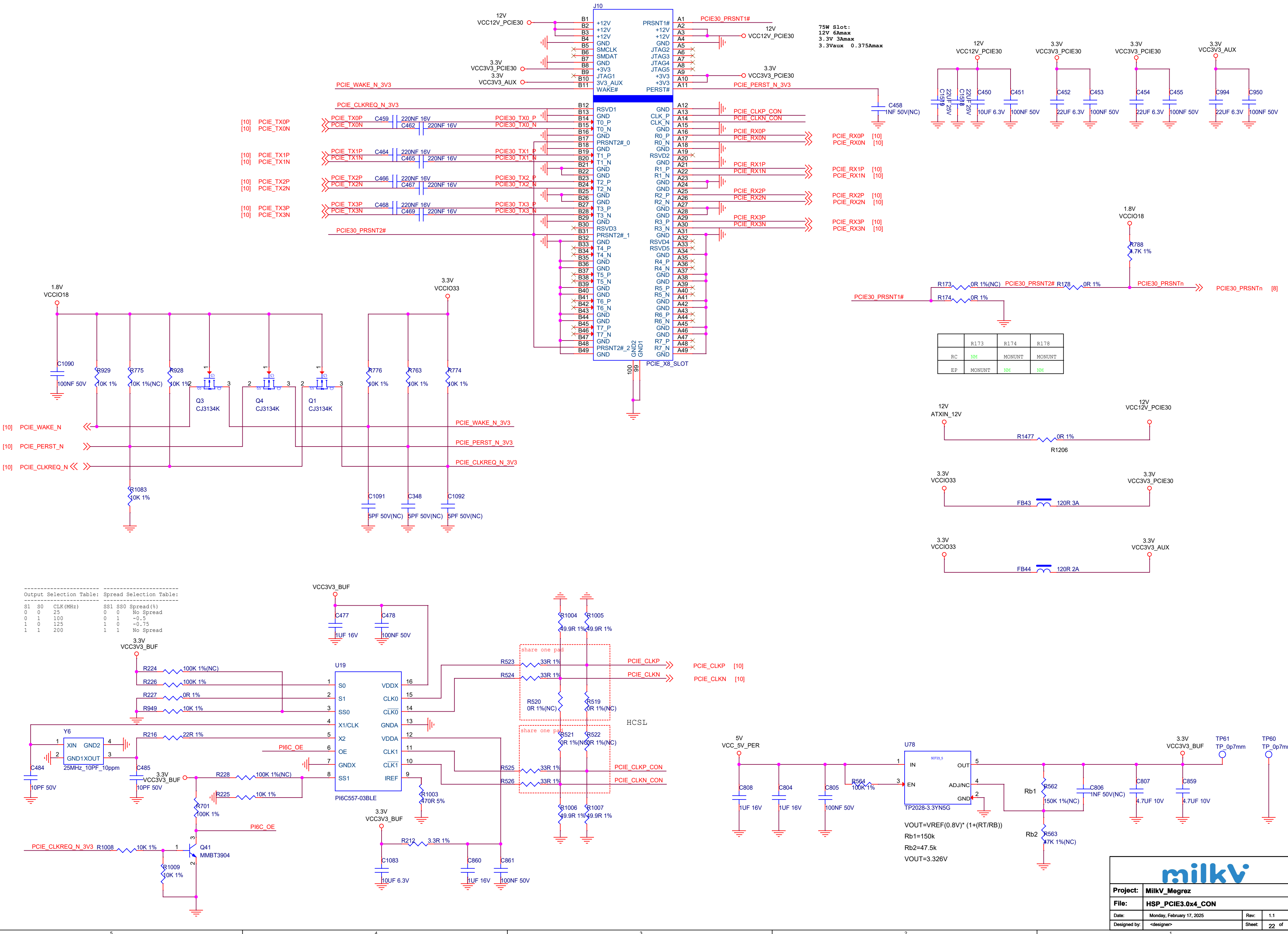




F_USB3

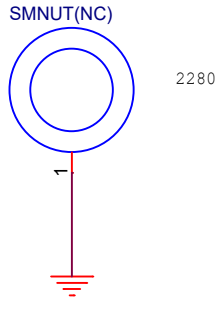
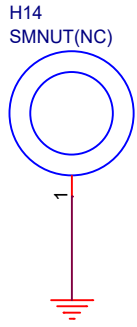
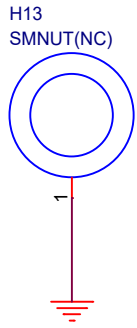
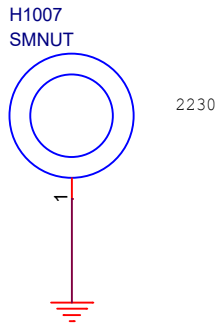
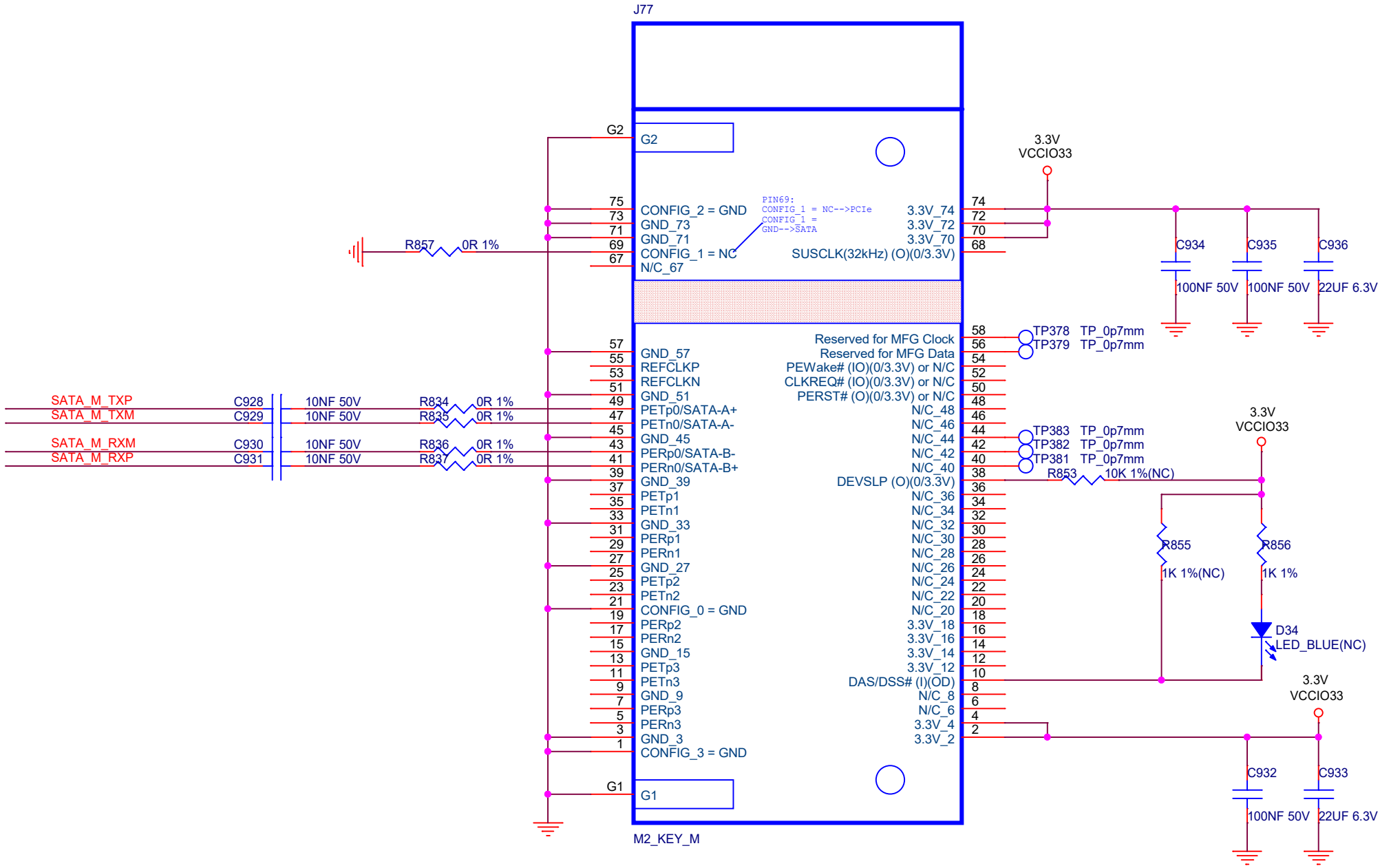
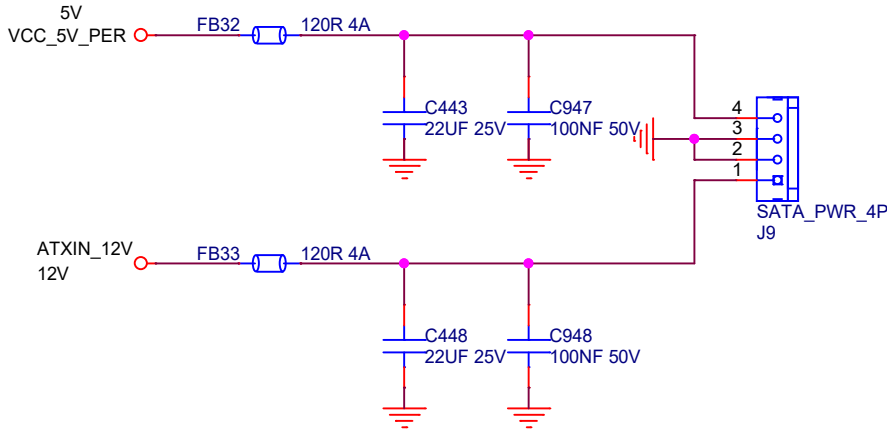
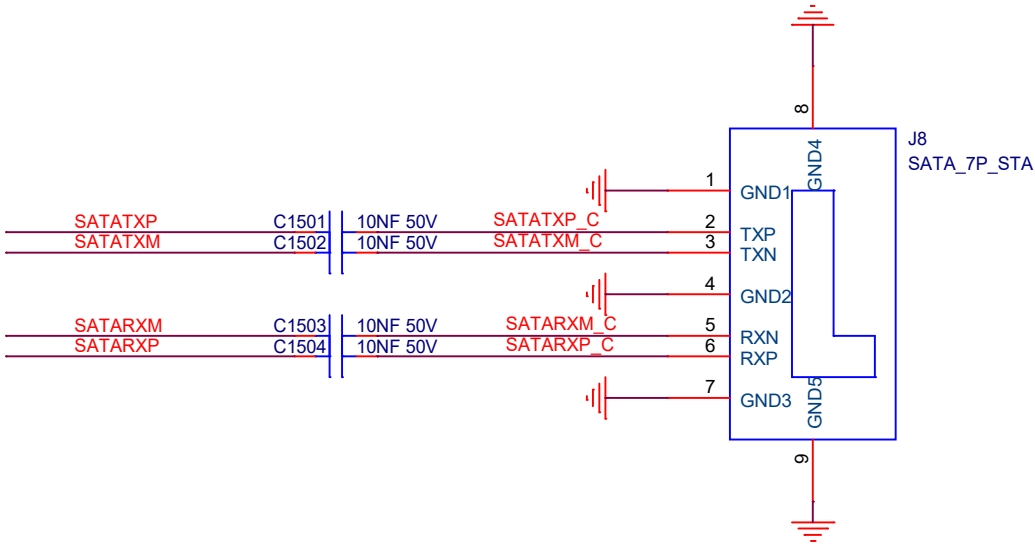
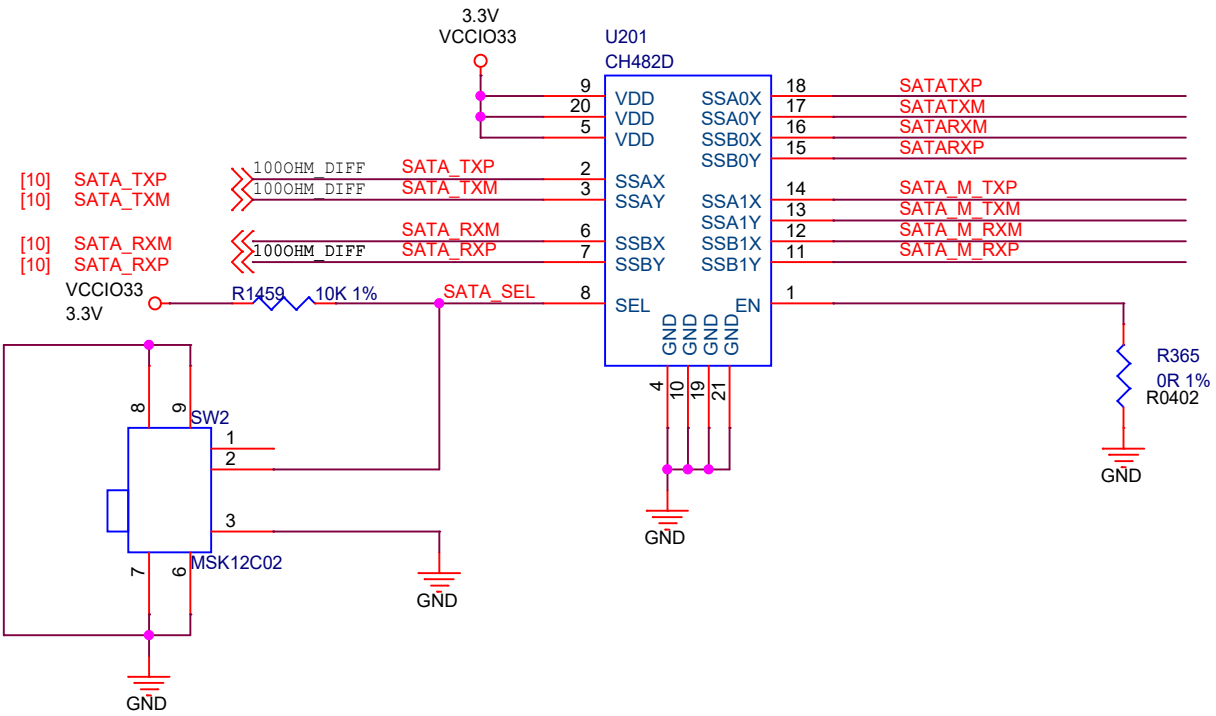


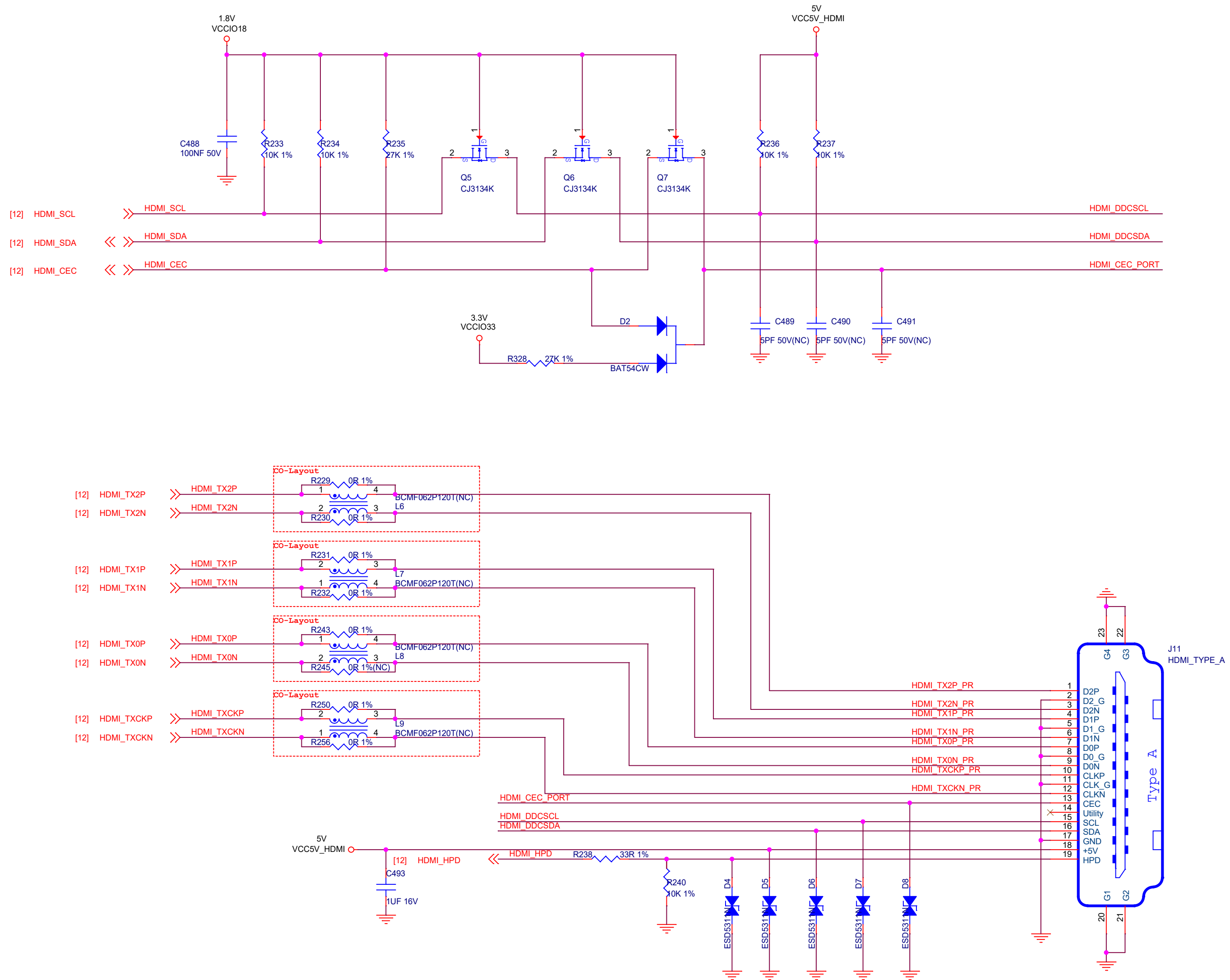
PCIE3.0x4



SATA3.0 Port0

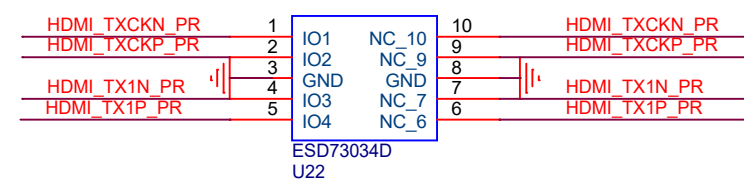
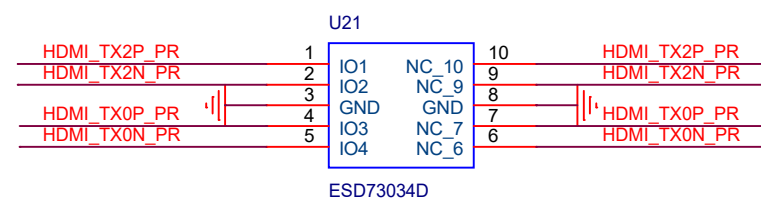
SEL	FUN
L	SEL 0端SS*0*
H	SEL 1端SS*1*

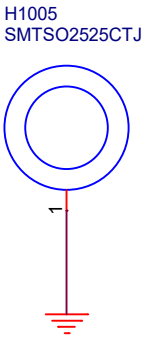
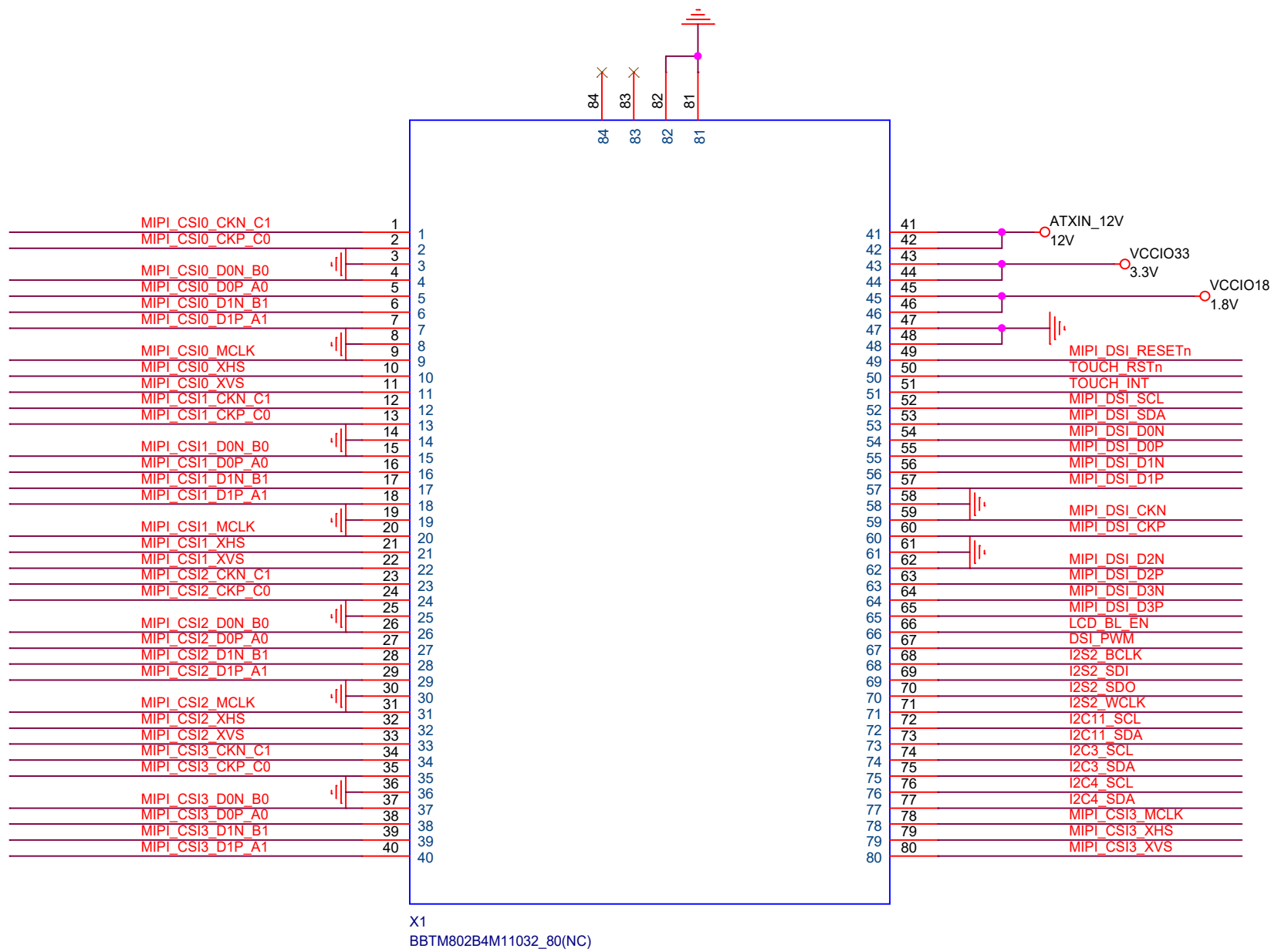
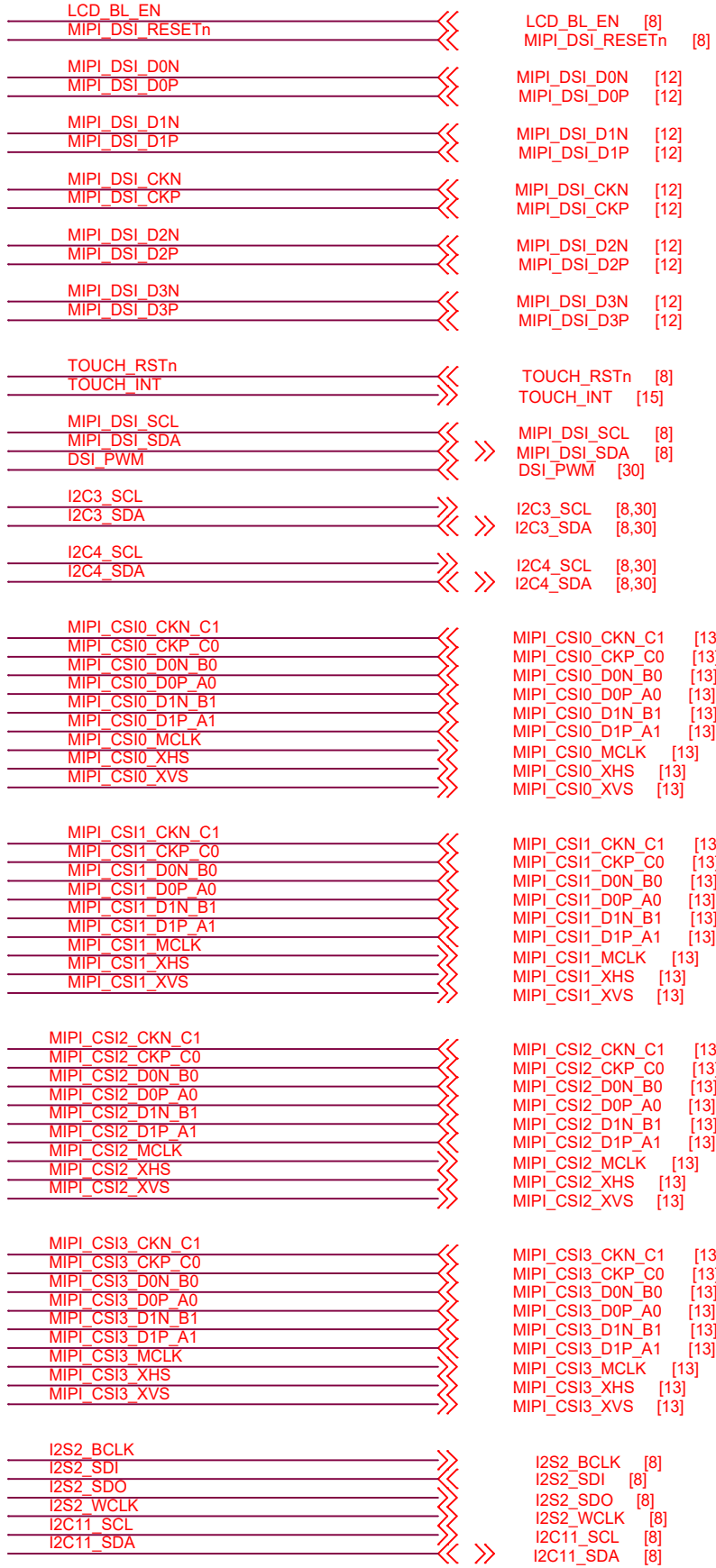


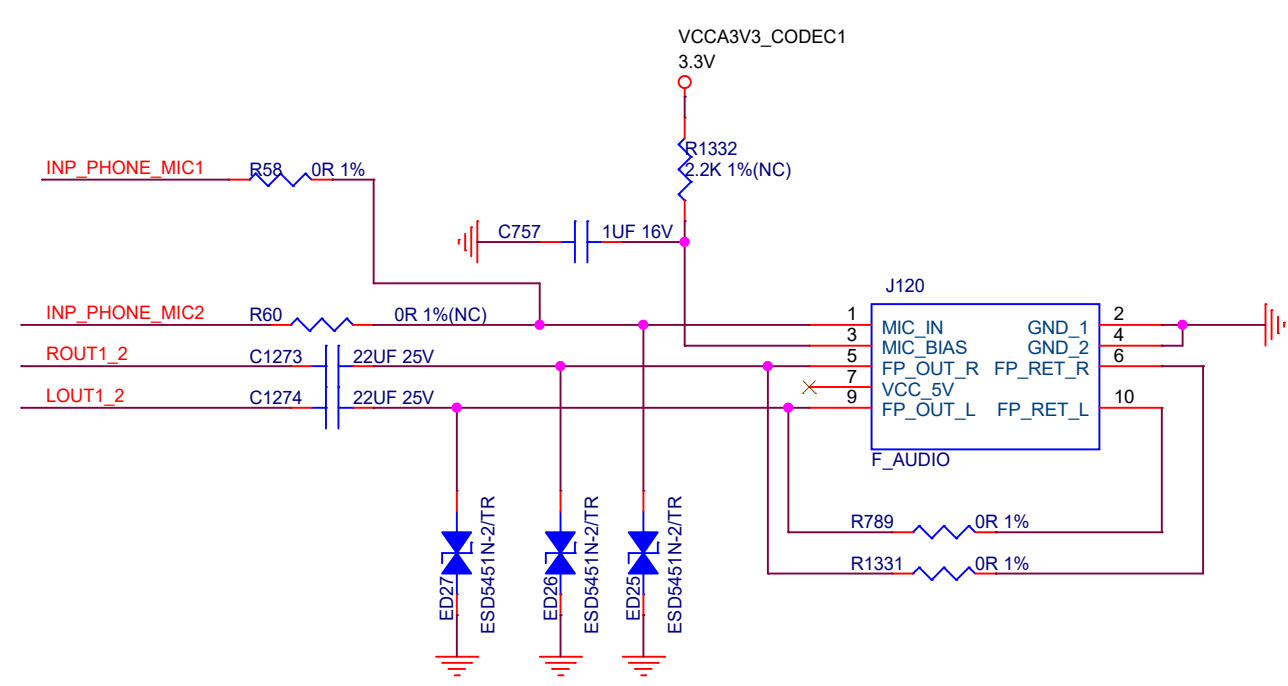
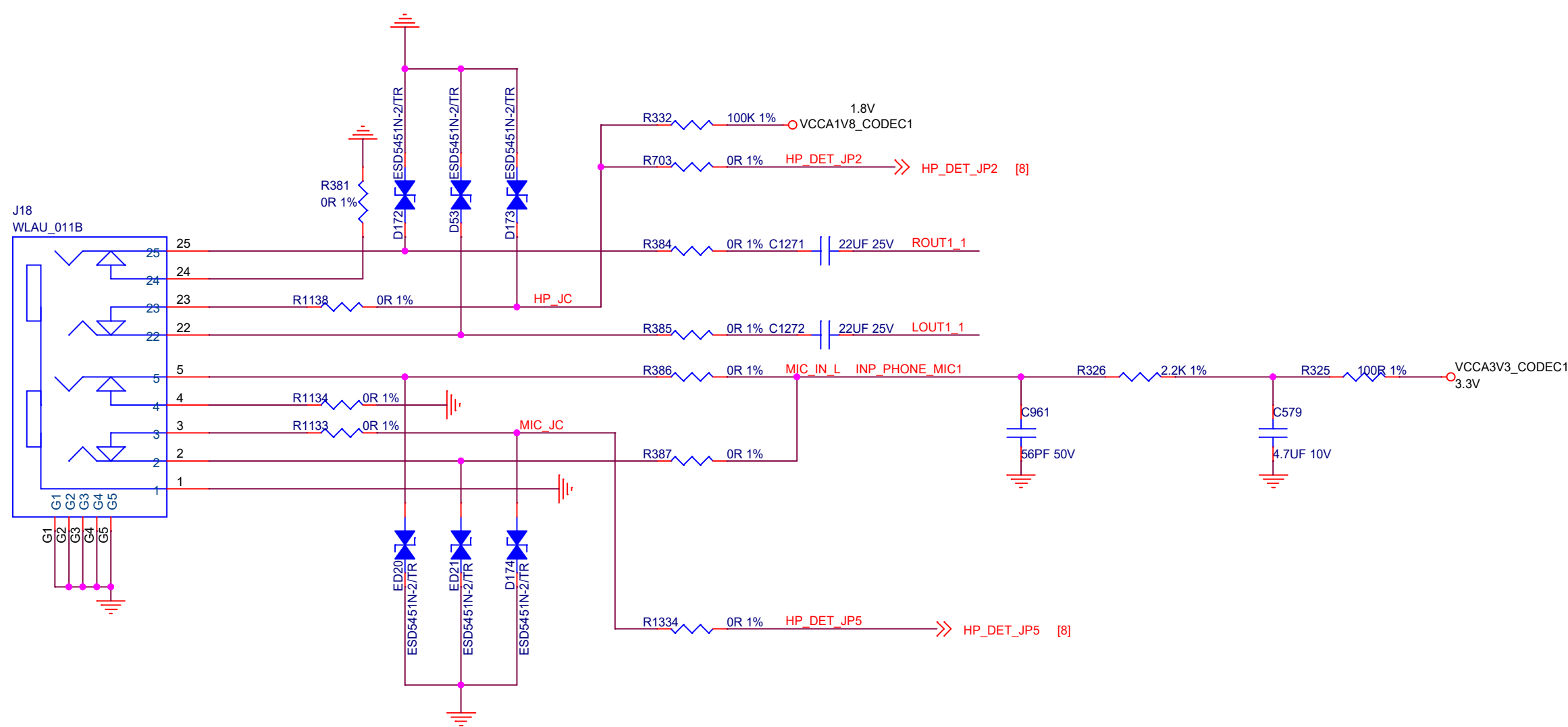
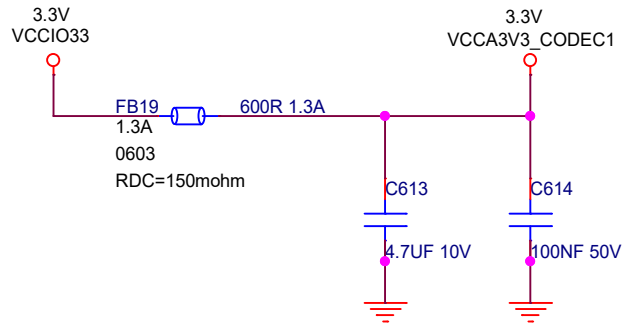
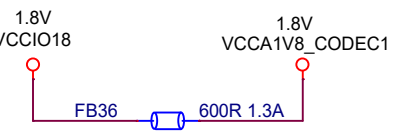


ESD

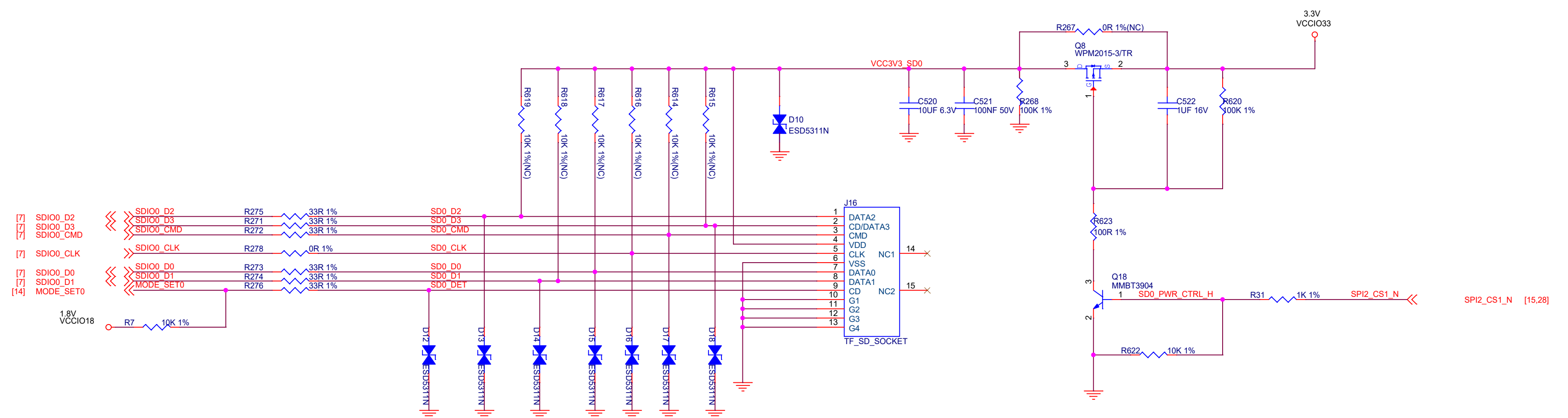
Note: All the ESD components should be placed close to the port and $C_j \leq 0.4\text{pF}$



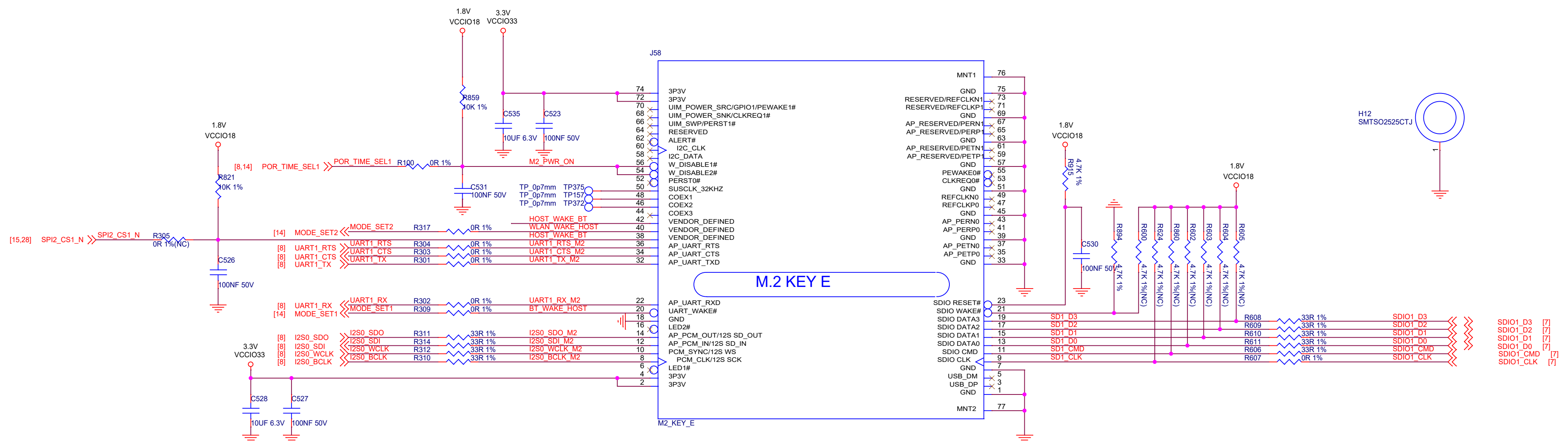


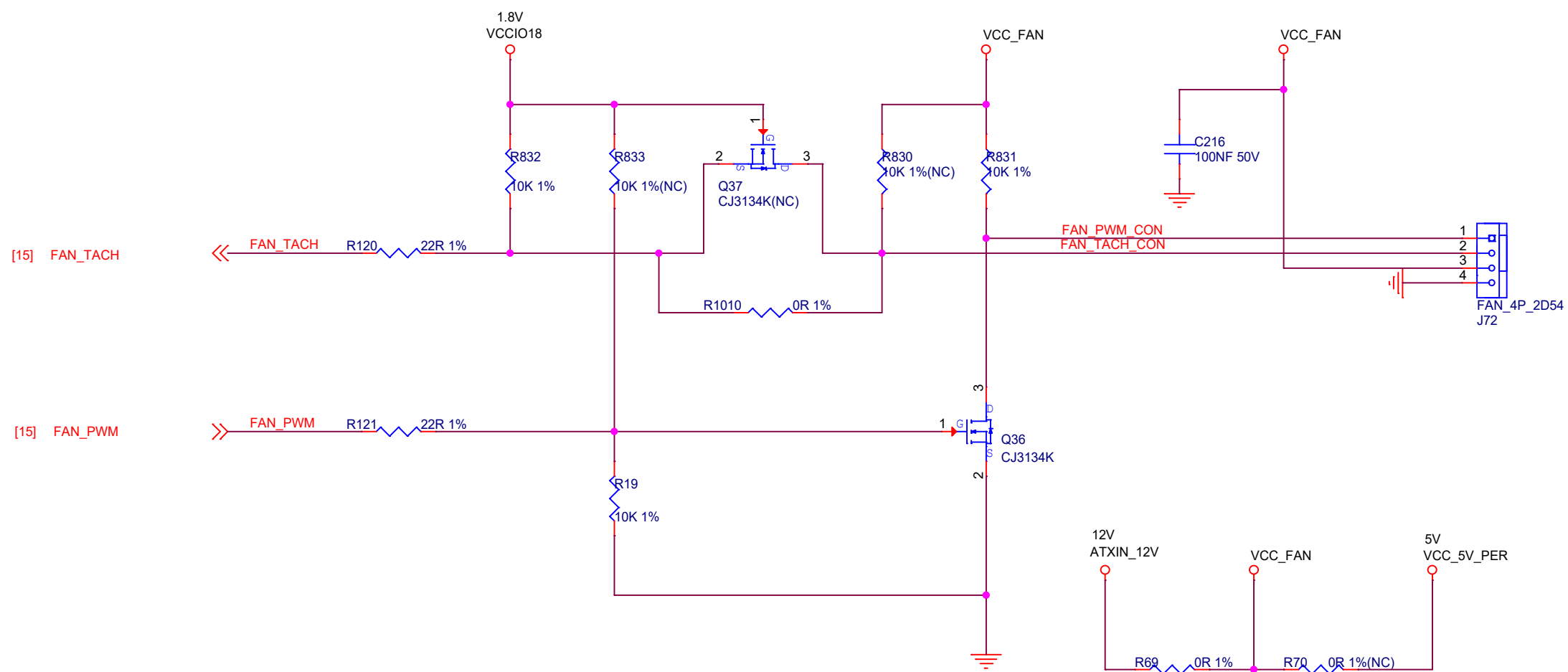


TF CARD
SDIO0

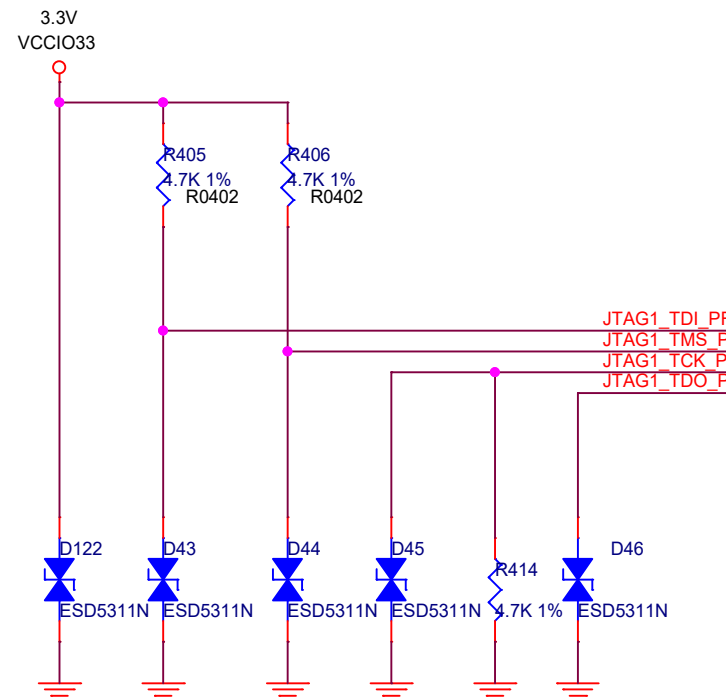
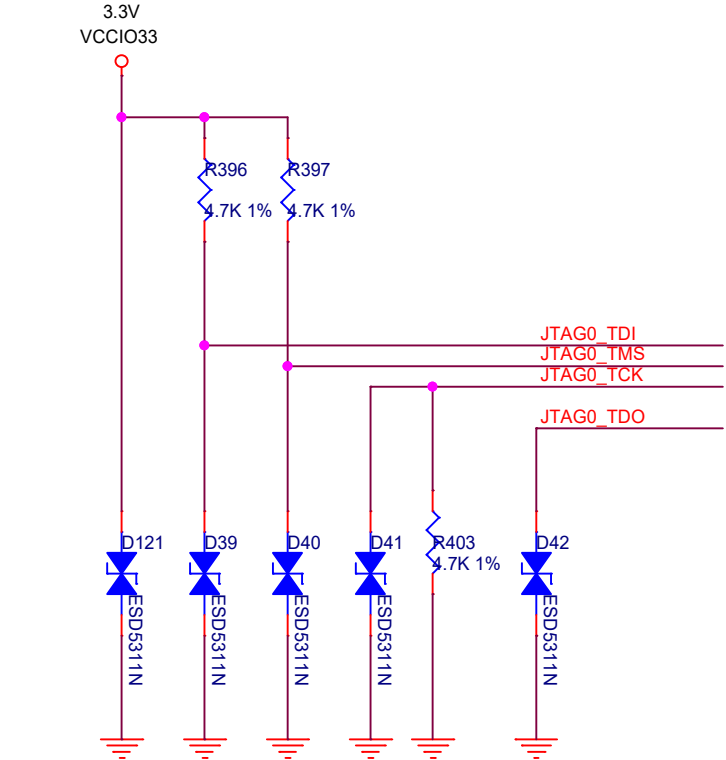
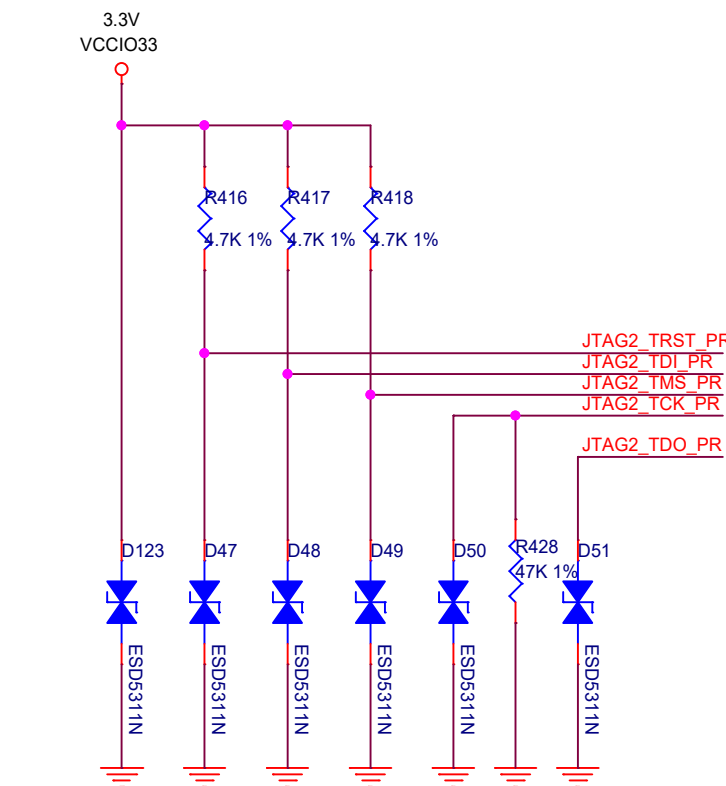
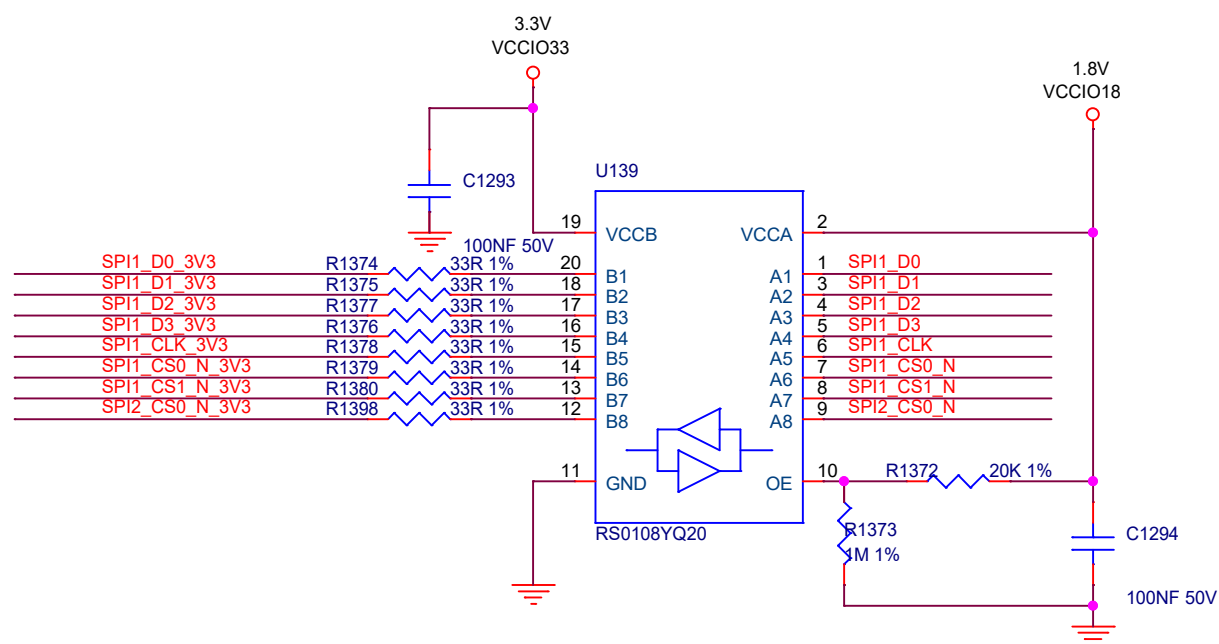
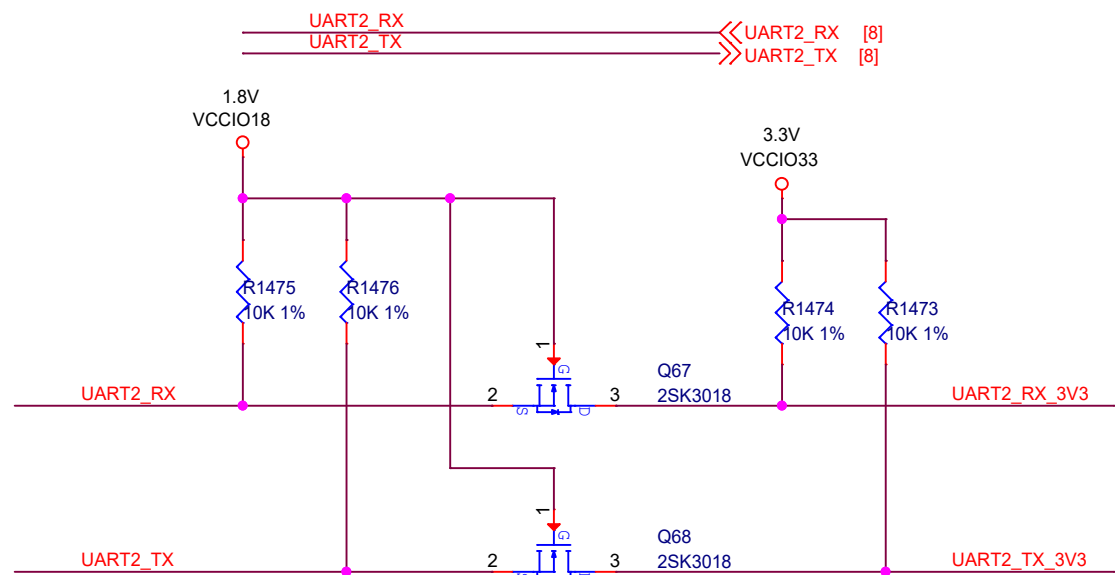
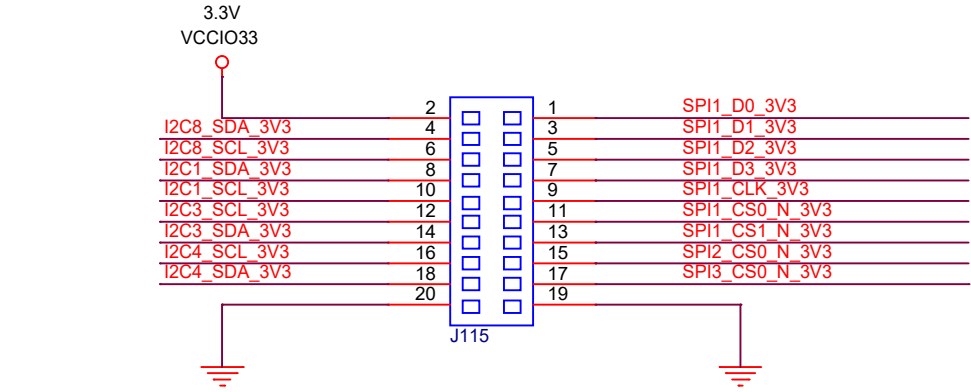
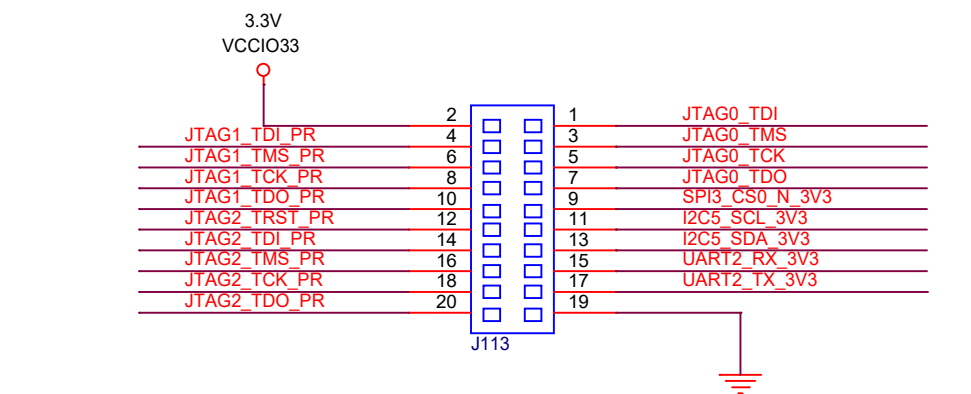


WIFI M.2 Socket
SDIO1

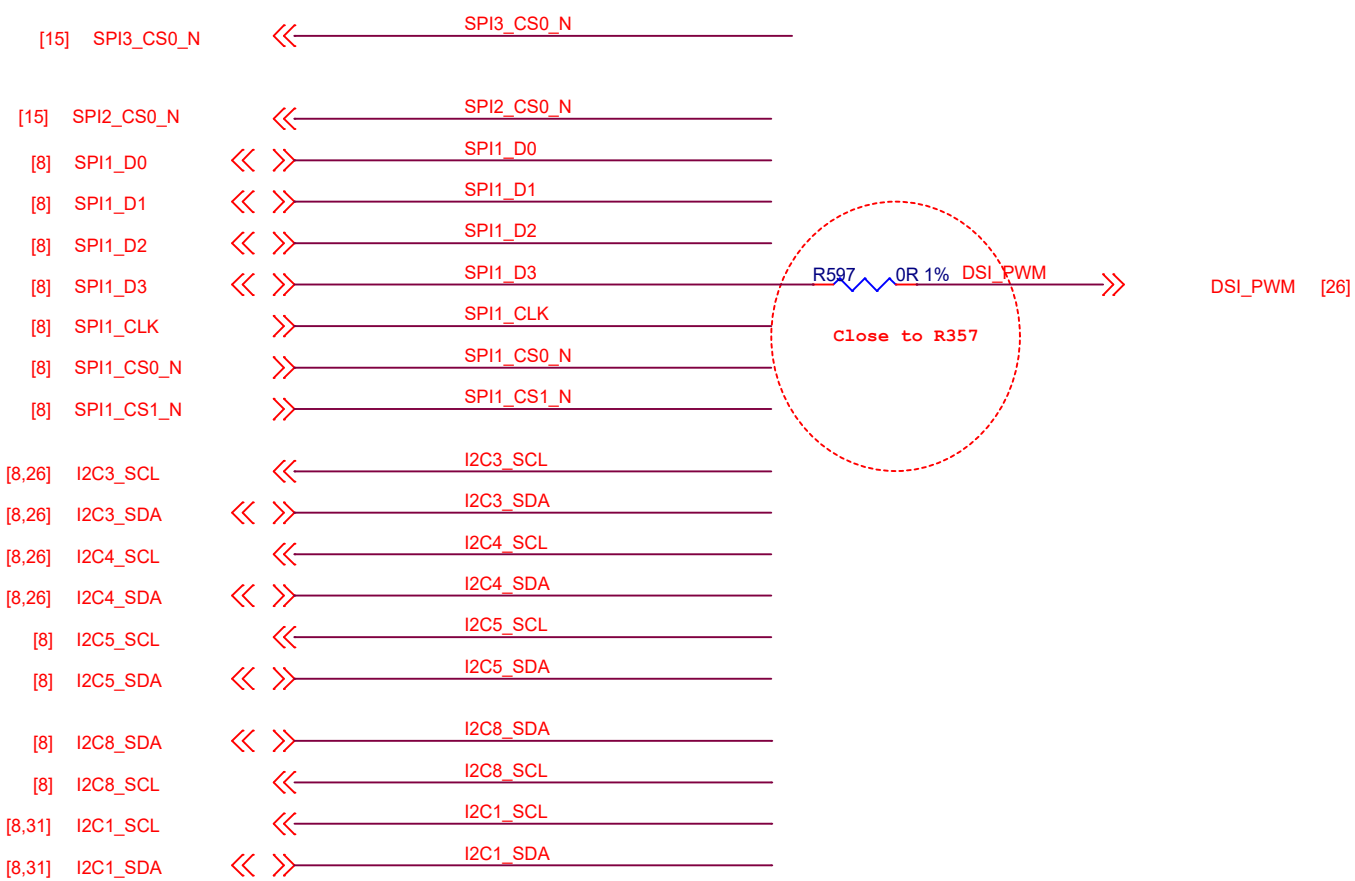
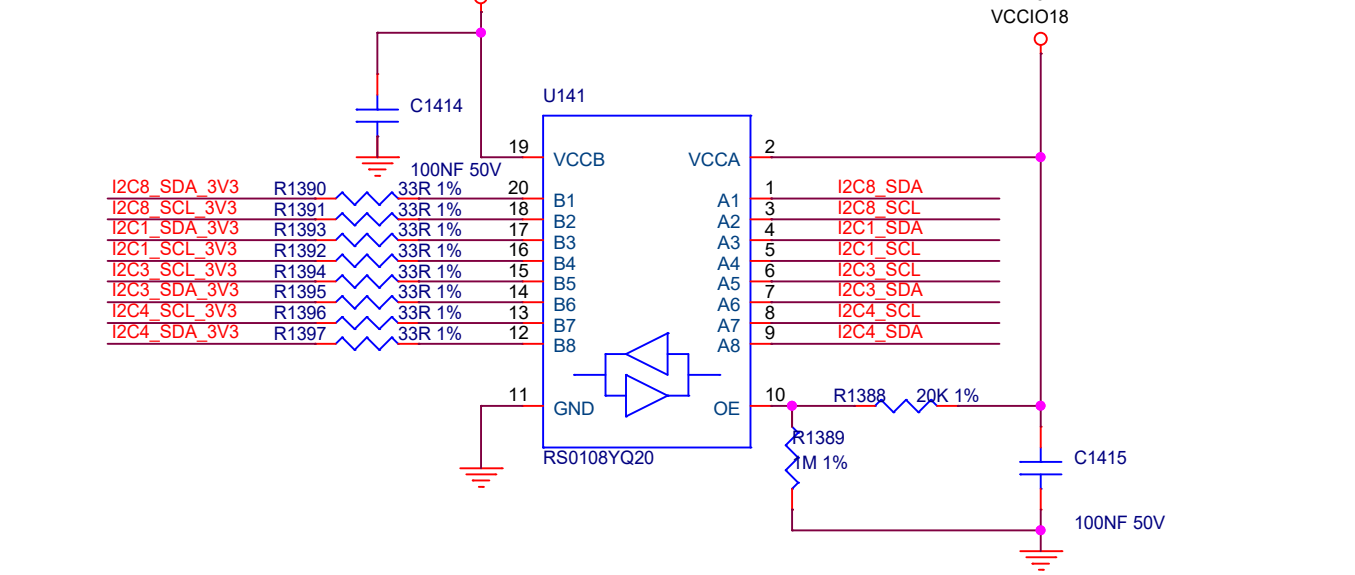
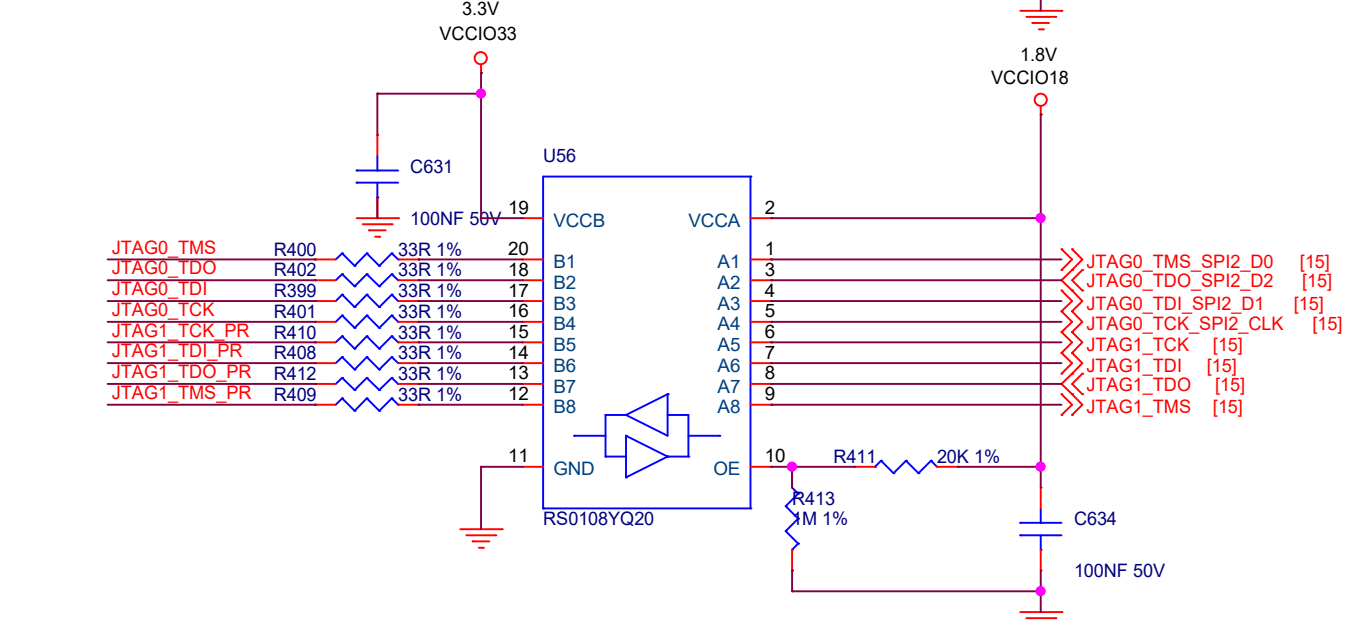
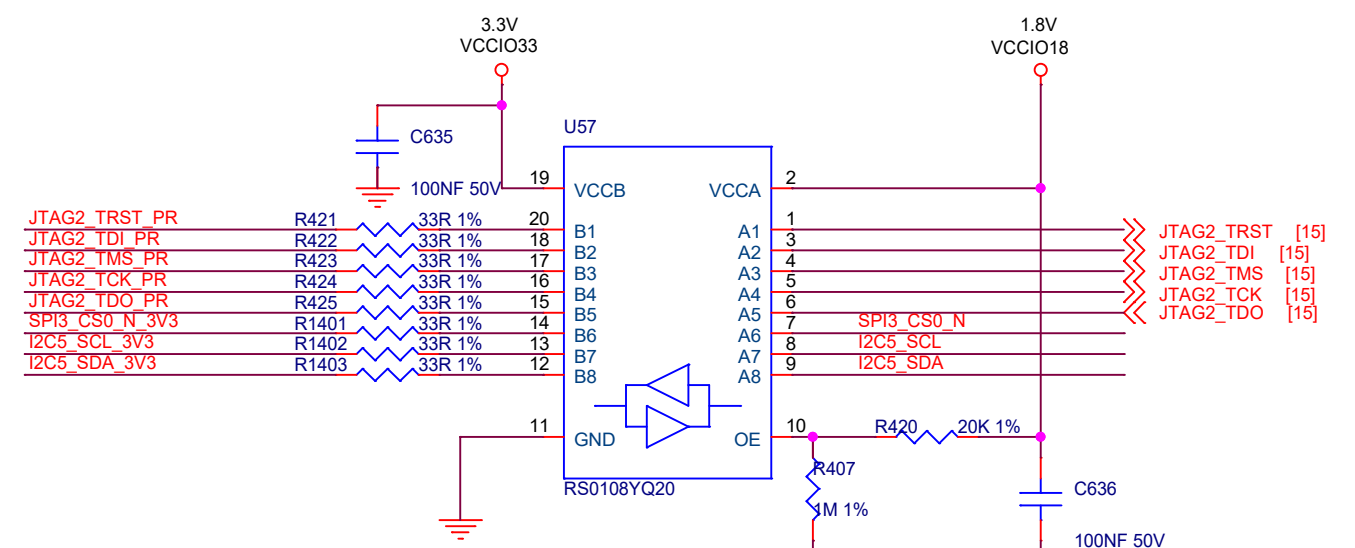


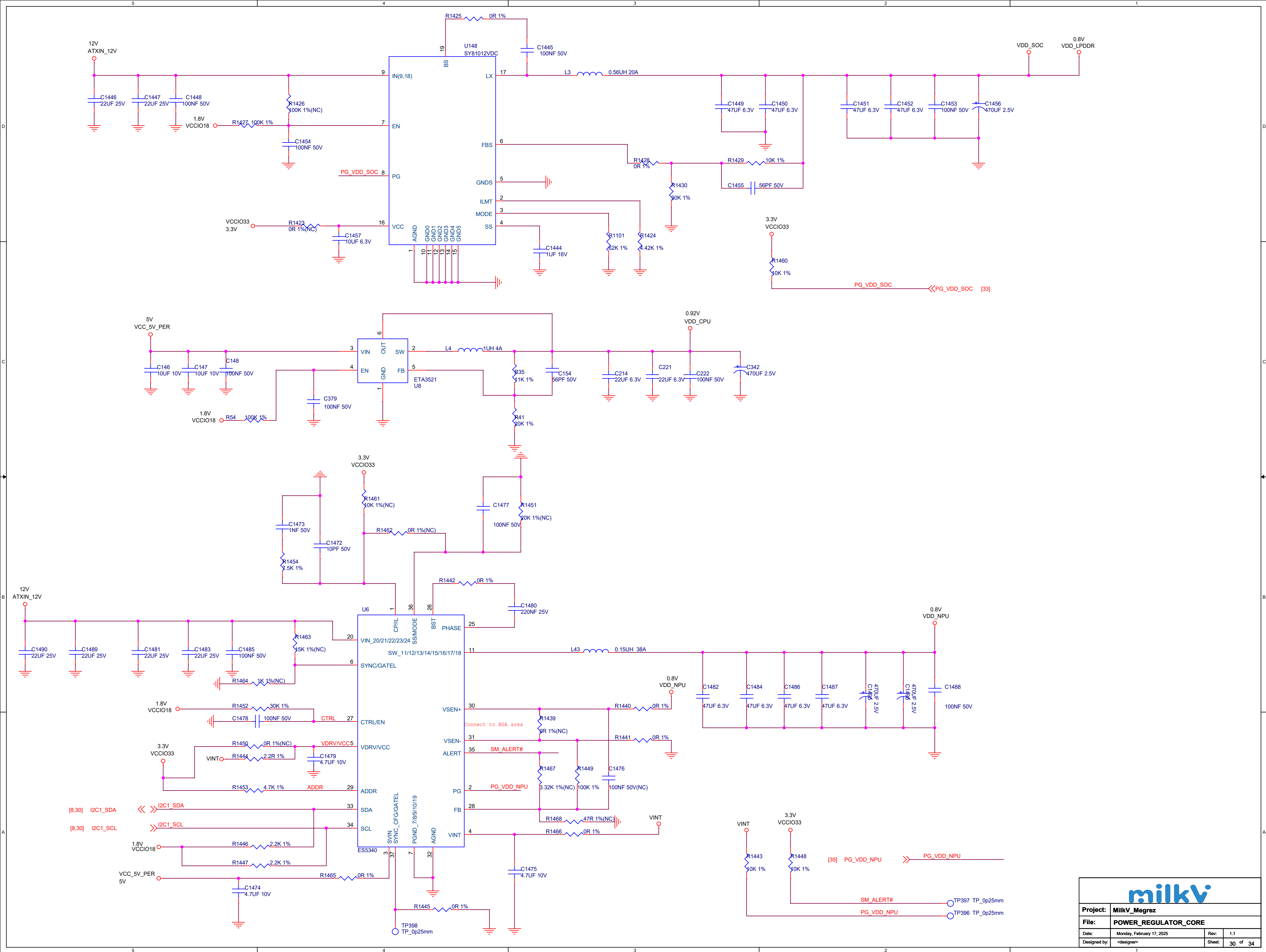


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File: LSP_FAN			
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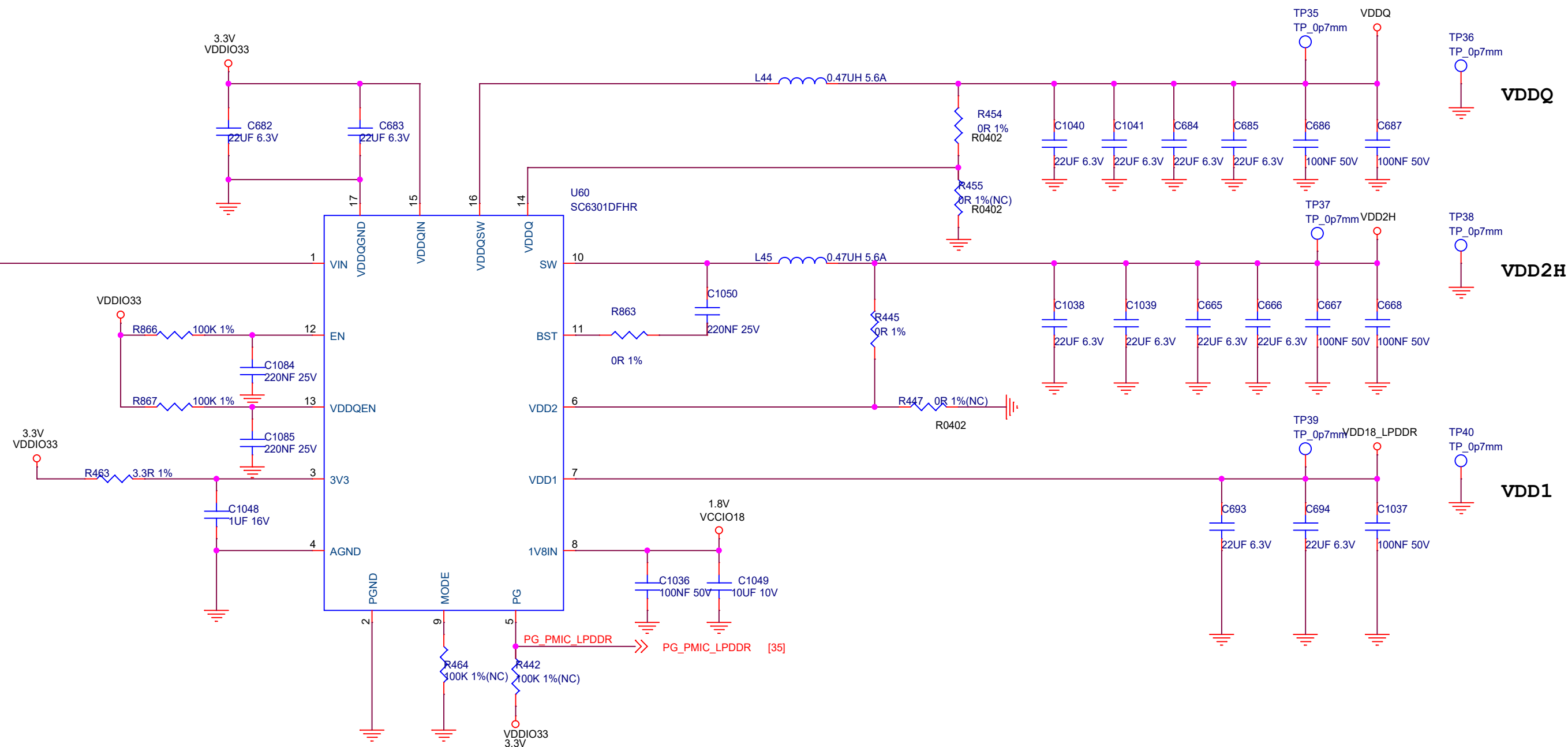
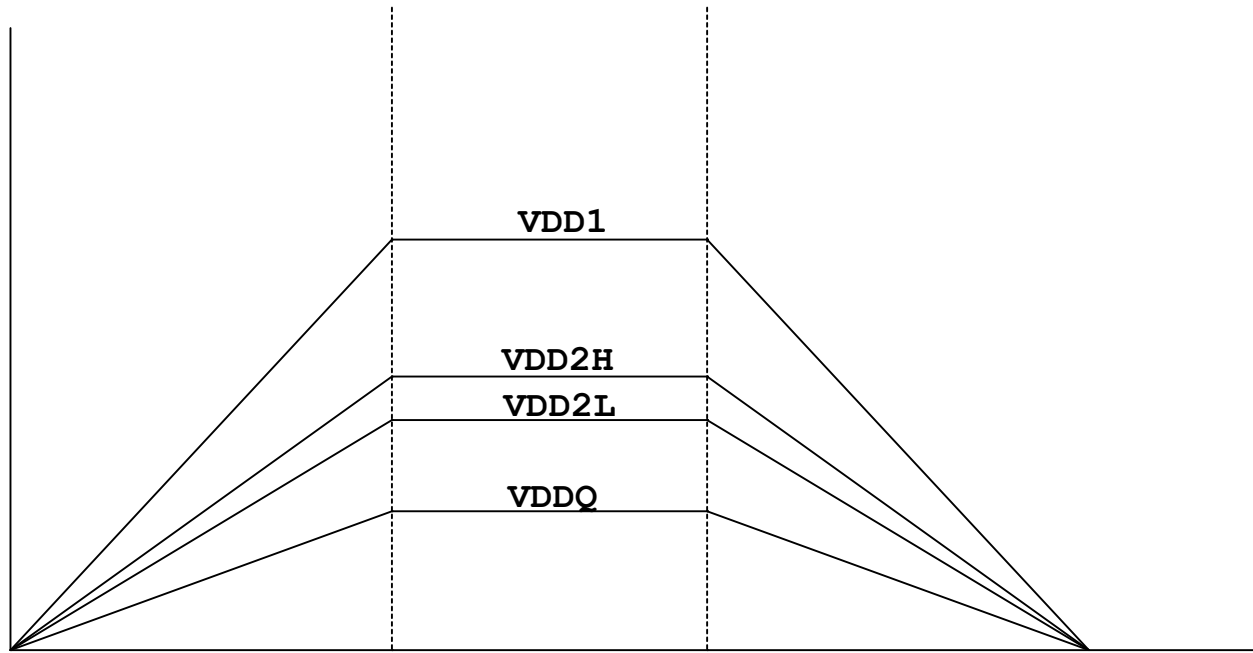


JTAG1

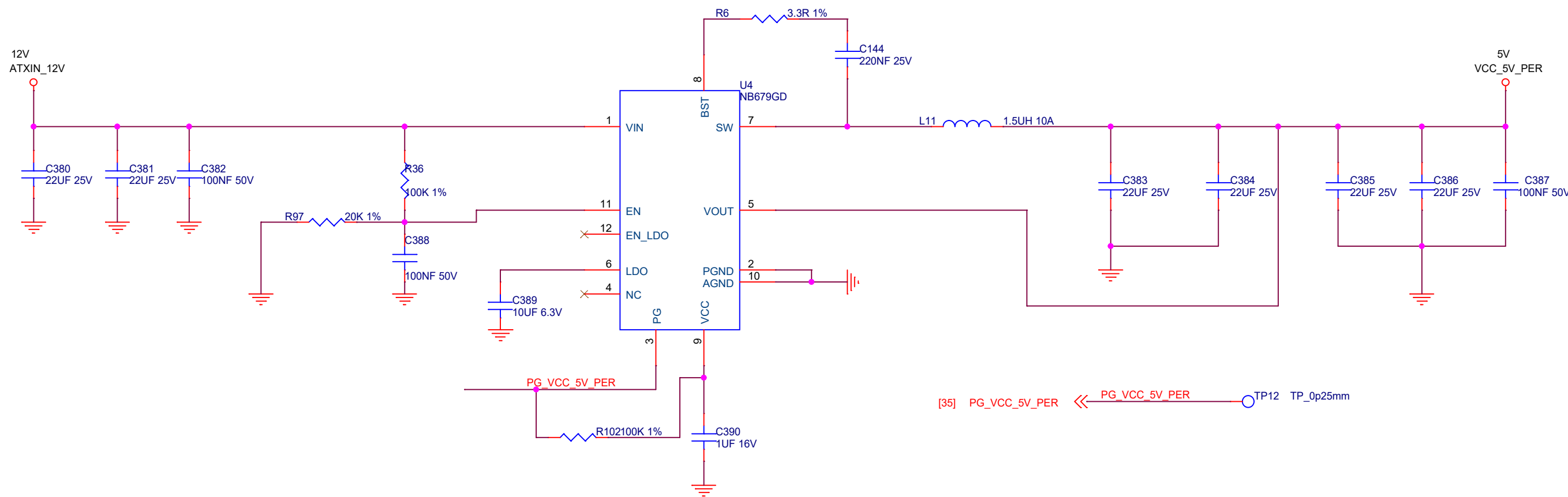


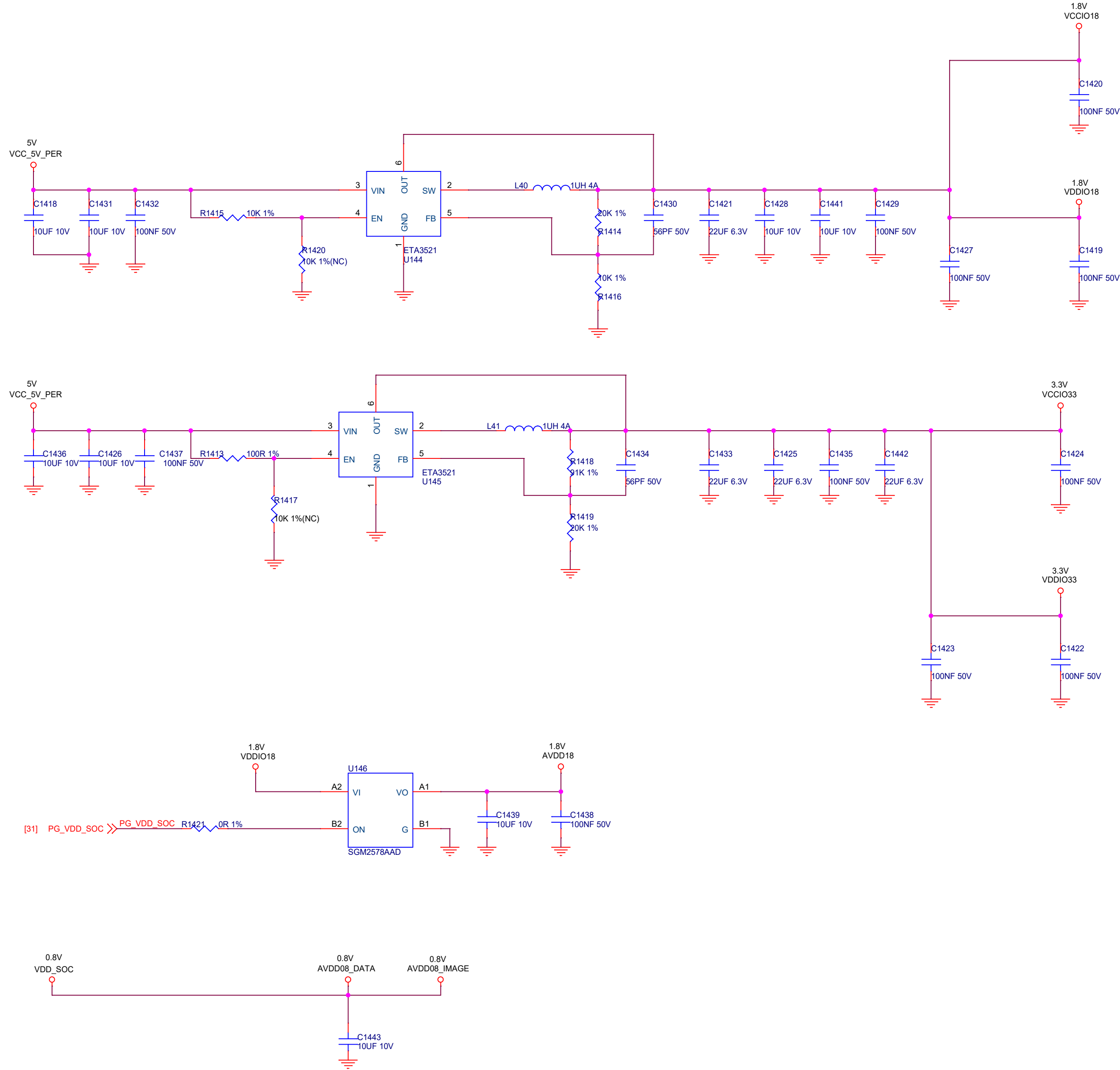


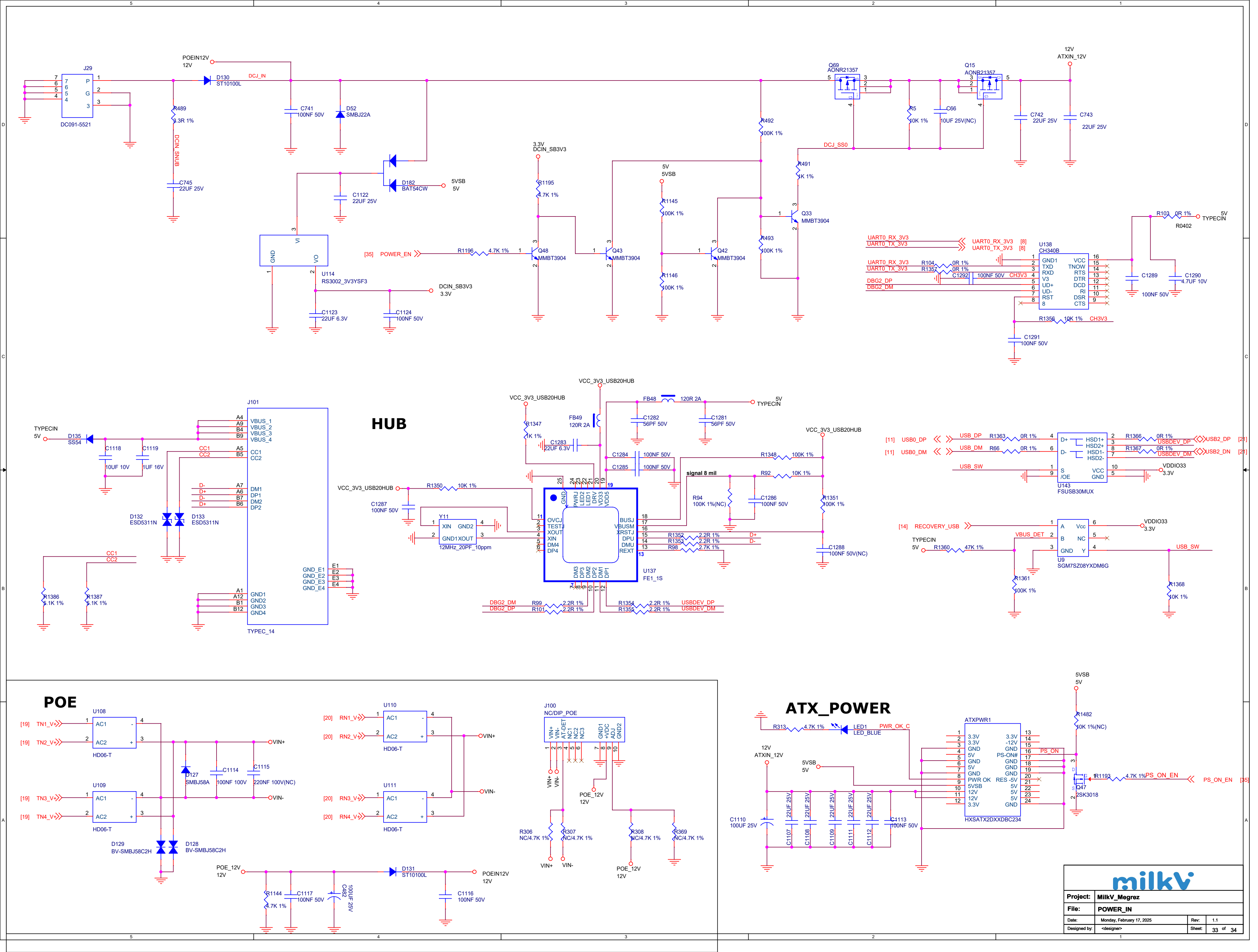
Power on/off Sequence: VDD1>VDD2H>=VDD2L>VDDQ-200mV
VDD1: 1.70V--1.95V,Power for core1.
VDD2H:1.01V--1.12V,Power for core2 and Input Buffer.
VDD2L:0.87V--0.97V,Power for core2 and Input Buffer.
VDDQ: 0.47V--0.57V,Power for I/O Buffer.

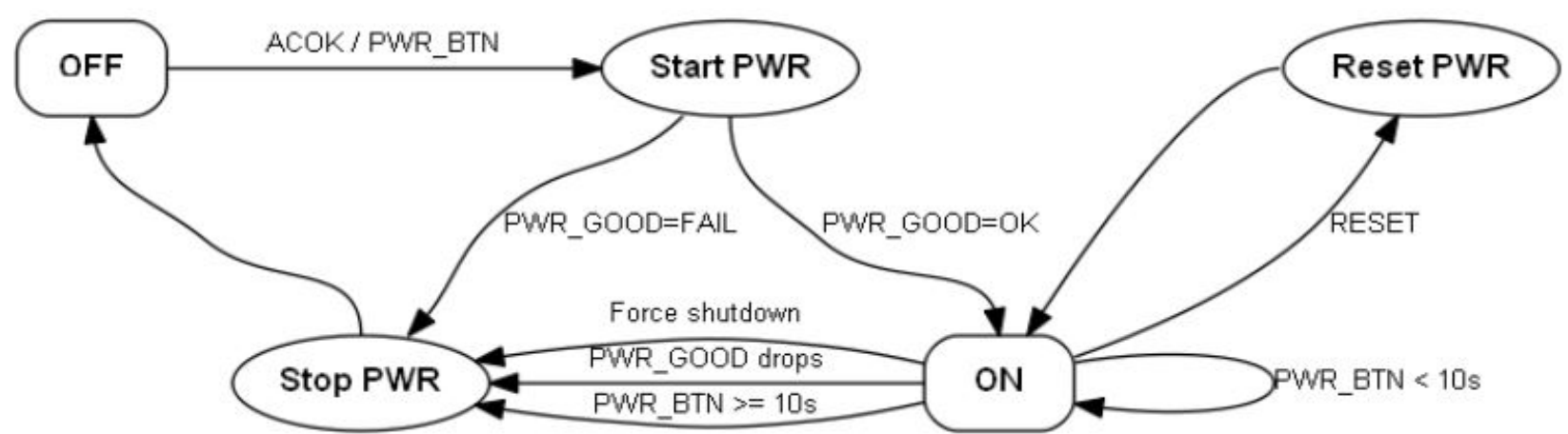
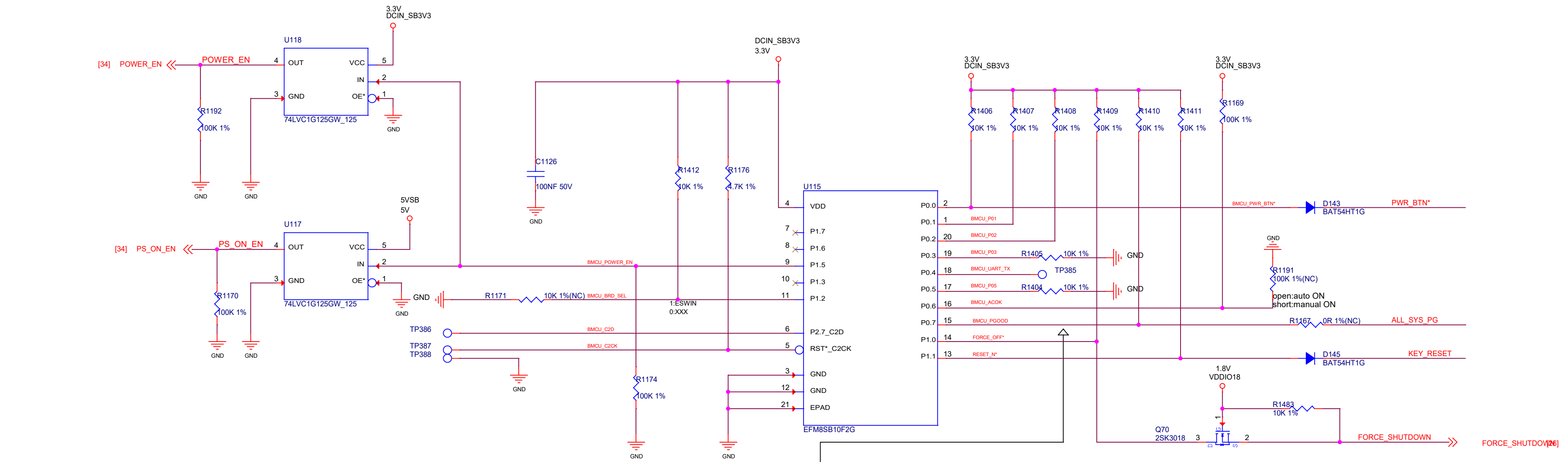


Ref	Value	VDD2	VDDQ	Description
R464	Float or 232K	1.065	0.505	LPDDR5
R464	100K	1.1	0.605	LPDDR4X/4

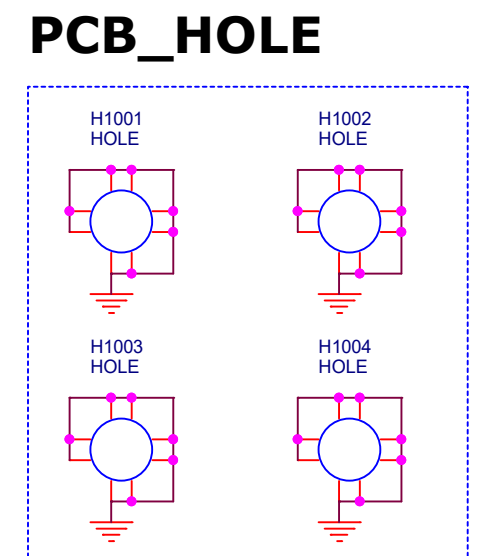




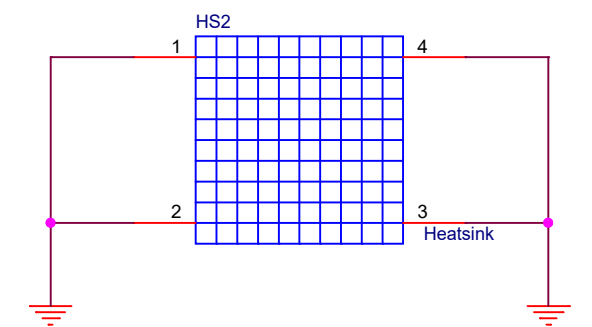
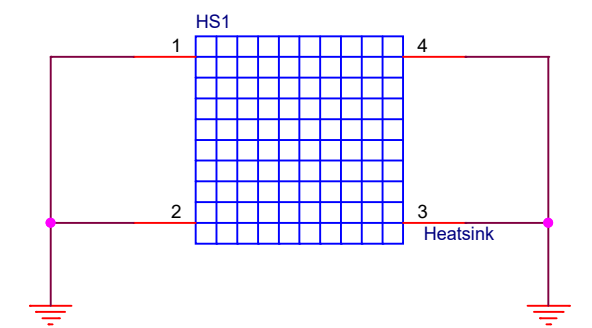
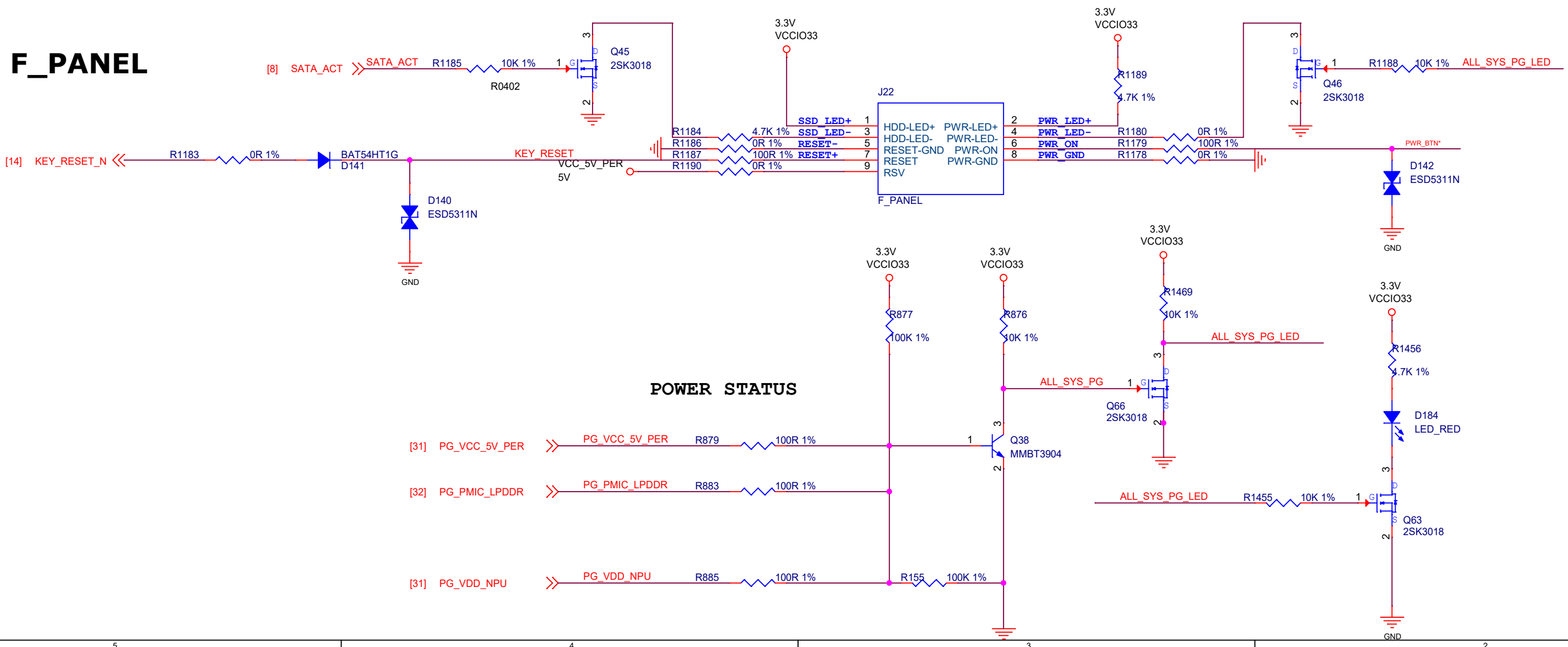




ALL_SYS_PG POWER GOOD SIGNAL IS USED AS AN INDICATOR THAT THE MODULE HAS POWERED UP PROPERLY. HENCE, ALL_SYS_PG IS TIED TO PG00D OF BUTTON MCU.



F_PANEL



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