

AM263x CC AUTO
PROC153E2

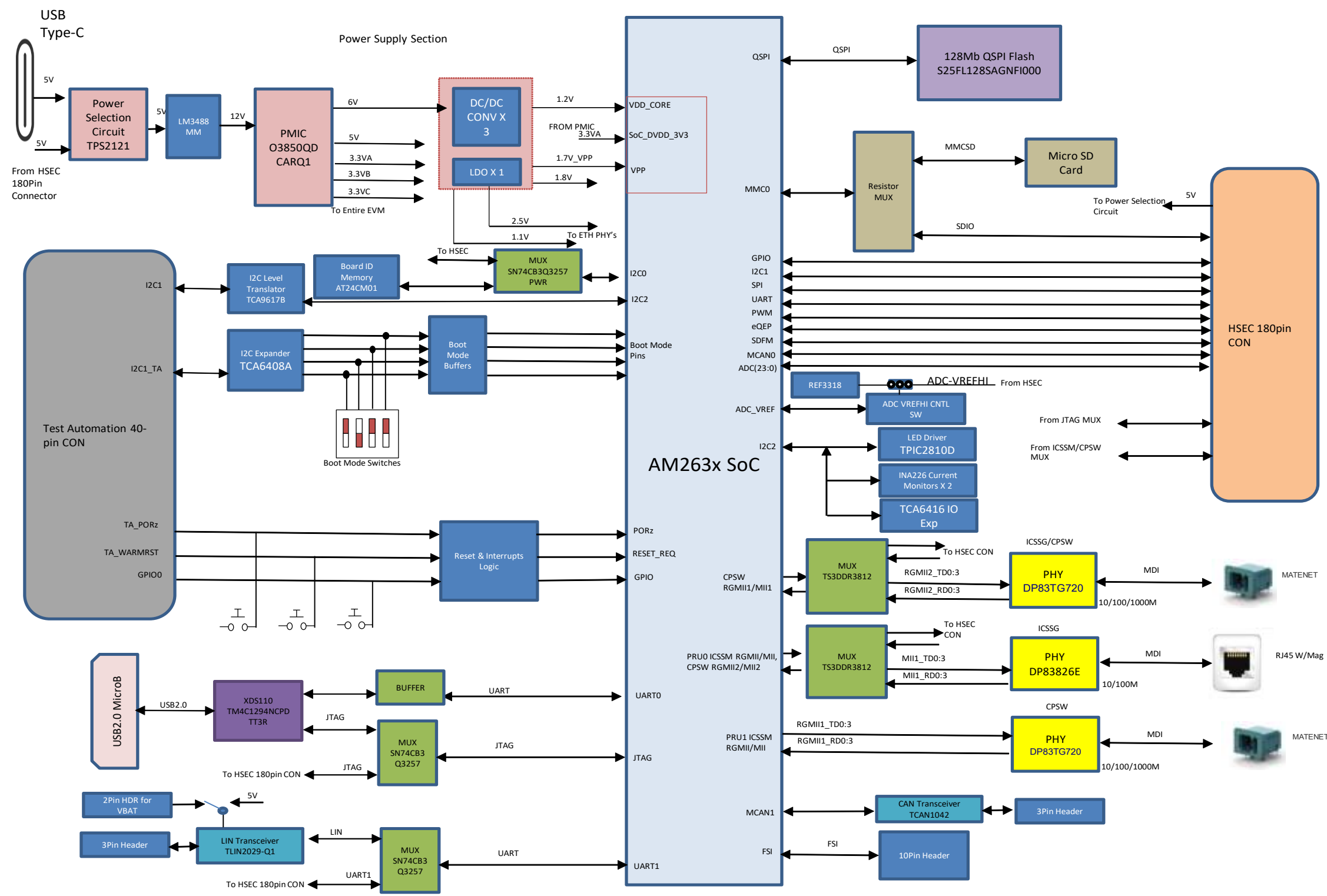
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REVISION HISTORY

REV #	DATE	DESCRIPTION OF CHANGES	AUTHOR	REVIEWED BY	APPROVED BY
E1	04 APR 2022	Drafted from E2	Mistral Design Team		
	09 MAY 2022	Updated TI comments about power section	Mistral Design Team		
	22 JUL 2022	Updated TI comments about power section	Mistral Design Team		
	03 AUG 2022	Updated U66 Part to TPS75801	Mistral Design Team		
	14 OCT 2022	Updated RESET section as per TI comments	Mistral Design Team		
	18 NOV 2022	Updated TI comments	Mistral Design Team		
	05 DEC 2022	Updated TI comments and Changed SOC refdes to U1	Mistral Design Team		
E2	02 MAY 2023	Changed the supply from VSYS3V3_C to VSYS3V3_A for some sections as per the TI comments	Mistral Design Team		
	23 MAY 2023	Changed the location of Q17 from boost converter to PMIC Ignition pin and added 47uF for VMAIN supply	Mistral Design Team		

SYSTEM BLOCK DIAGRAM



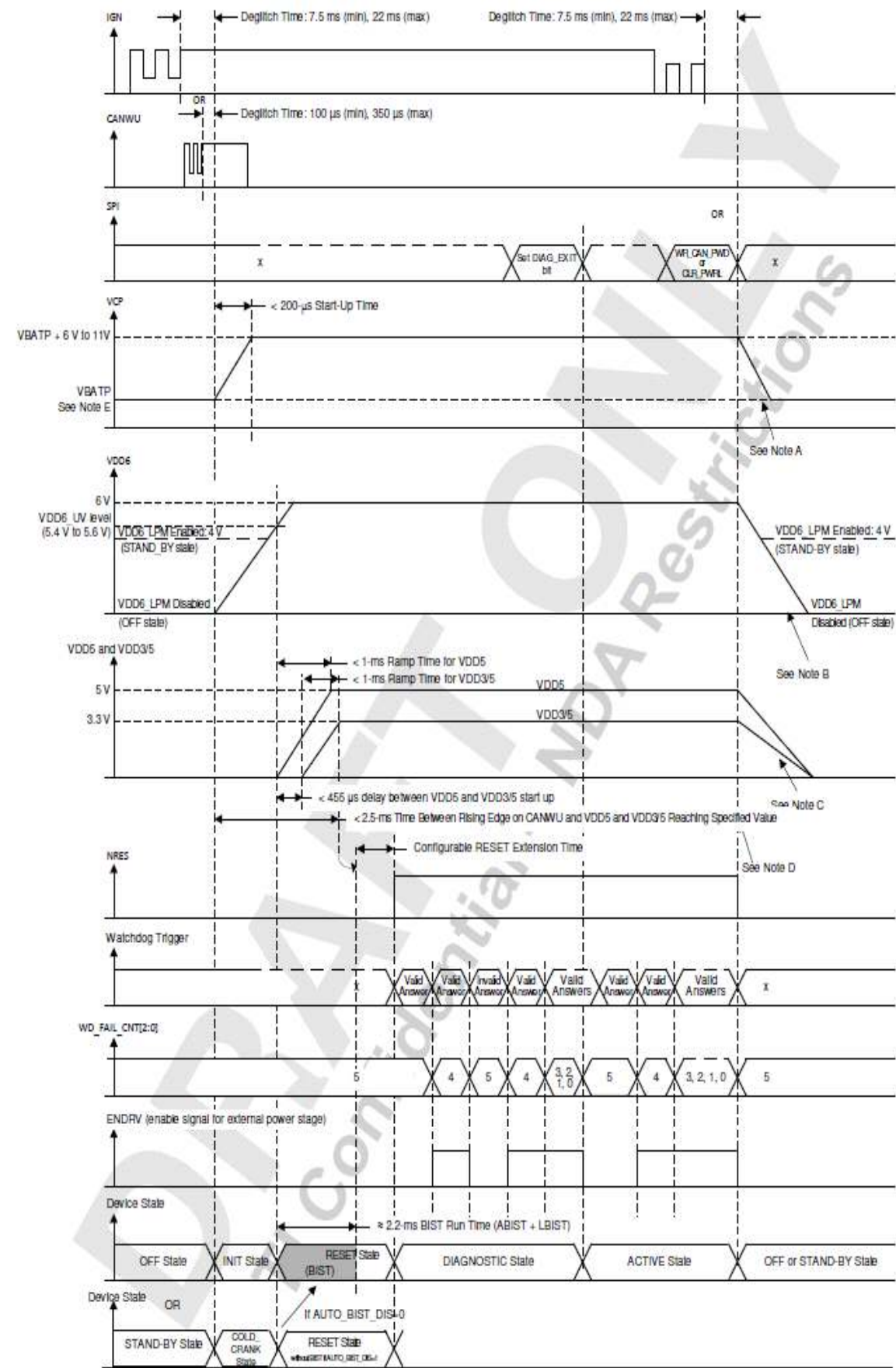
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POWER SEQUENCE

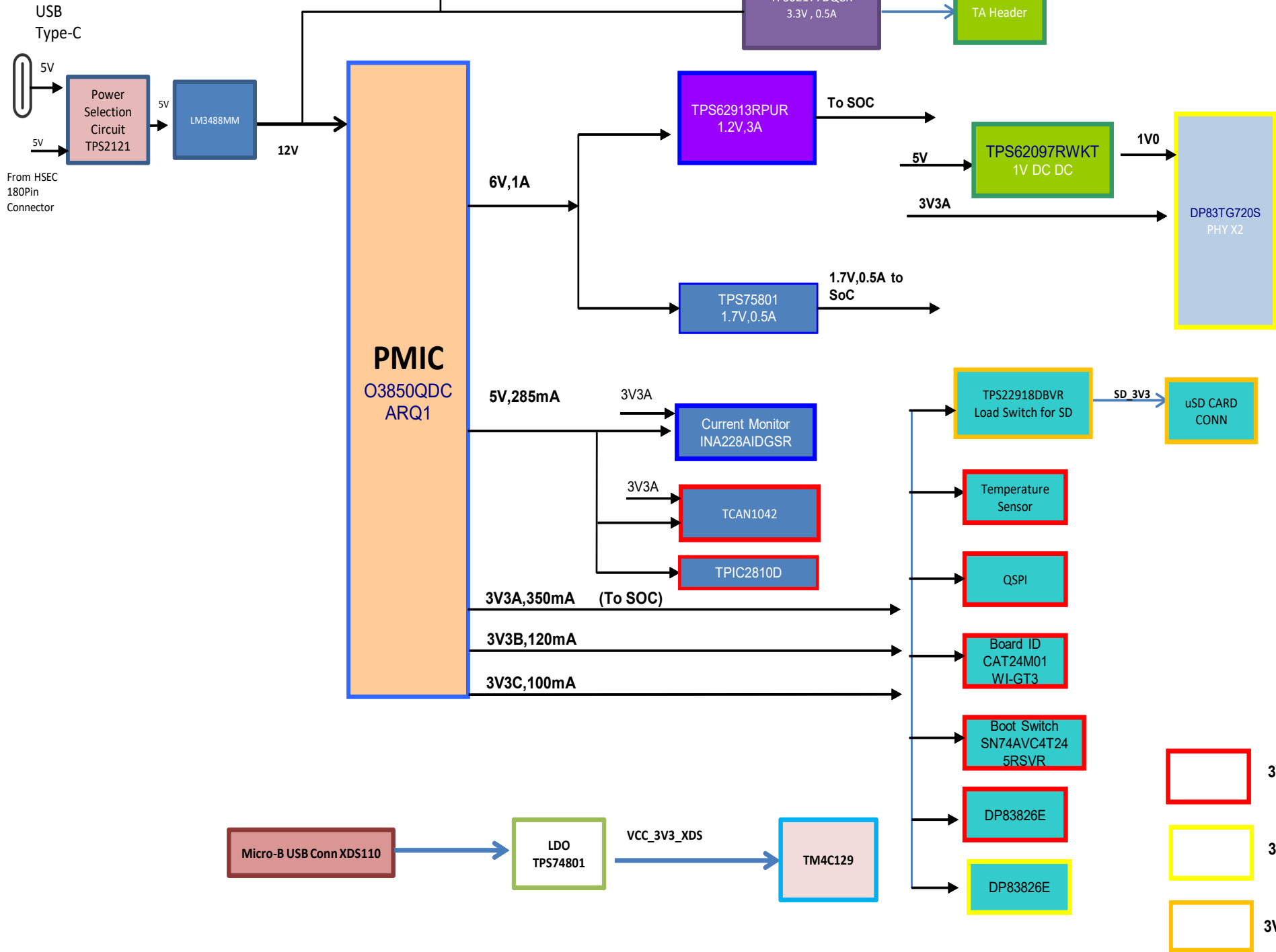


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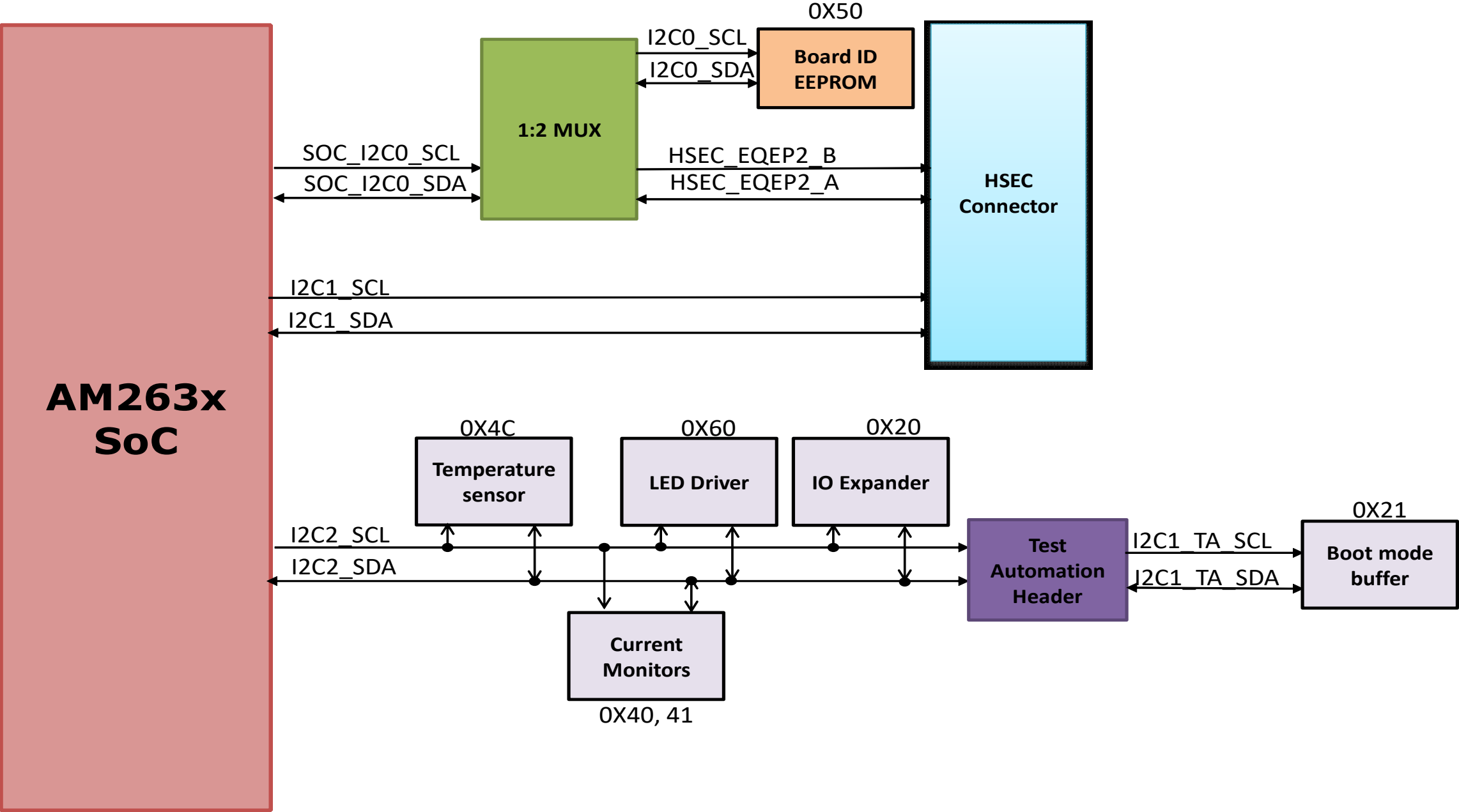


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POWER FLOW DIAGRAM



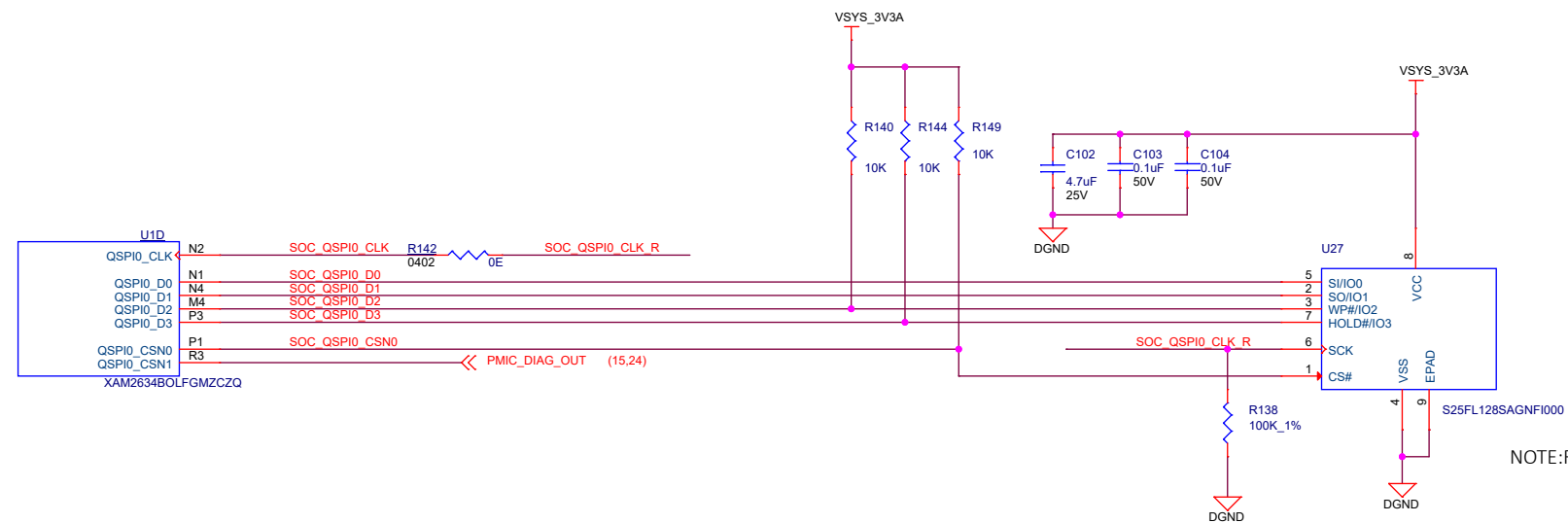
I2C TREE DIAGRAM



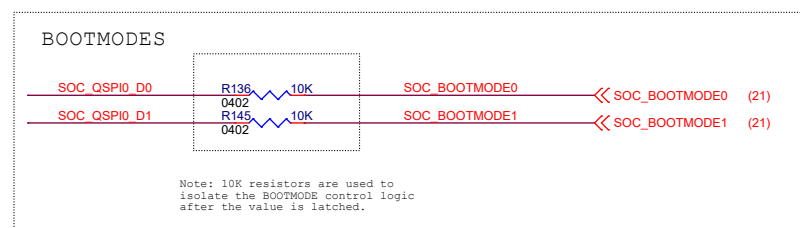
GPIO MAPPING TABLE

SI No.	GPIO DESCRIPTION	GPIO	Pin Name	FUNCTIONALITY	Net Name	ACTIVE STATE
1	Interupt To SoC	GPIO21	LIN2_RXD	Interrupt	SOC_INTn	LOW
2	Interupt To DP83826E	GPIO66	EPWM12_A	Interrupt	ICSSM2_PWDN/INTn	LOW
3	Interupt To DP83869_01	GPIO67	EPWM11_B	Interrupt	RGMII1_INT	LOW
4	Interupt To DP83869_02	GPIO68	EPWM12_B	Interrupt	ICSSM1_INT	LOW
5	User Defined LED	GPIO20	LIN2_TXD	GPIO	USER_LED0	PREFERABLE
6	PMIC DIAG OUT to SOC	GPIO1	QSPI0_CSn1	GPIO	PMIC_DIAG_OUT	LOW
IO Expander 01						
7	Standby input to CAN tranciever		P00	GPIO	MCAN1_STB	High
8	Enable control to clock buffer		P01	Enable	CLK_BUF_EN	High
9	Select line for ICSSM Mux 1		P02	Mux Selection	ICSSM1_MUX_SEL	PREFERABLE
10	Select line for ICSSM Mux 2		P03	Mux Selection	ICSSM2_MUX_SEL	PREFERABLE
11	Reset input to DT_01		P04	Reset	GPIO_RGMII1_RST	LOW
12	Reset input to DP83869_02		P05	Reset	GPIO_ICSSM1_RST	LOW
13	Reset input to DP83826E		P06	Reset	GPIO_ICSSM2_RST	LOW
14	Enable control to SD load switch		P07	Load SW Enable	GPIO_uSD_PWR_EN	High
15	User Defined LED		P10	GPIO	USER_LED1	PREFERABLE
16	Select line for I2C0 MUX		P11	Mux Selection	I2C0_MUX_SEL	PREFERABLE
17	Select line for SPI1 MUX		P12	Mux Selection	SPI1_MUX_SEL	PREFERABLE
18	Enable control to 1.7V LDO		P13	LDO Enable	VPP_LDO_EN	PREFERABLE
19	Select line for MDIO/MDC MUX		P14	Mux Selection	MDIO/MDC_MUX_SEL	PREFERABLE
20	Select line for LIN/UART MUX		P15	Mux Selection	LIN_MUX_SEL	PREFERABLE
21	Select line for ADC MUX		P16	Mux Selection	ADC1_MUX_SEL	PREFERABLE
22	Select line for ADC MUX		P17	Mux Selection	ADC2_MUX_SEL	PREFERABLE

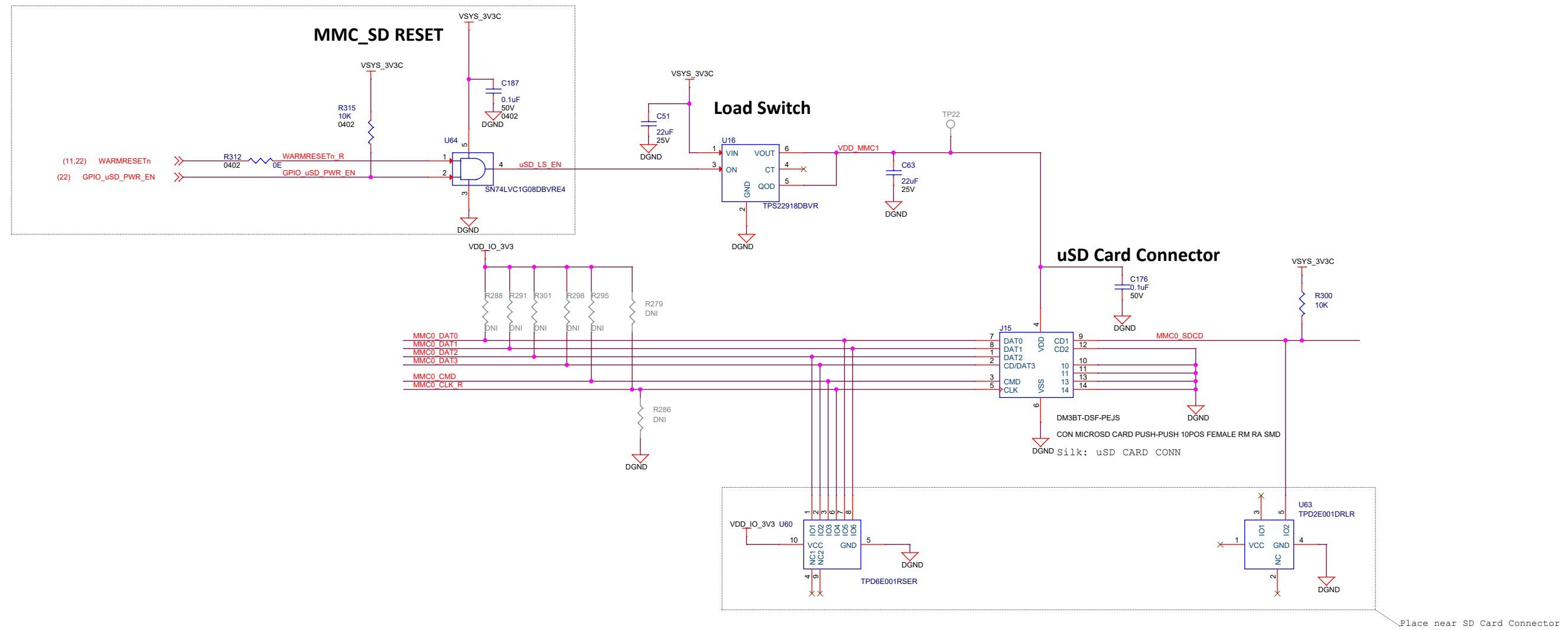
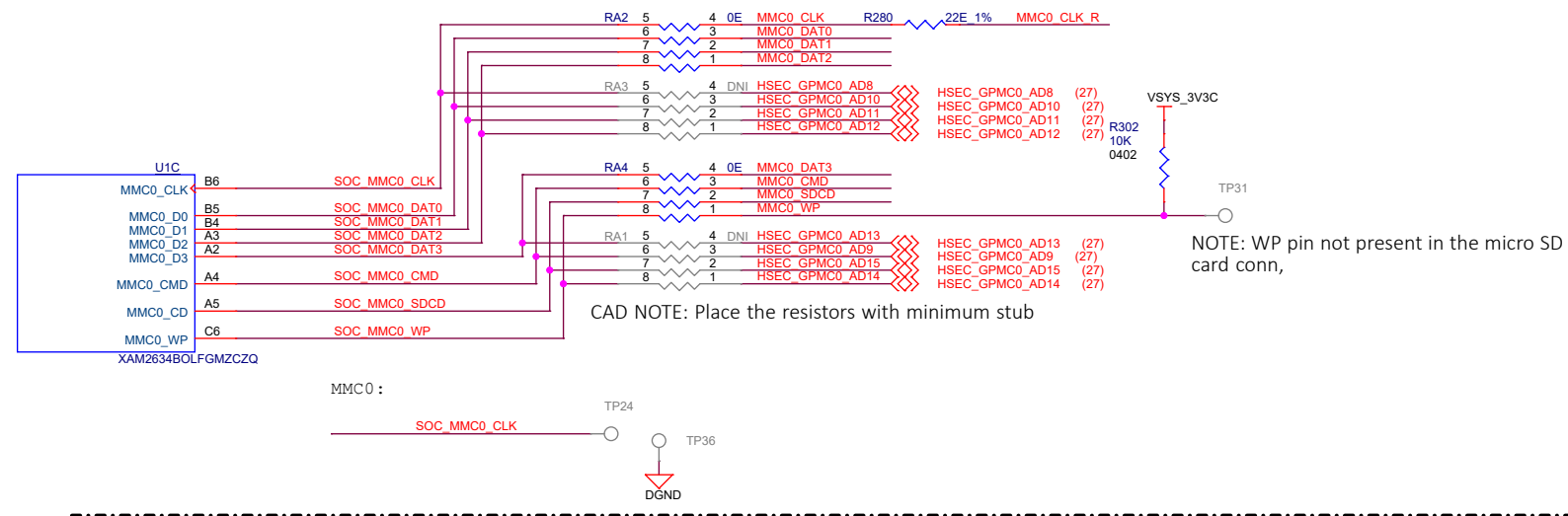
SOC- QSPI Interface



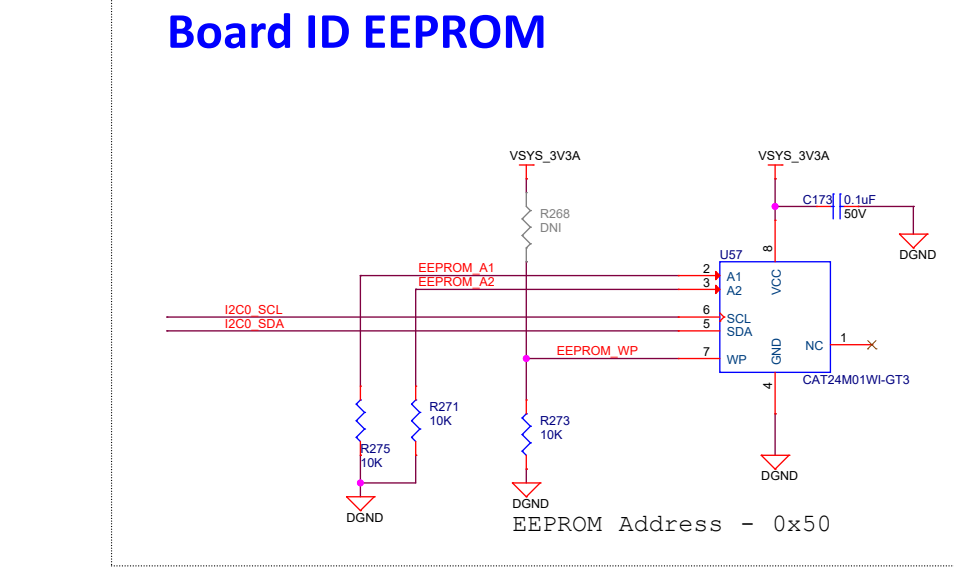
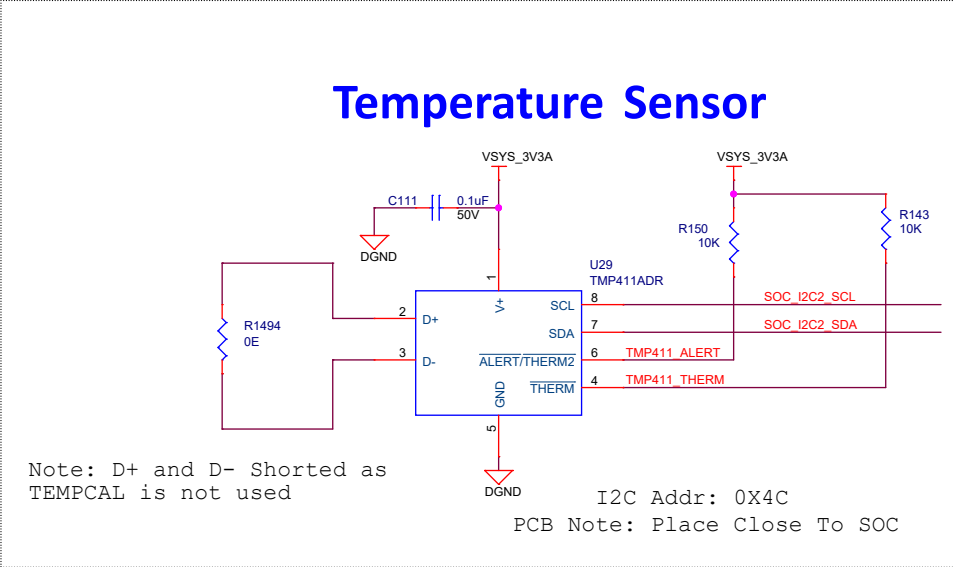
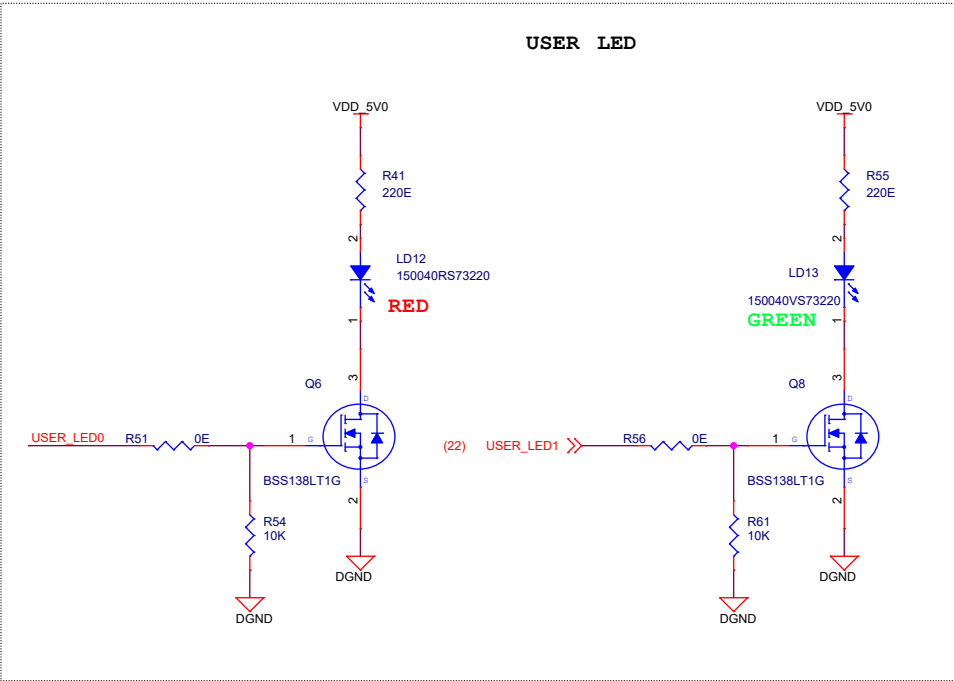
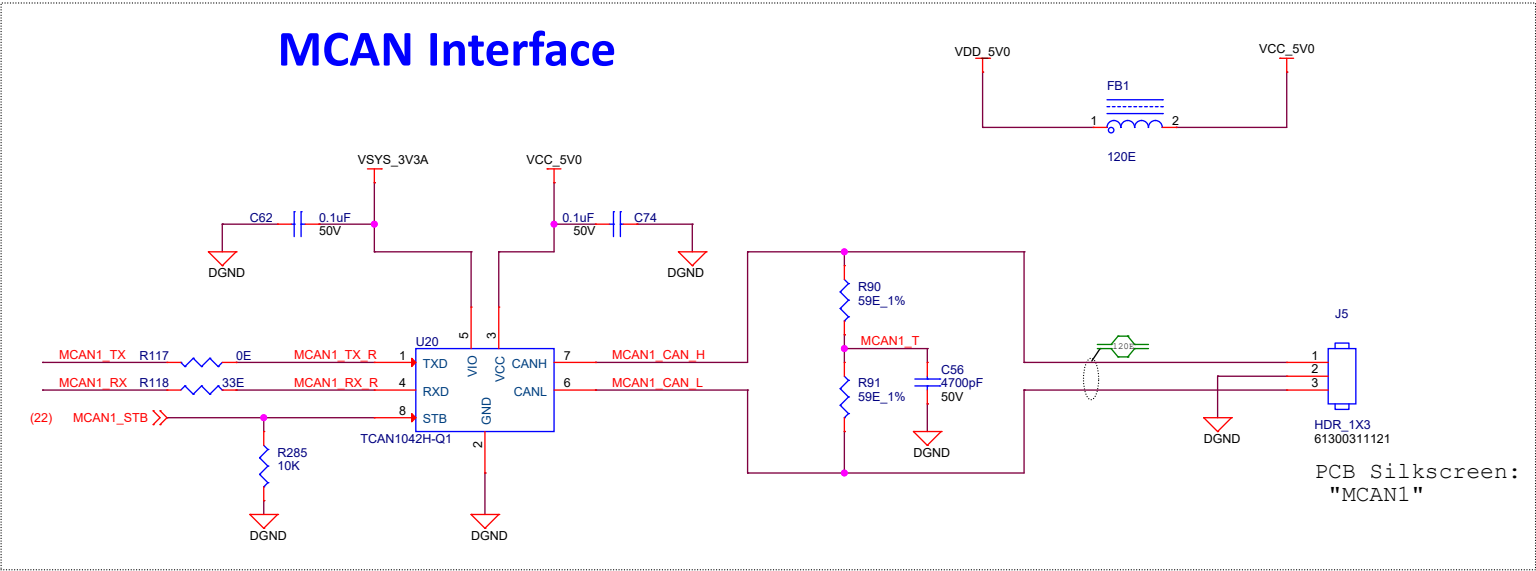
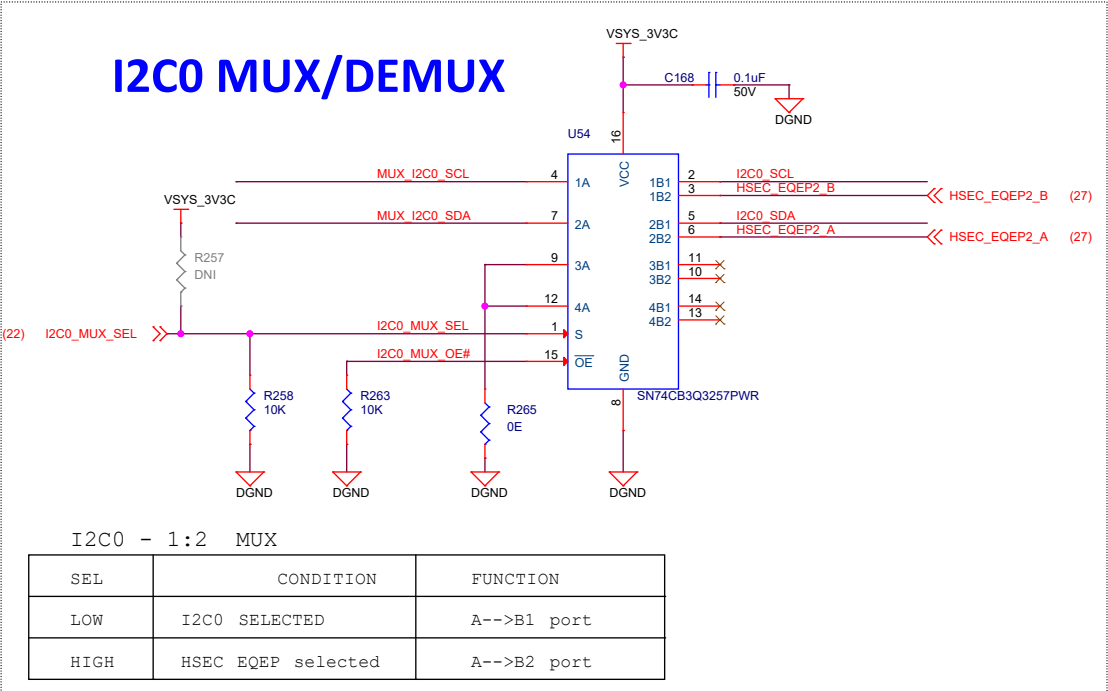
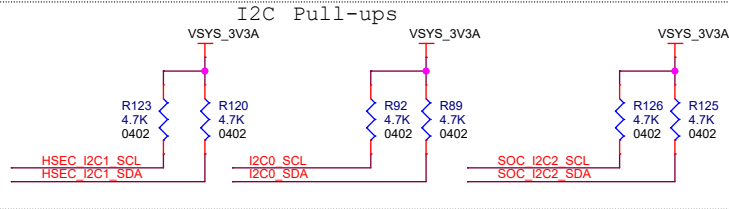
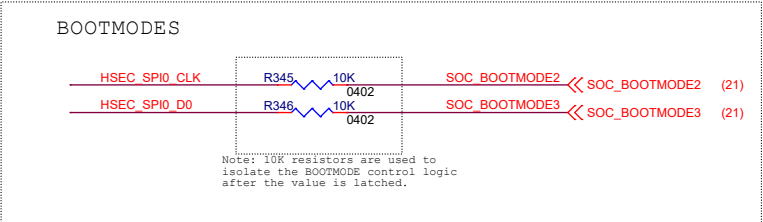
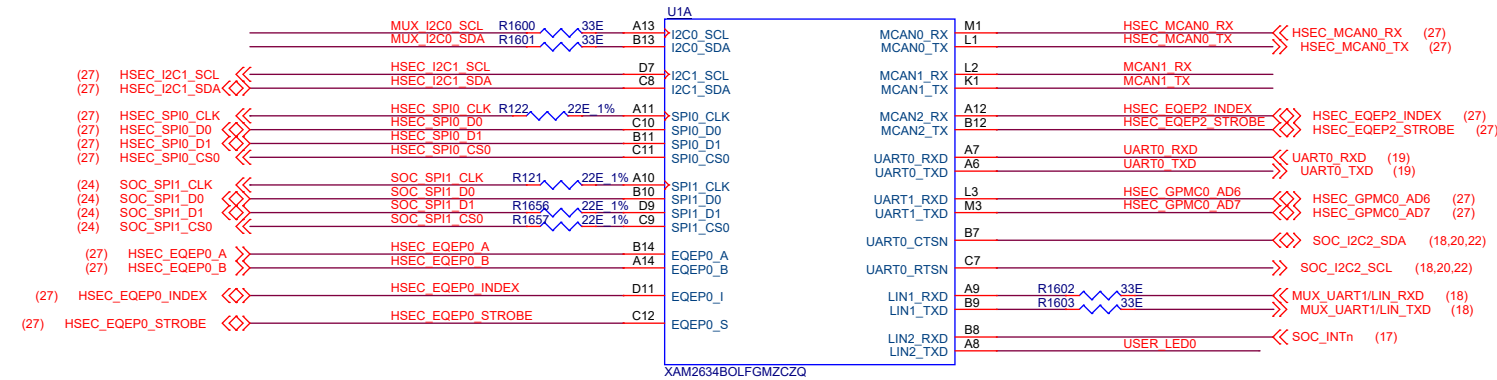
NOTE:RST pin is not present in WSON



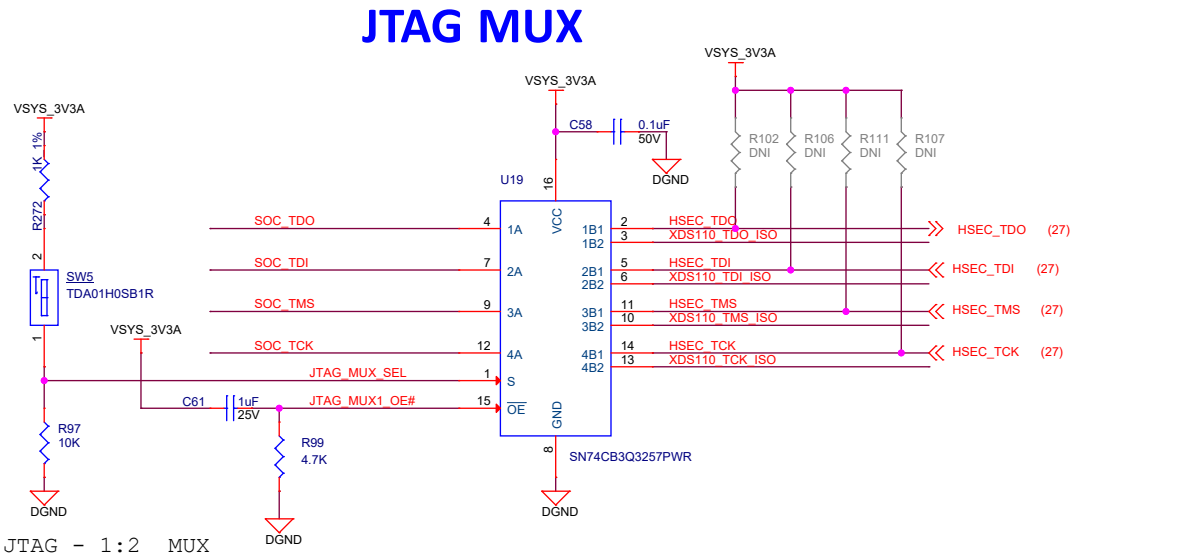
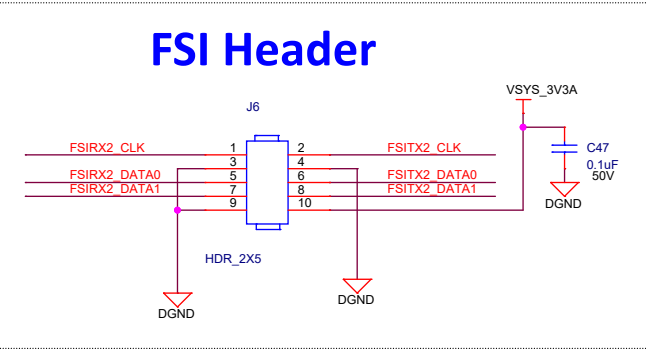
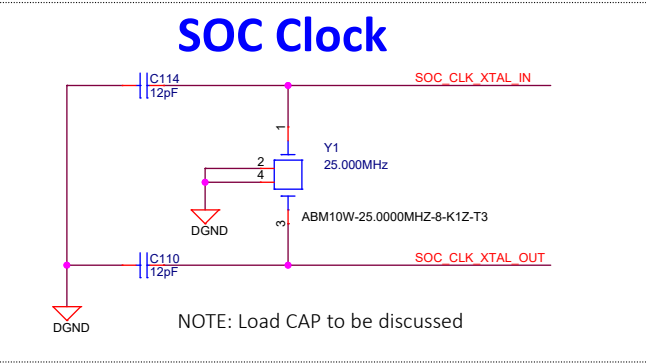
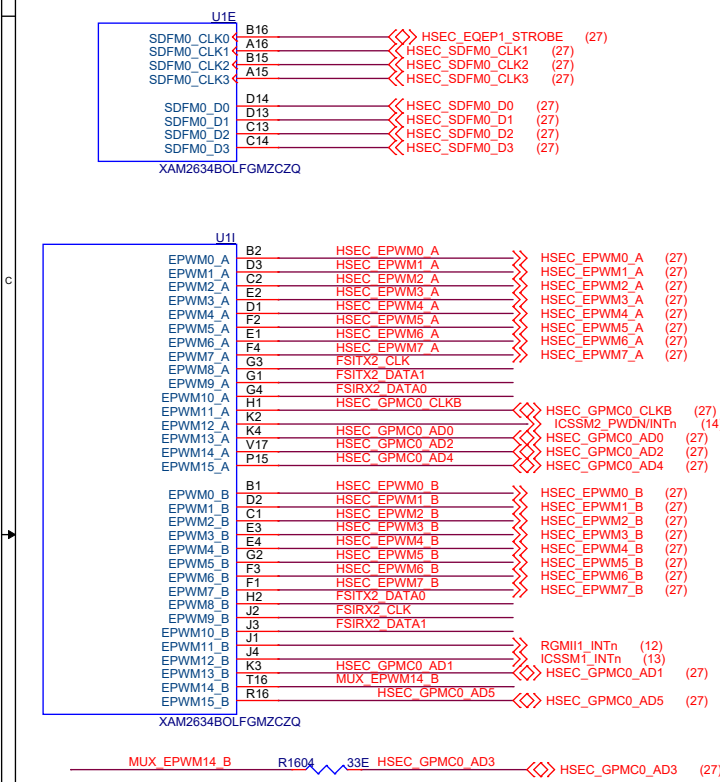
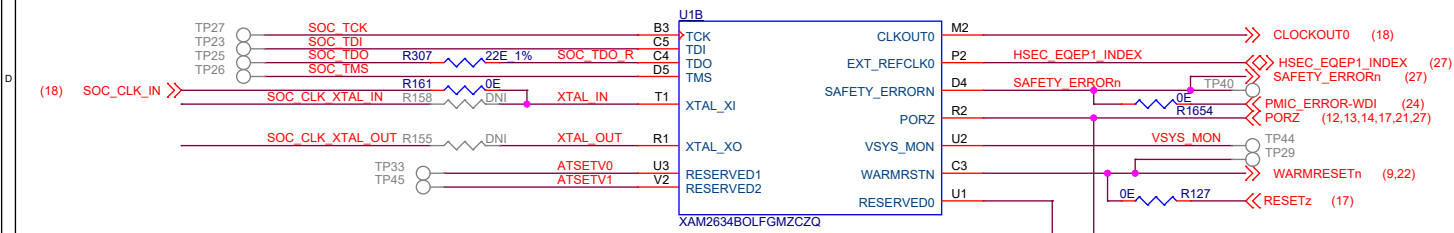
SOC- MMC0 Interface



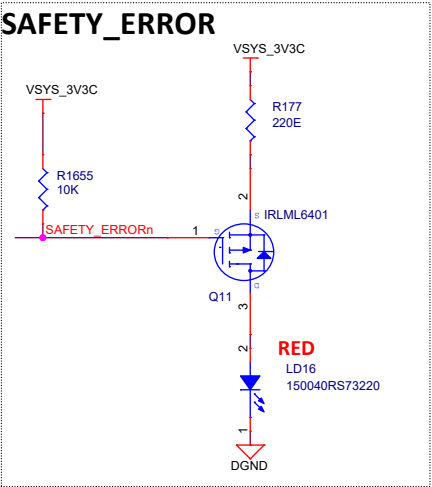
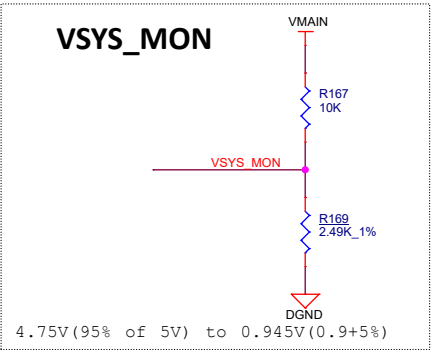
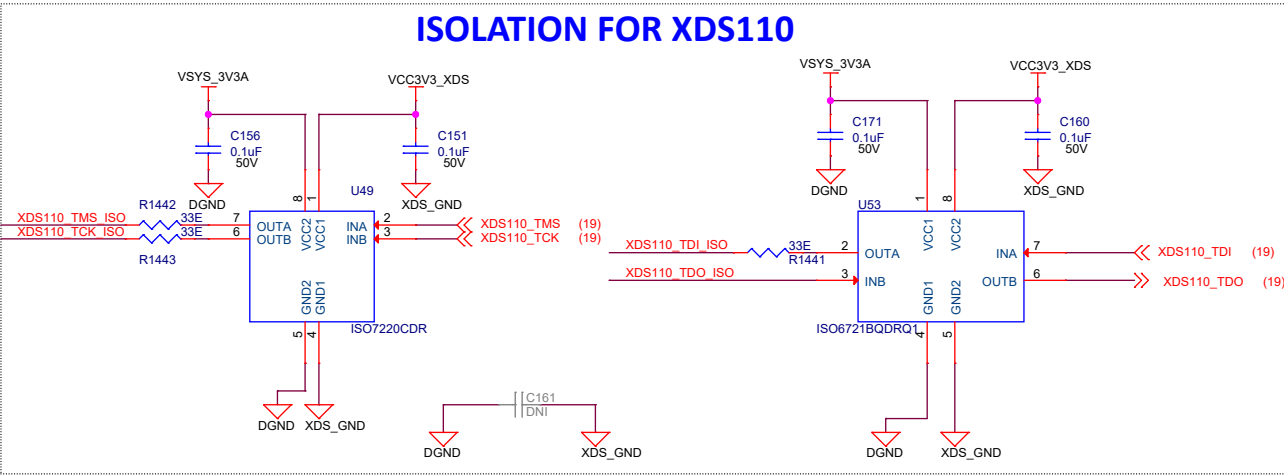
SOC-IO Interfaces



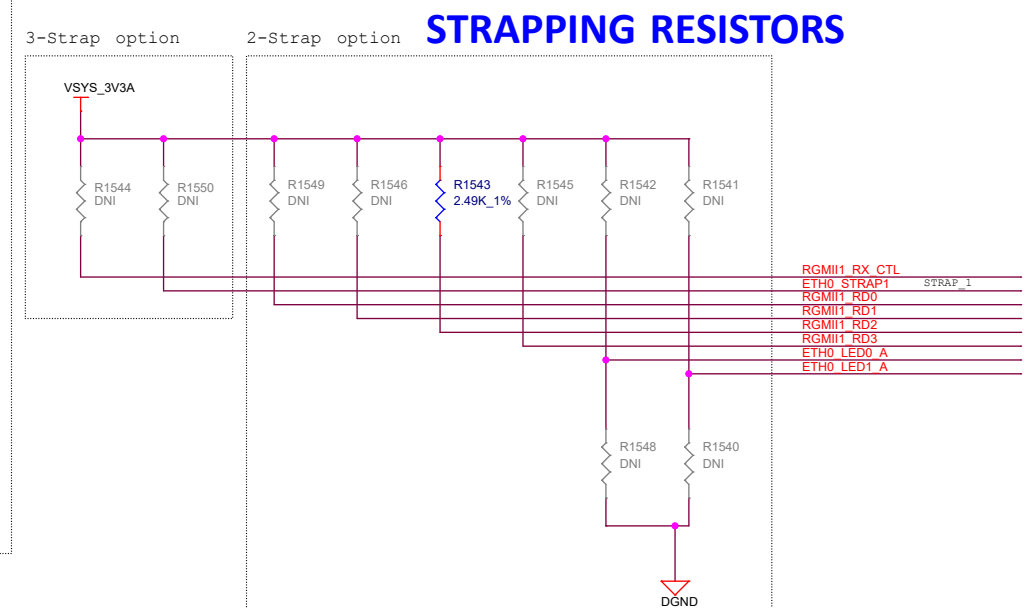
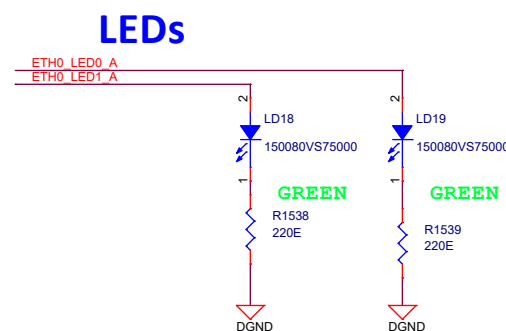
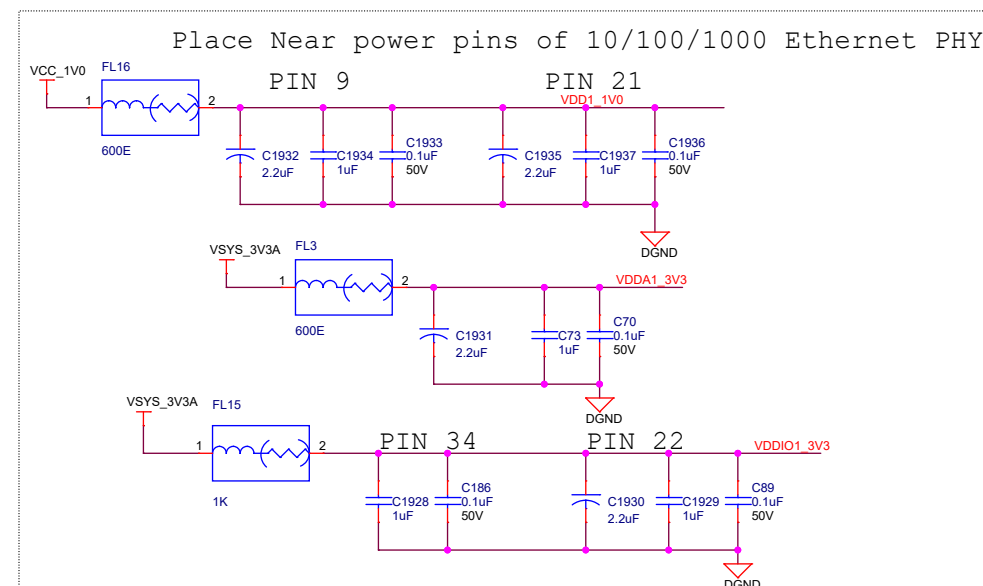
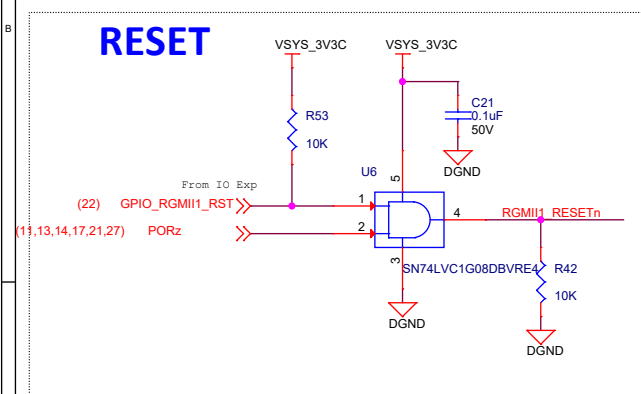
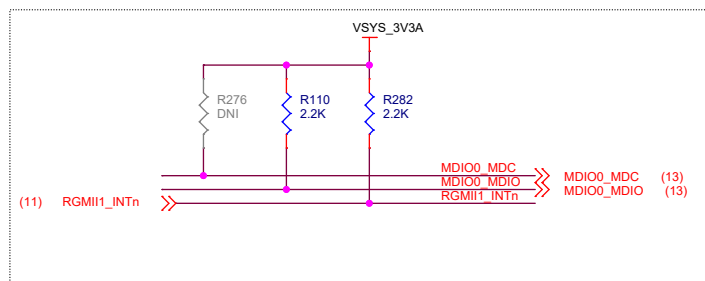
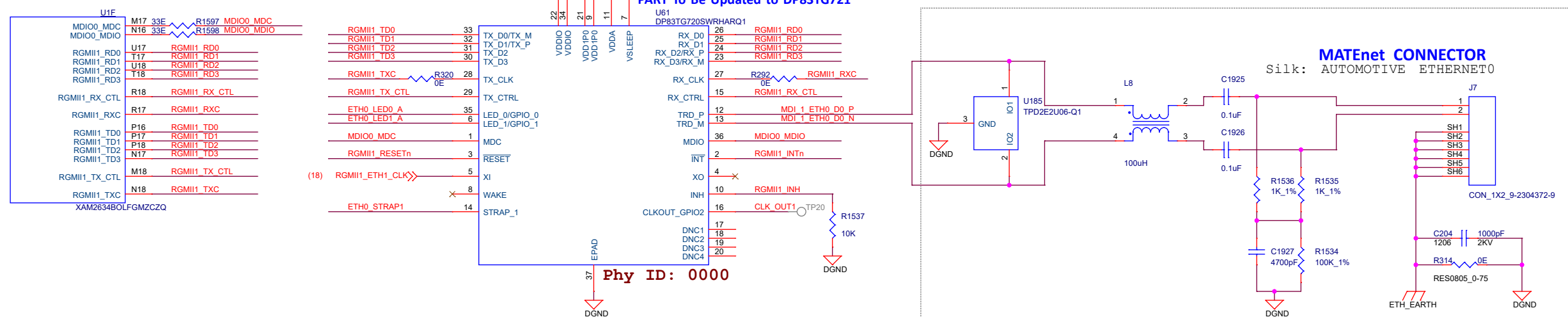
SOC JTAG, RESET and CLKS



SW1.1	CONDITION	FUNCTION
LOW	HSEC EMU selected	A-->B1 port [ON Board EMU]
HIGH	XDS110 selected	A-->B2 port [EXTERNAL EMU]

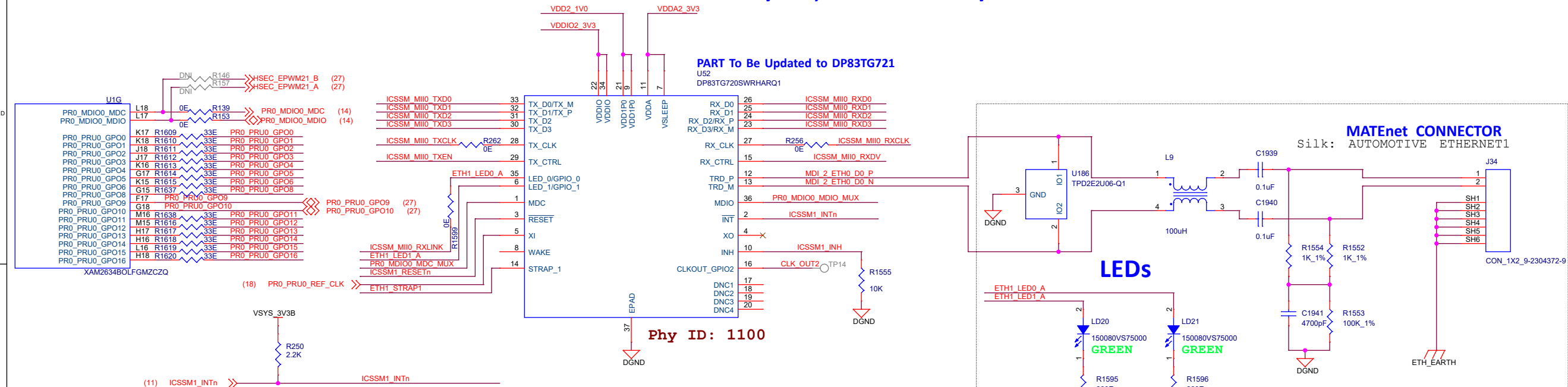


CPSW RGMII1/MII1 Ethernet

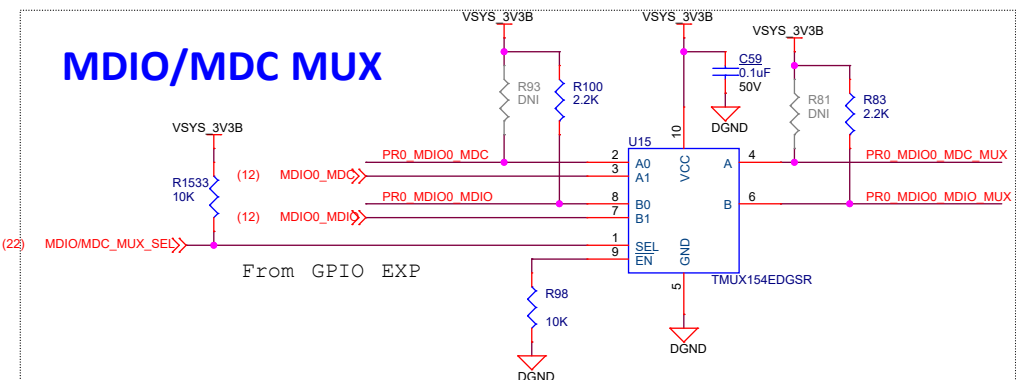
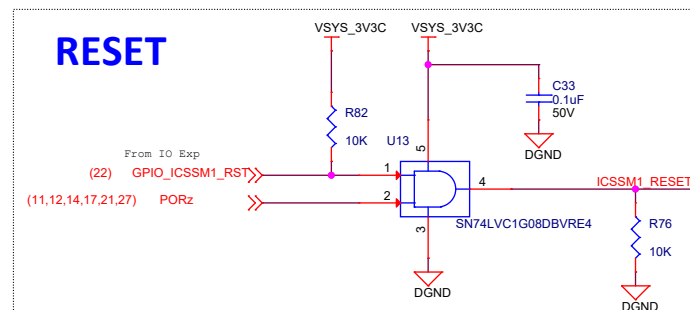
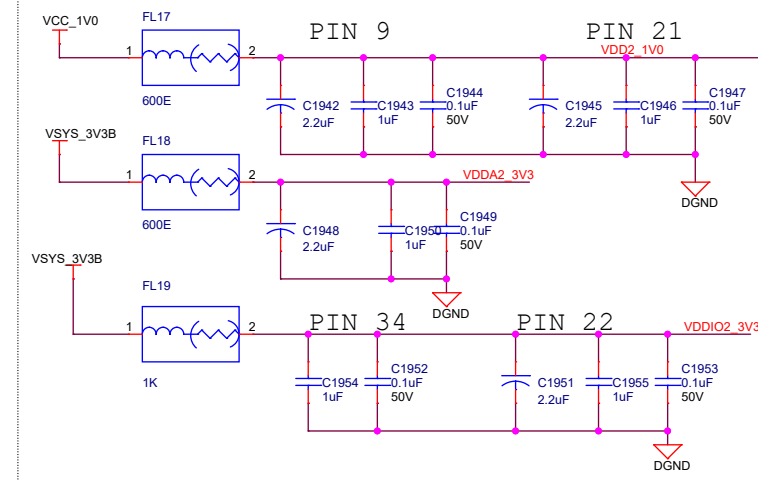


```
PHY ADDRESS = 00000
MS = 0 Slave,AUTO = 0 Autonomous
RGMII (Align Mode)
```

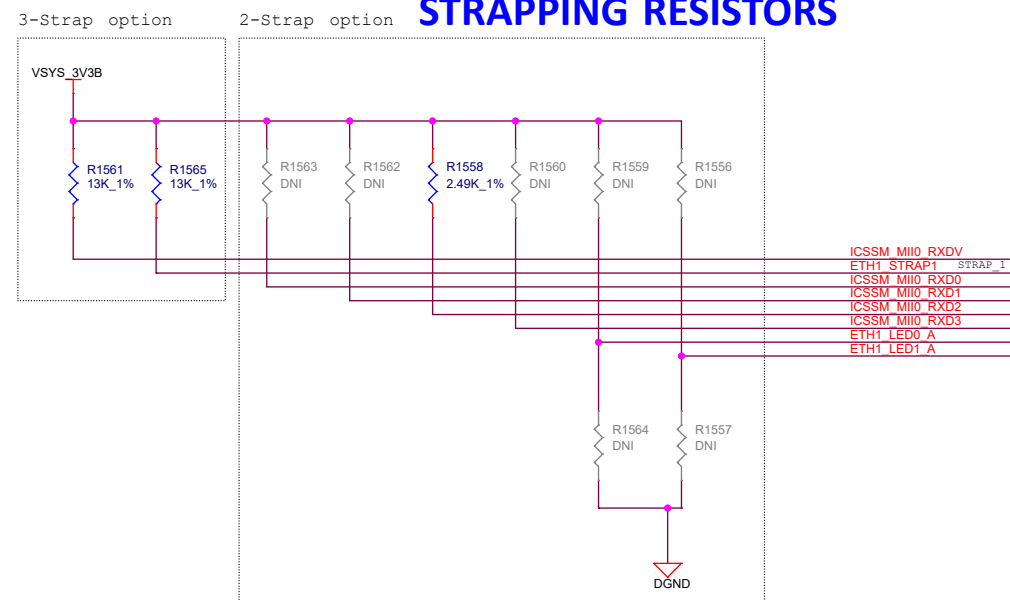
PRU0 ICSSM RGMII/MII, CPSW RGMII2/MII2 Ethernet



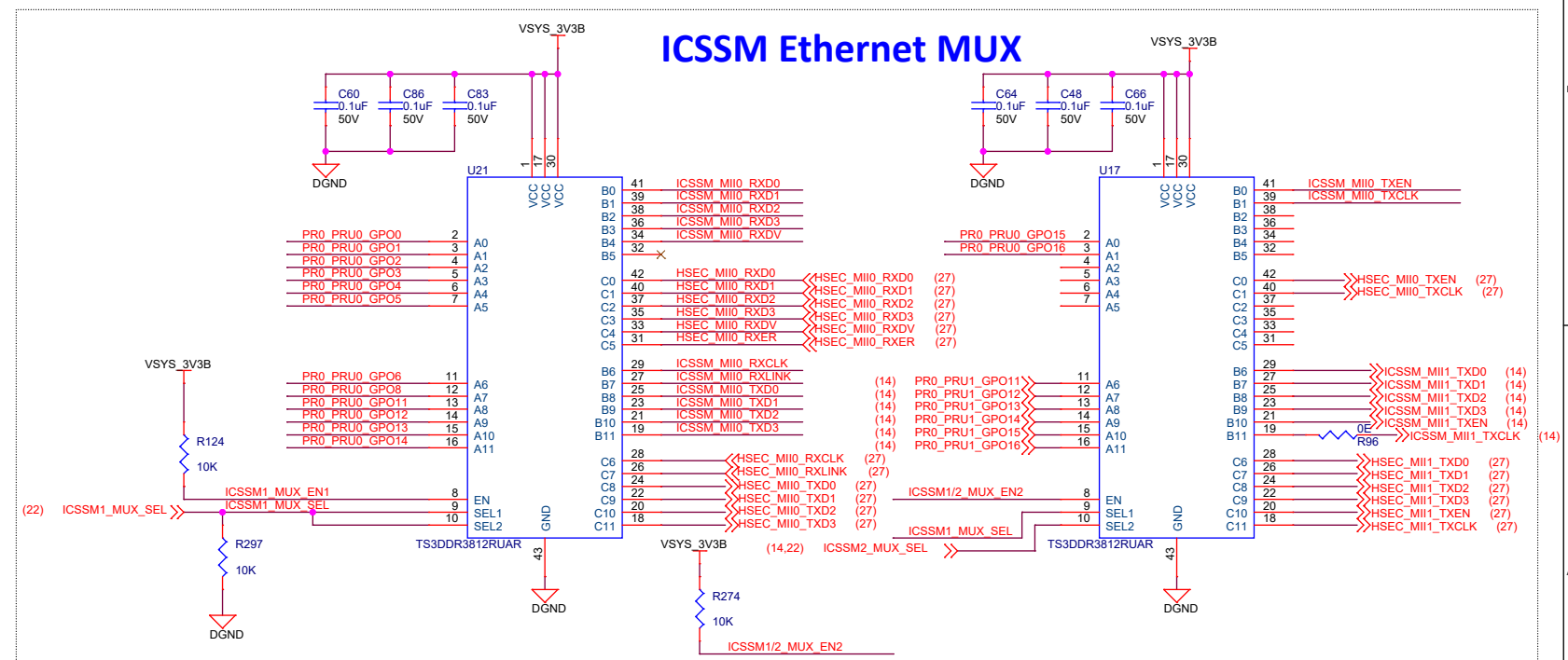
Place Near power pins of 10/100/1000 Ethernet PHY



STRAPPING RESISTORS



```
PHY ADDRESS = 01100
MS = 0 Slave,AUTO = 0 Autonomous
RGMII (Align Mode)
```

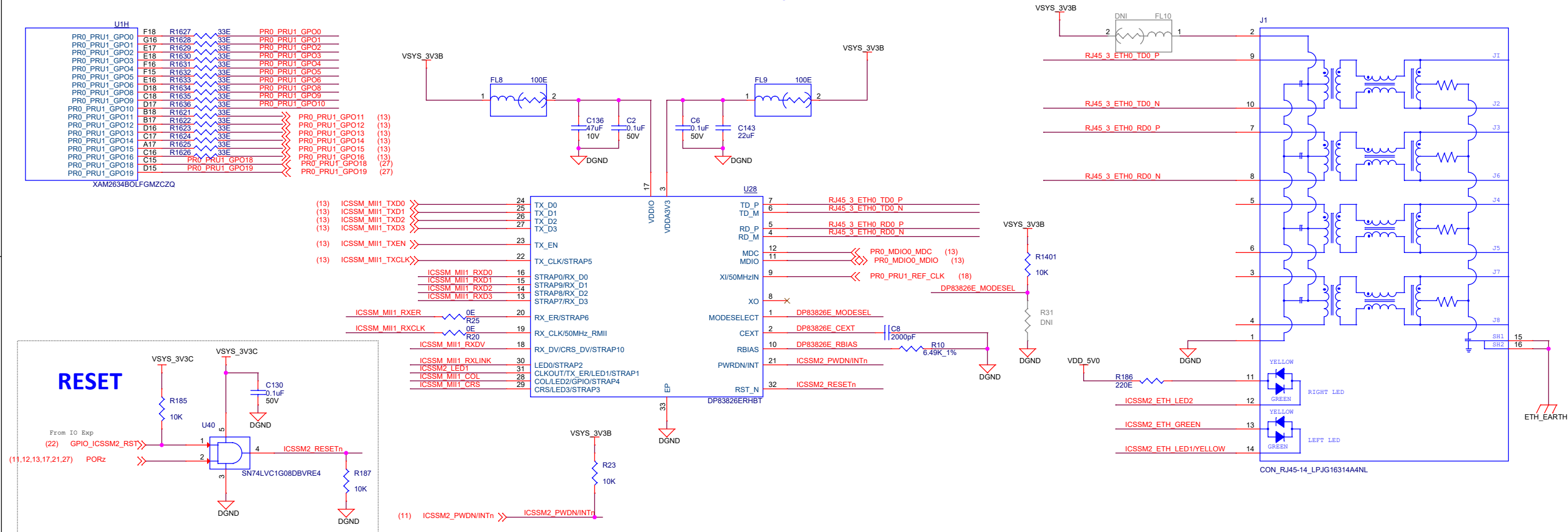


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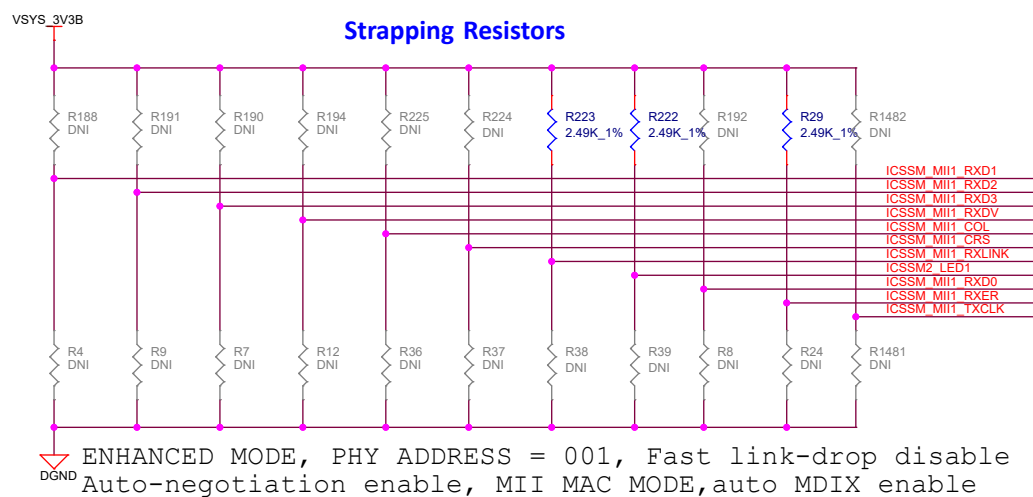


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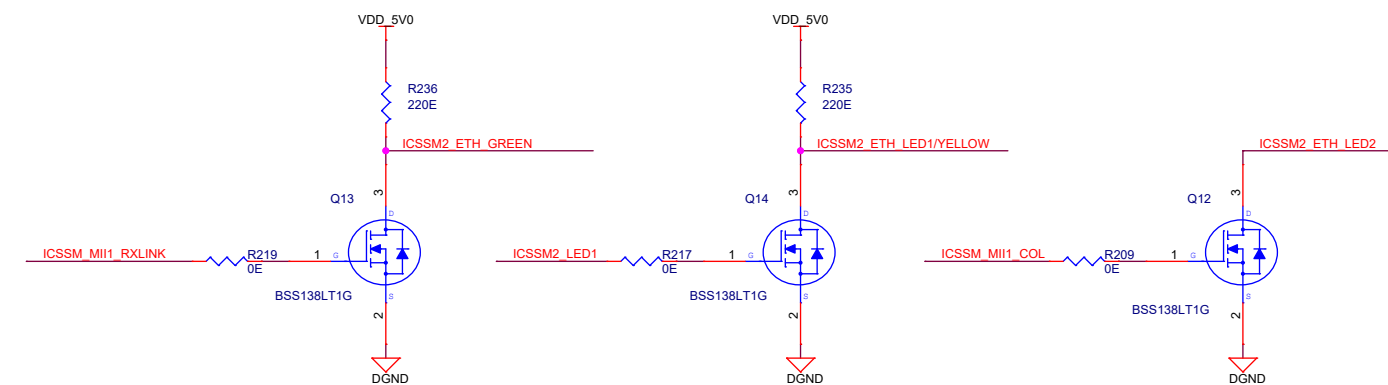
PRU1 ICSSM RGMII/MII Ethernet



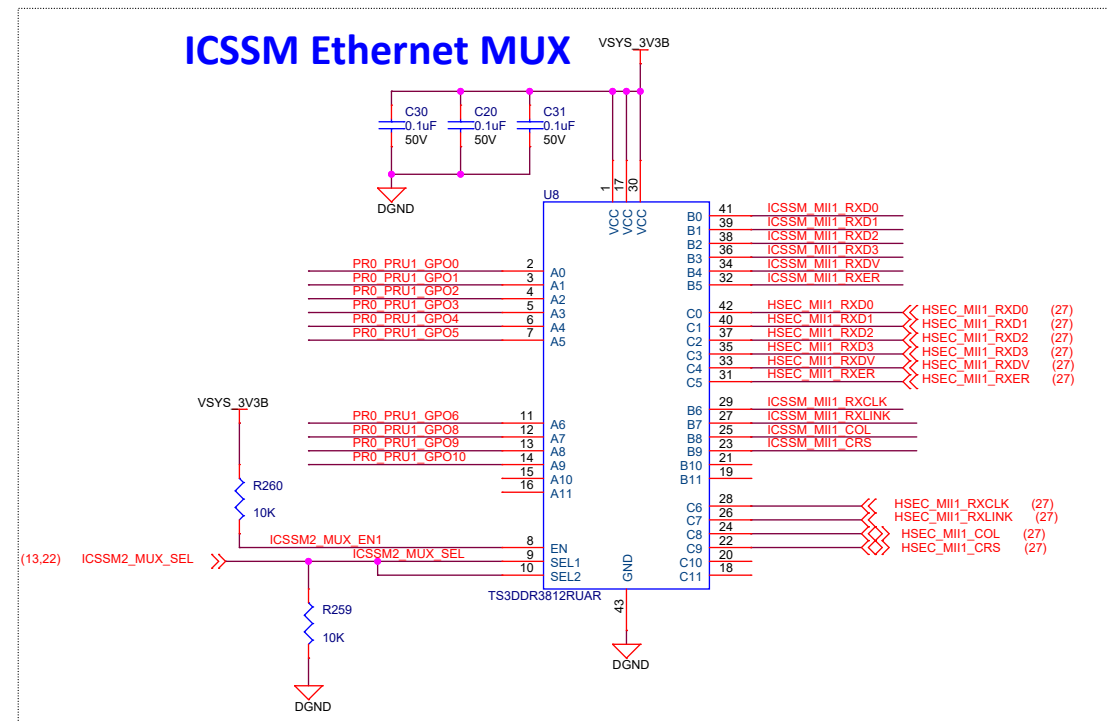
Strapping Resistors



LED Driver MOSFETS

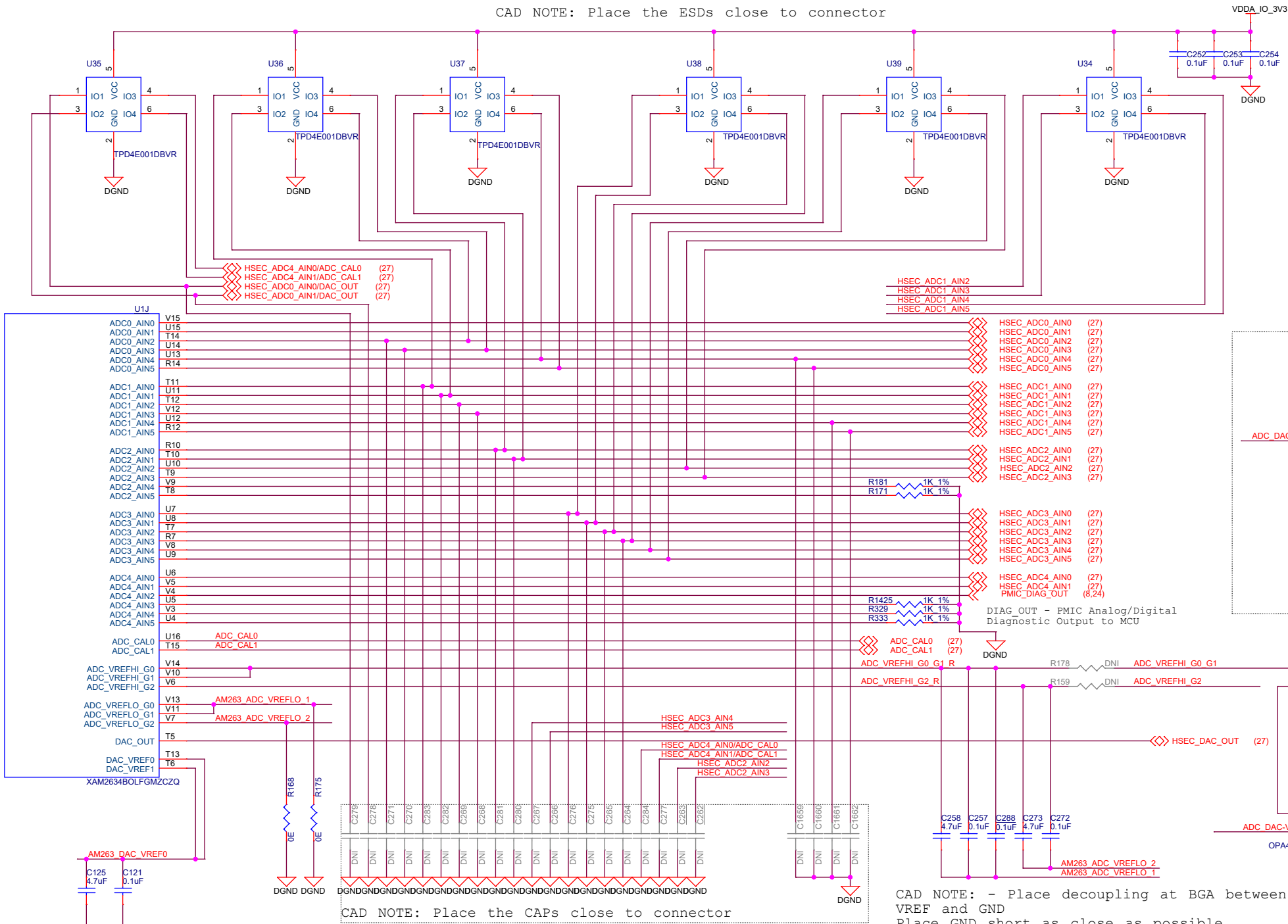


ICSSM Ethernet MUX



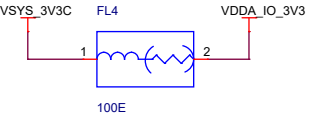
ADC and DAC Interfaces

CAD NOTE: Place the ESDs close to connector



CAD NOTE: Place the CAPs close to connector

CAD NOTE: - Place decoupling at BGA between VREF and GND
Place GND short as close as possible to BGA and decoupling



REF Voltage Generation

REF VOLTAGE SELECTION

SW POSITION	SUPPLY SELECTION
PIN 1-2	ON BOARD REF IS SELECTED
PIN 2-3	HSEC SUPPLY IS SELECTED

SILK "VREF"

SILK "DAC VREF"

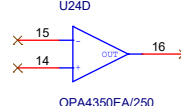
DAC REF VOLTAGE SELECTION

SW POSITION	SUPPLY SELECTION
PIN 1-2	Allows AM263x on-die LDO reference (Routed n PCB)
PIN 2-3	selects output of VREF switch

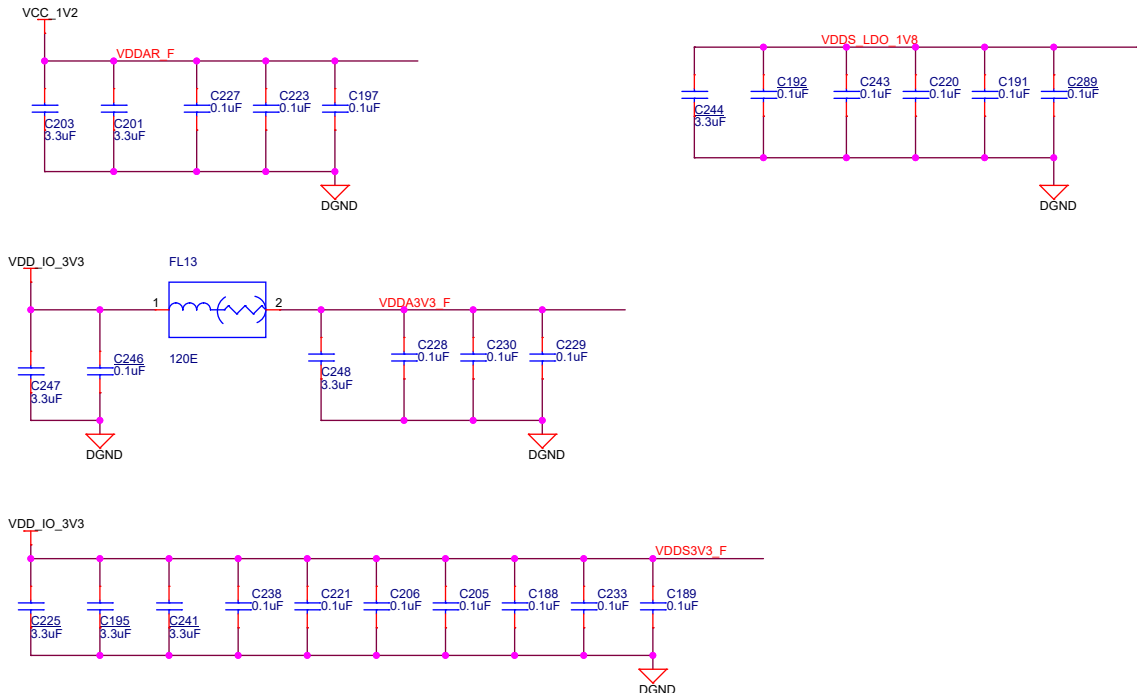
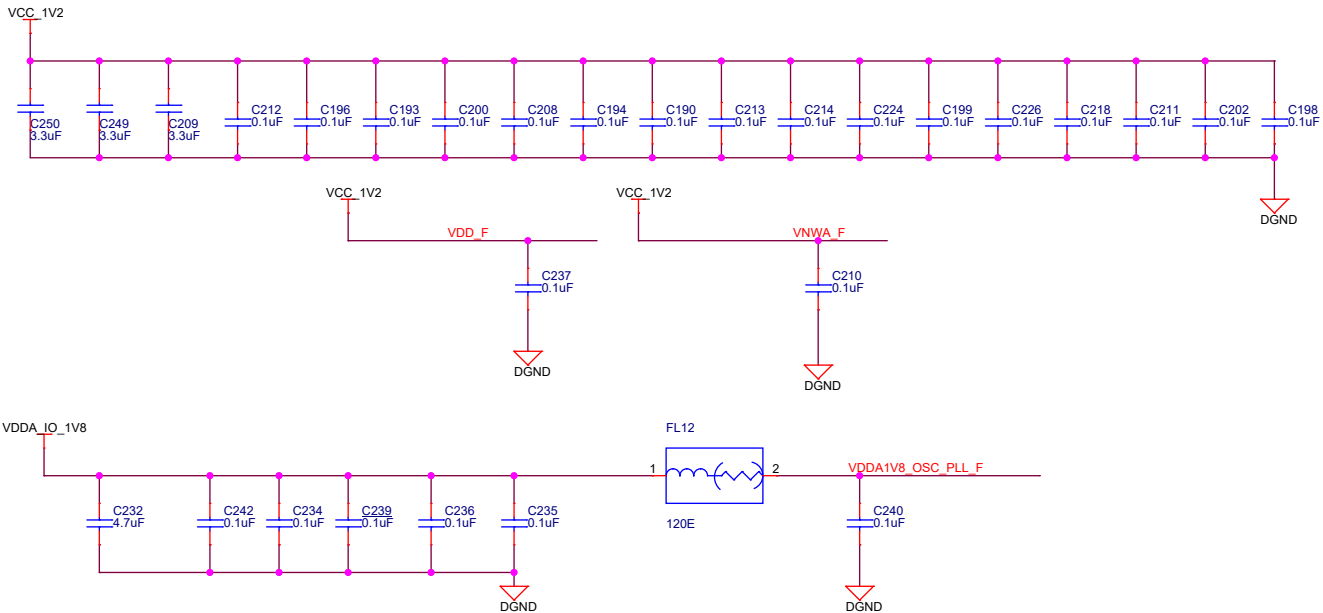
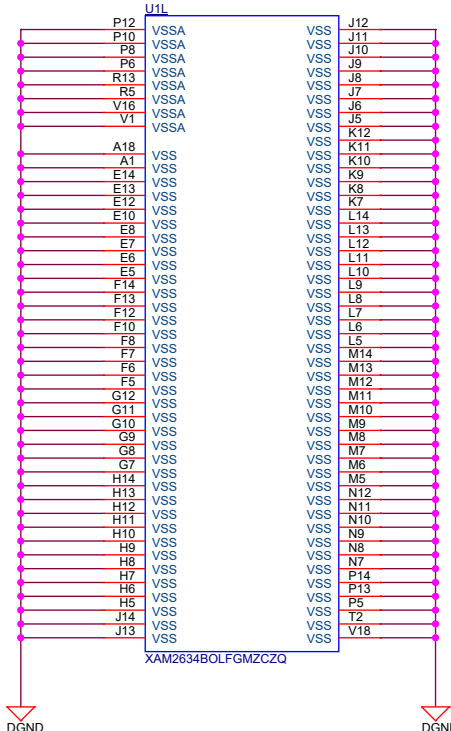
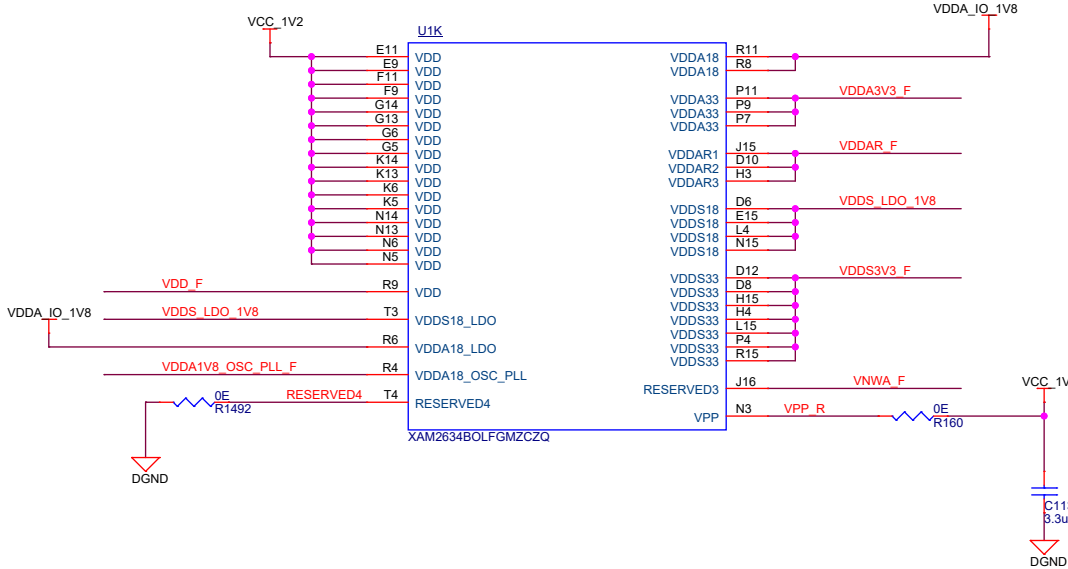
SILK "ADC VREF"

ADC REF VOLTAGE SELECTION

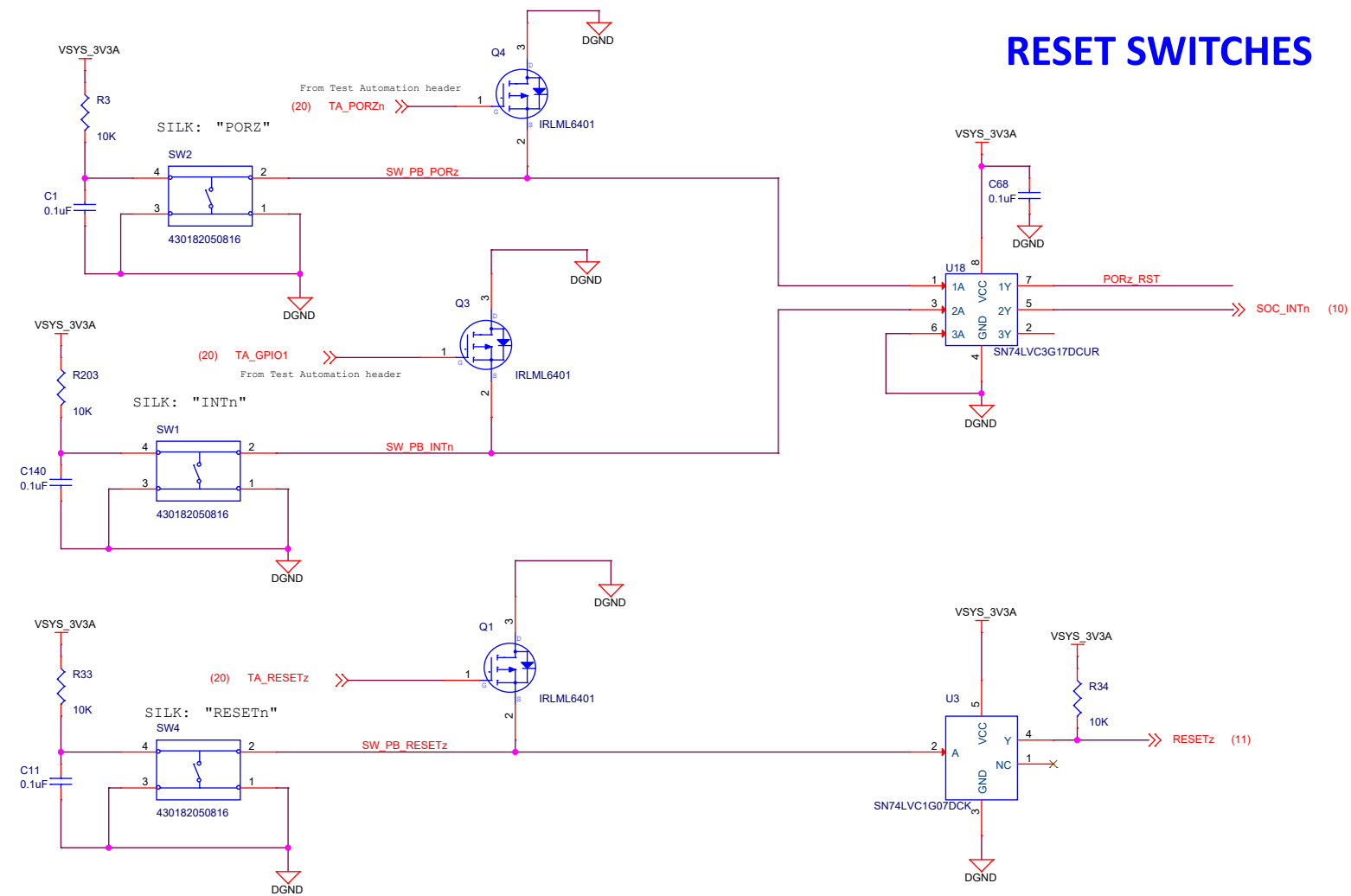
SW POSITION	SUPPLY SELECTION
PIN 1-2	OPEN - Allows AM263x on-die LDO reference (routed on-die)
PIN 2-3	selects output of VREF switch
PIN 4-5	OPEN - Allows AM263x on-die LDO reference (routed on-die)
PIN 5-6	selects output of VREF switch



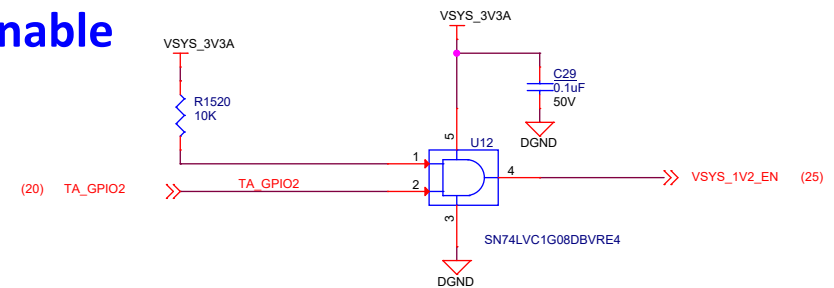
SOC-POWER and GND



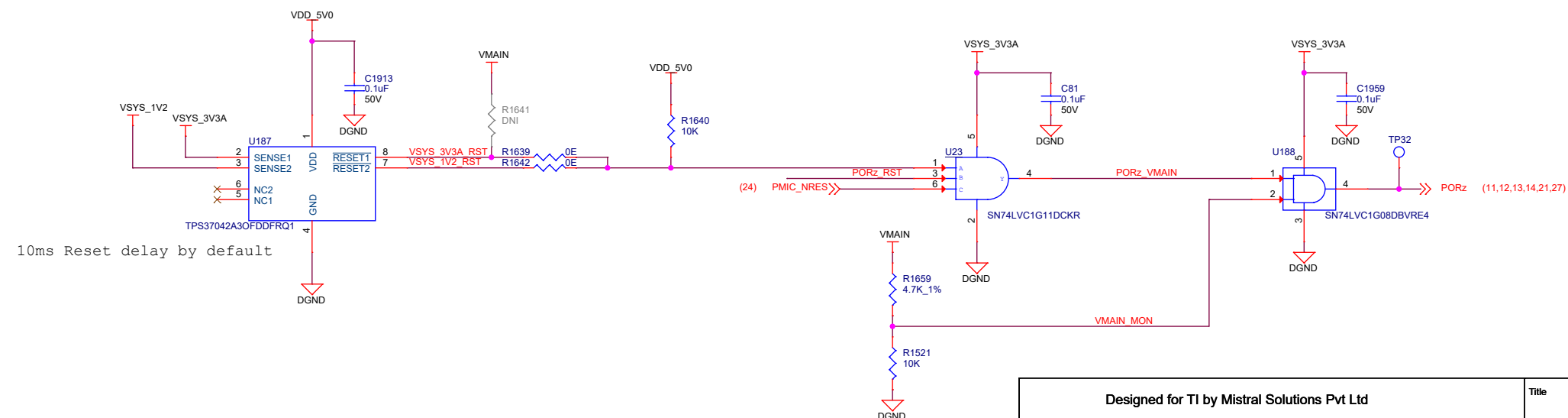
RESET SWITCHES



1.2V Enable



PORz

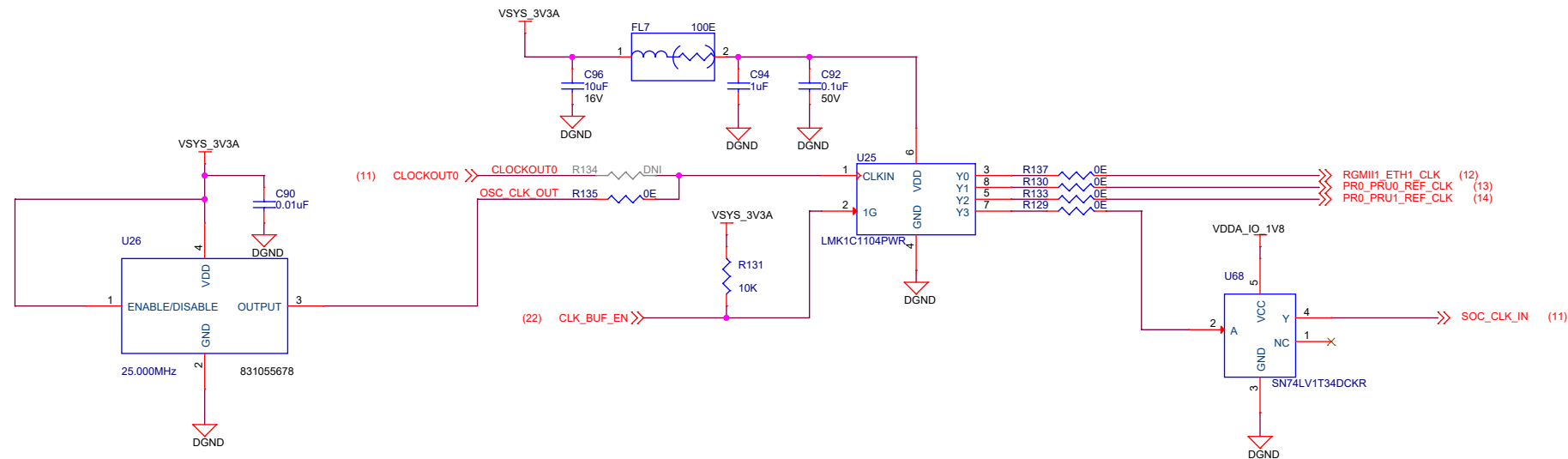


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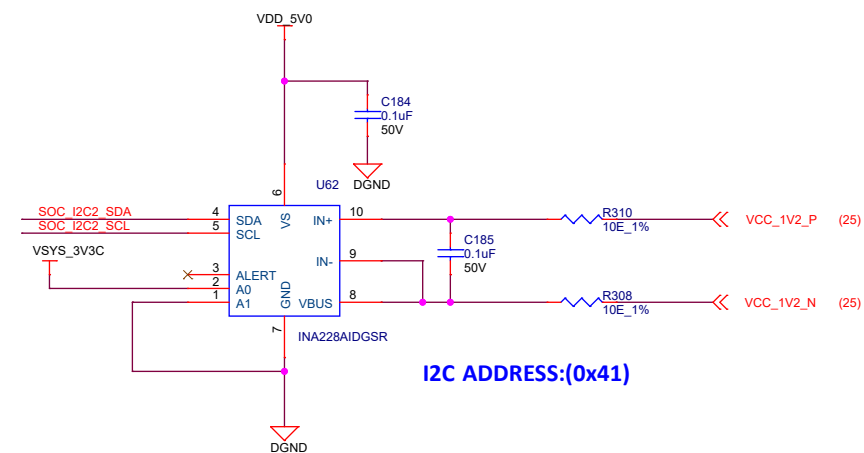
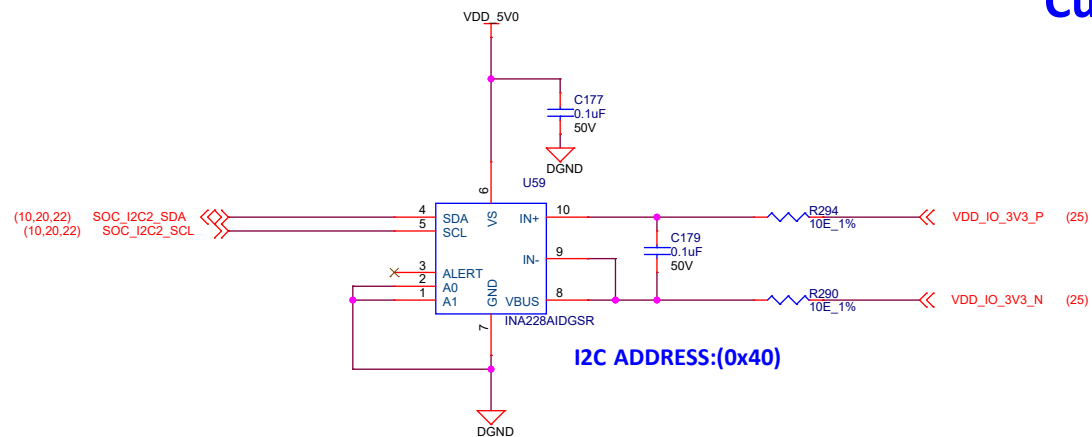


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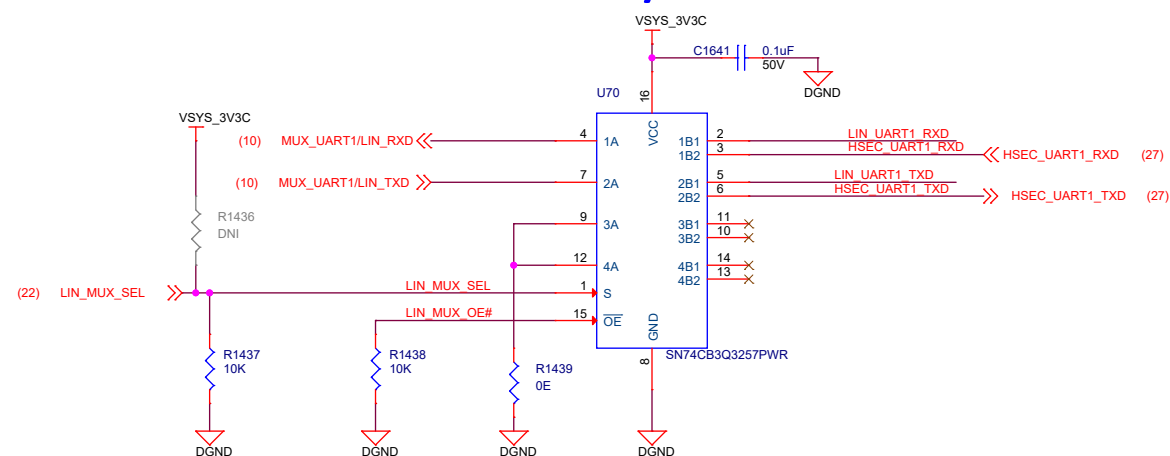
CLOCKS



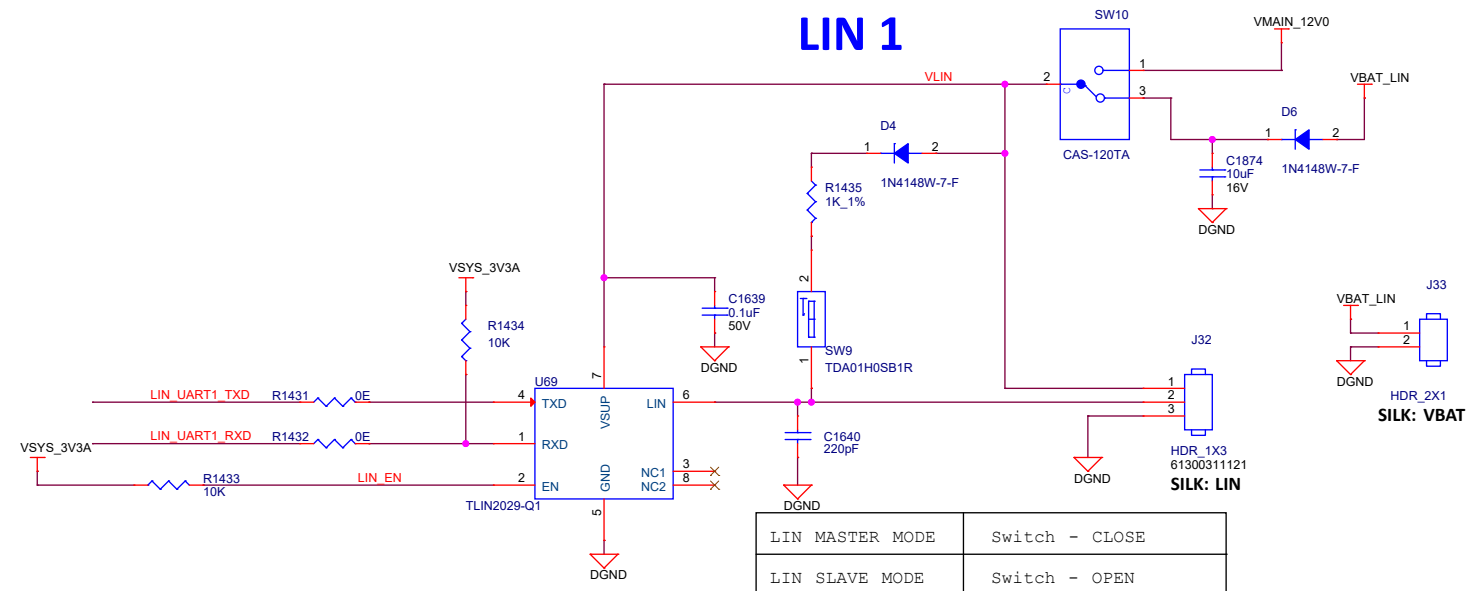
Current Monitors



LIN MUX/DEMUX

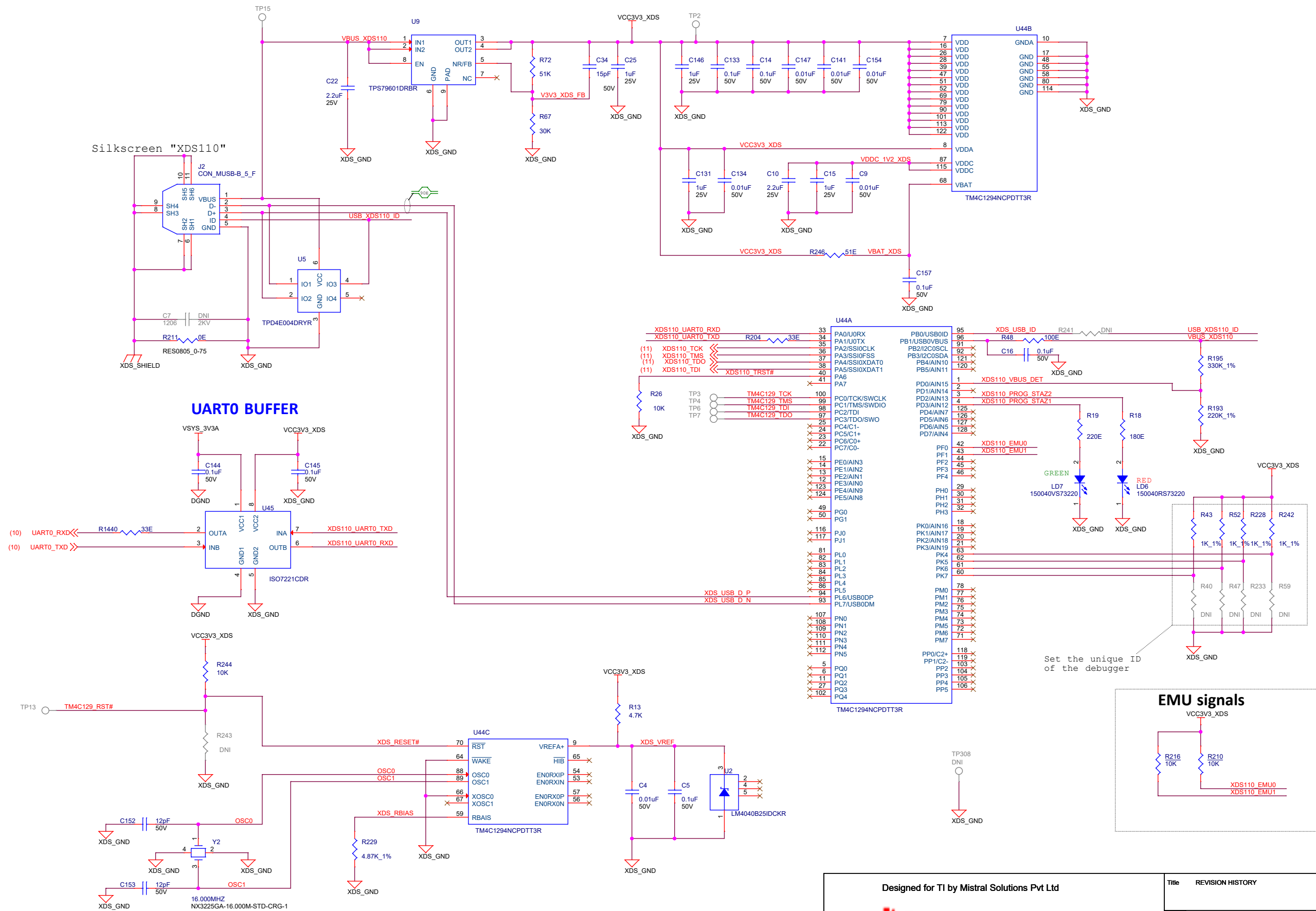


LIN 1



I2C0 - 1:2 MUX		
SEL	CONDITION	FUNCTION
LOW	LIN SELECTED	A-->B1 port
HIGH	HSEC UART selected	A-->B2 port

XDS110 DEBUGGER



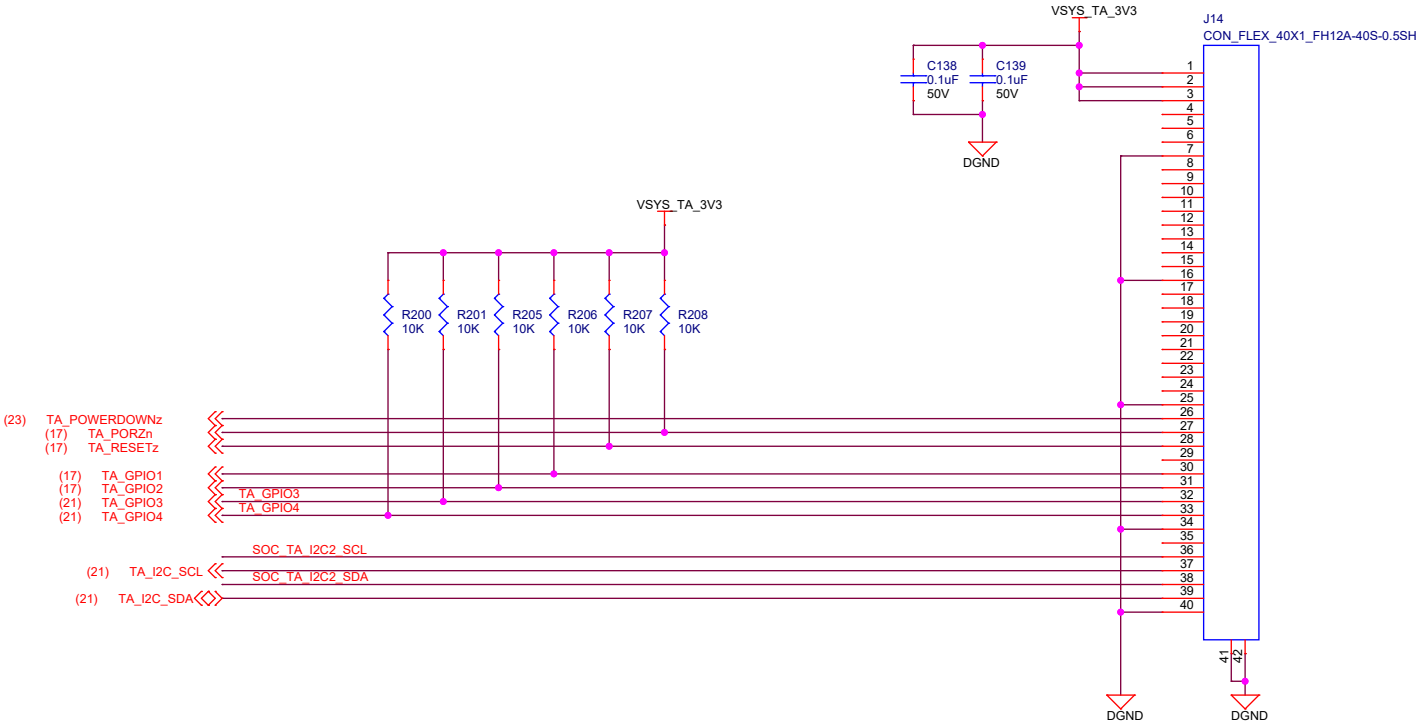
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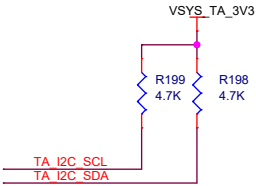
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TEST AUTOMATION HEADER

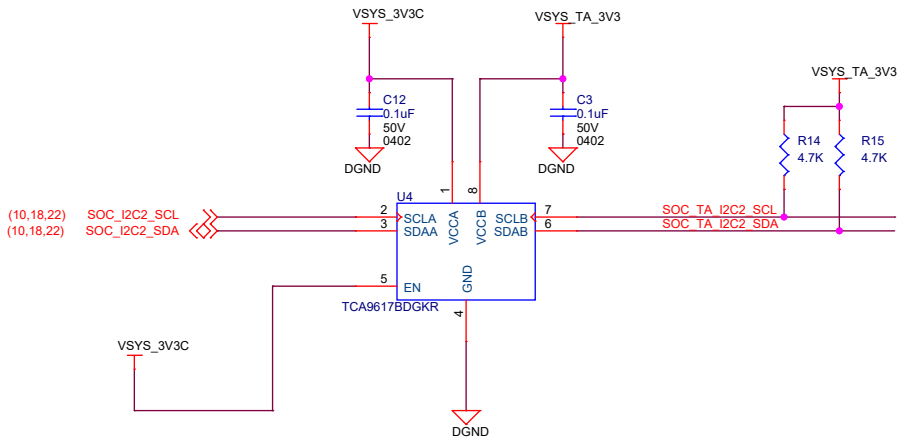
AUTOMATION INTERFACE
Cable : Parlex-050R40-76B, .5mm 3"



I2C Pull Ups



I2C BUFFER



TEST AUTOMATION GPIO MAPPING

SIGNAL NAME	DESCRIPTION	Direction WRT CTRL	Internal/ External PU/PD states
TA_POWERDOWN	Used to Power down the system	OUTPUT	External Pullup
TA_PORZn	Used to Reset the SoC PORz	OUTPUT	External Pullup
TA_RESETz	SoC Warmreset	OUTPUT	External Pullup
TA_GPIO1	Interrupt to SOC	OUTPUT	External Pullup
TA_GPIO2	Used to Enable or Disable 1.2V Regulator	OUTPUT	External Pullup
TA_GPIO3	Used to Enable the BOOTMODE Buffer	OUTPUT	External Pullup
TA_GPIO4	Used Reset Bootmode IO Exp	OUTPUT	External Pullup

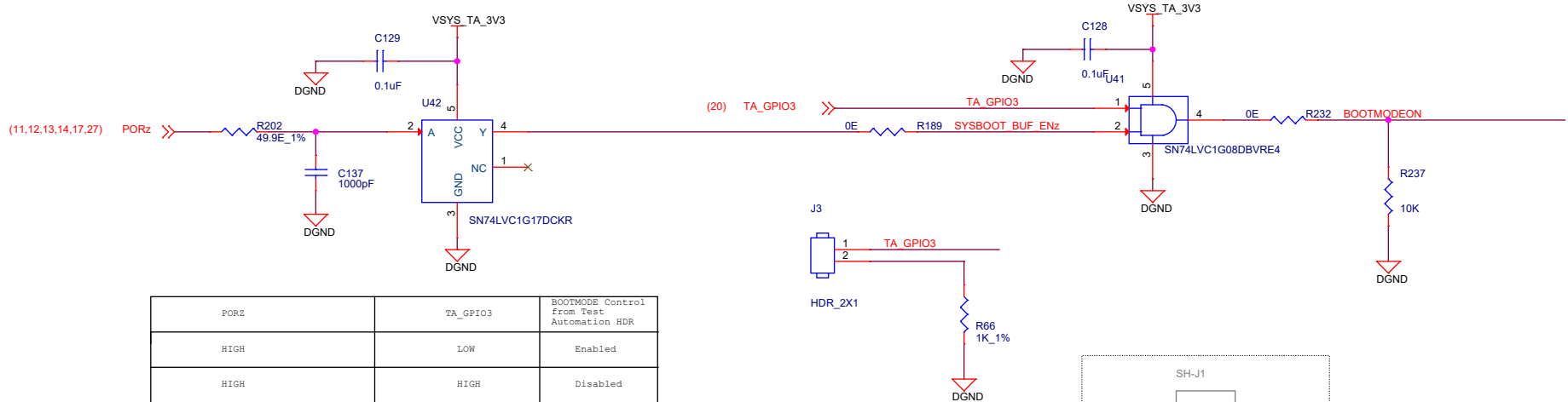
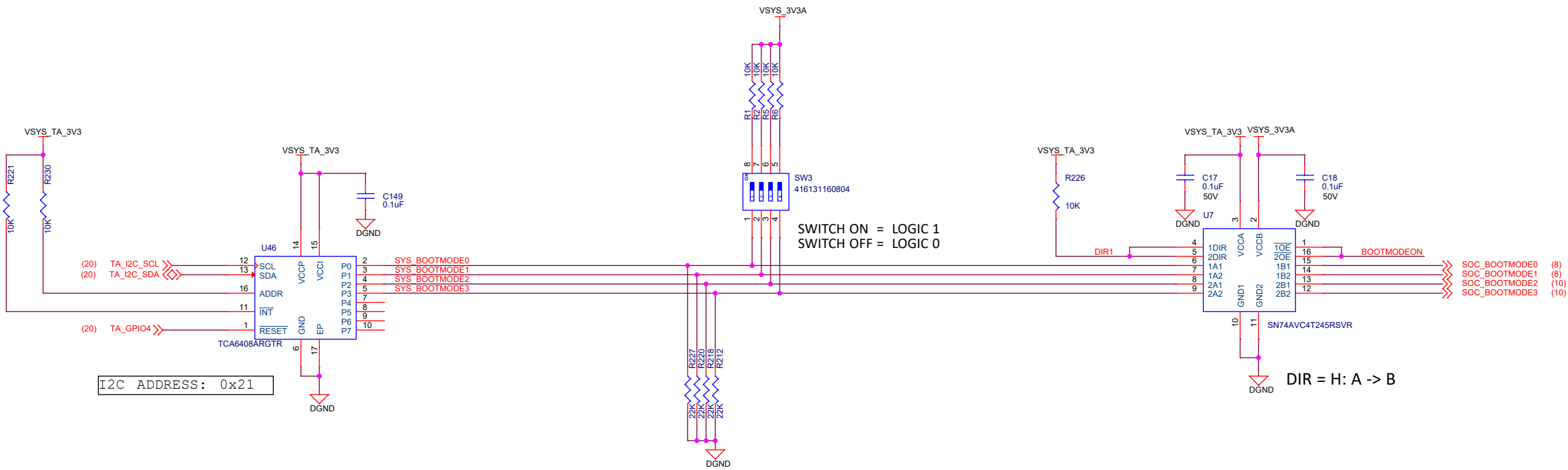
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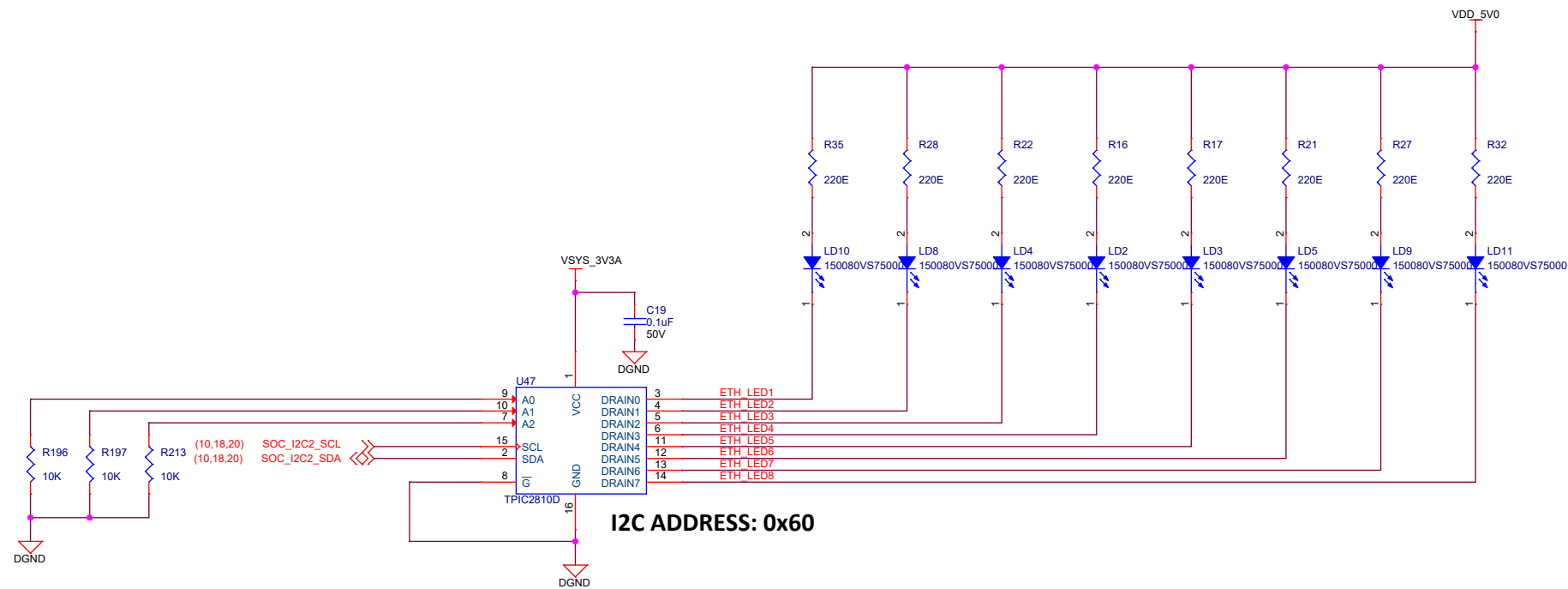
BOOTMODE BUFFER AND SWITCH



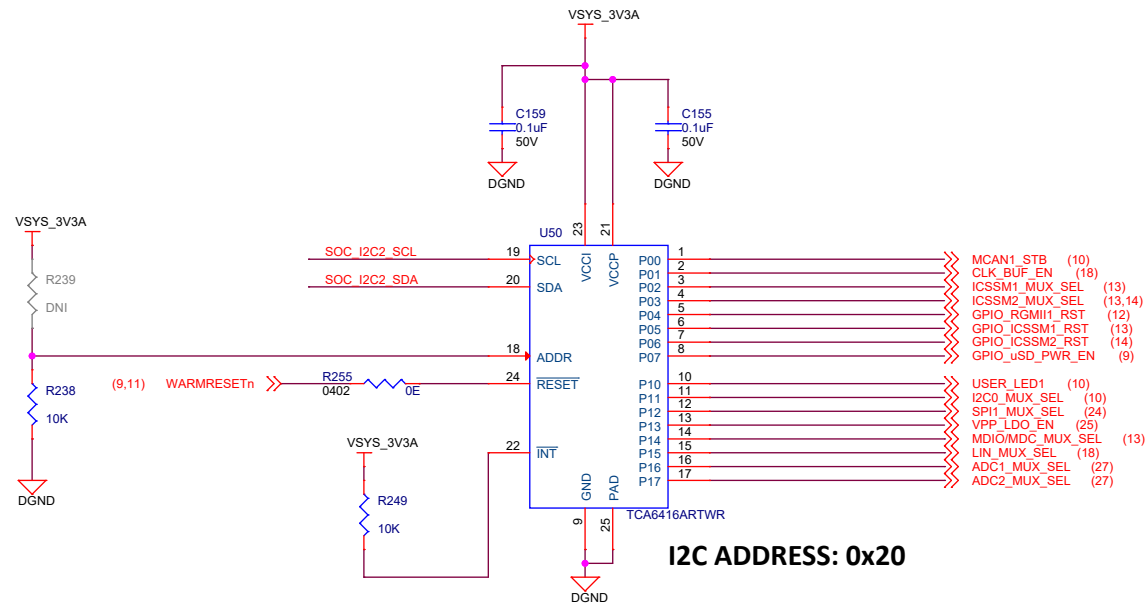
PORZ	TA_GPIO3	BOOTMODE Control from Test Automation HDR
HIGH	LOW	Enabled
HIGH	HIGH	Disabled

SH-J1
DNI
SH-J1 Shall be mounted to enable the bootmode buffer

LED Driver



IO Expander



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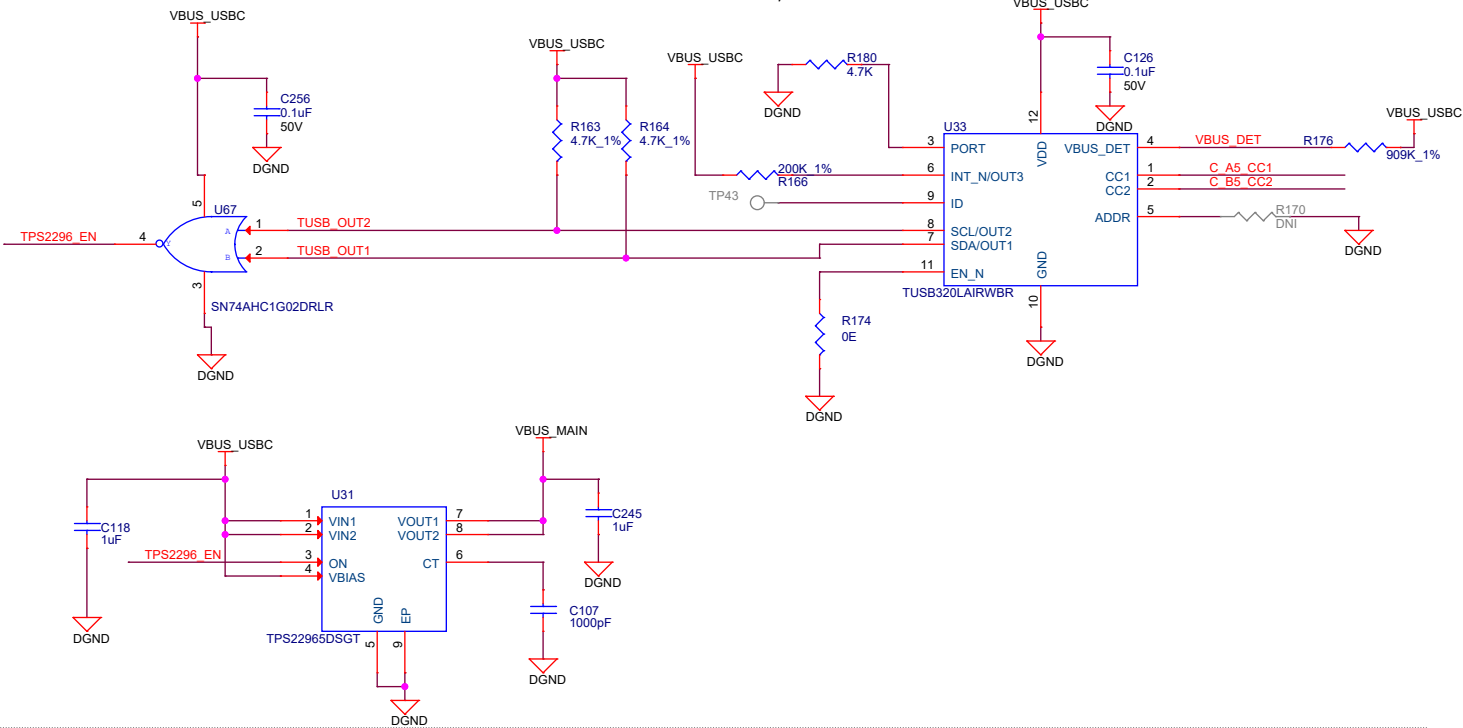
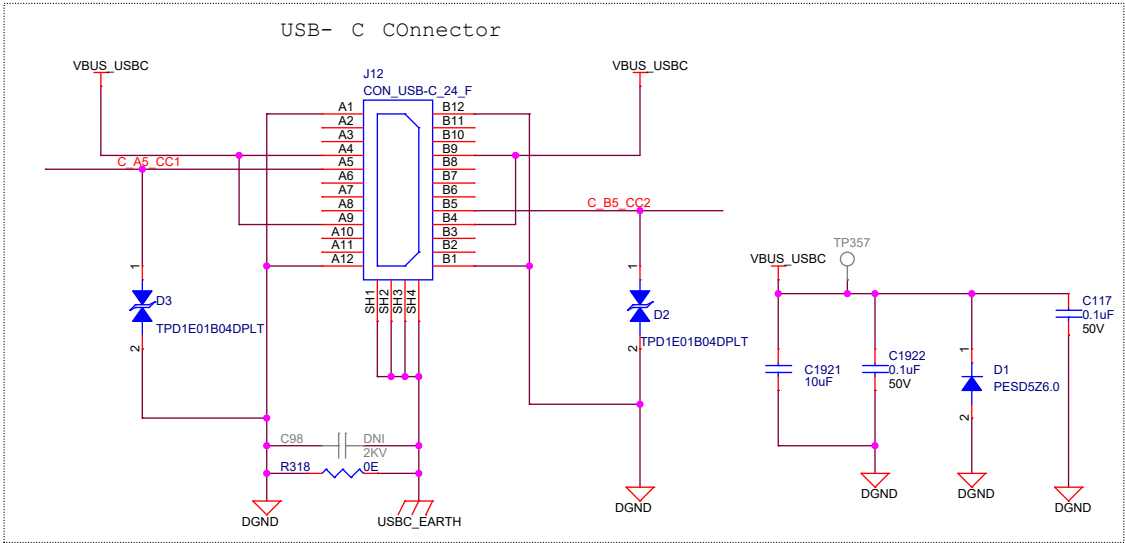
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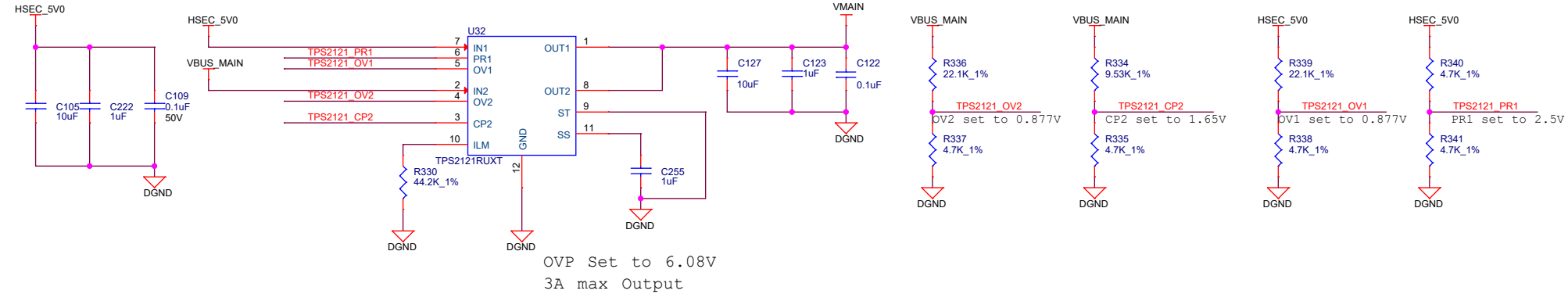
Rev
E2

USB-C Power

Configured as UFP MODE
To Detect 5V/3A Source

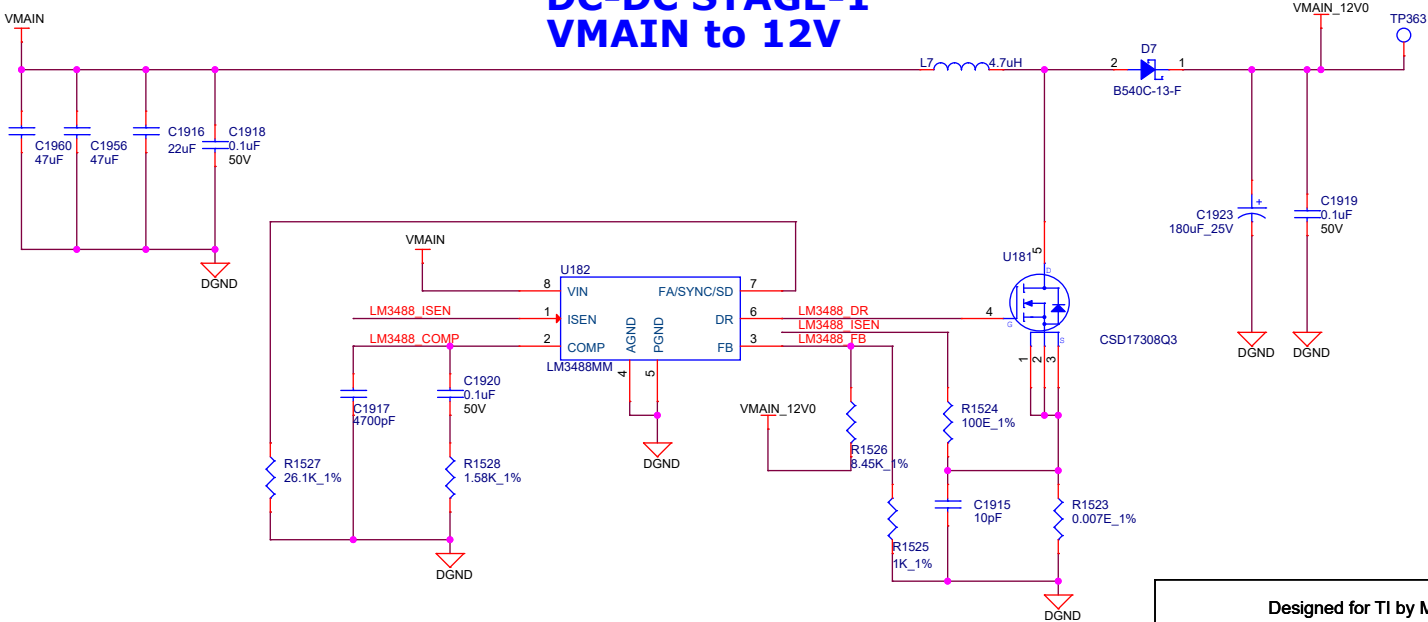


Power MUX



XCOMP	OUTPUT
PR1 > CP2	HSEC_5V0
PR1 = < CP2	VBUS_MAIN

DC-DC STAGE-1
VMAIN to 12V



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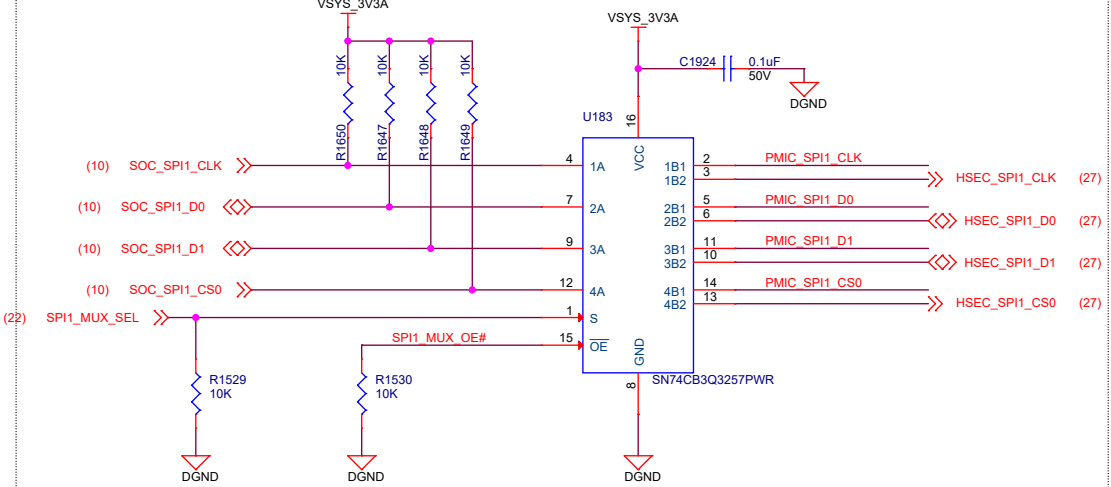


REVISION HISTORY

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C	E2
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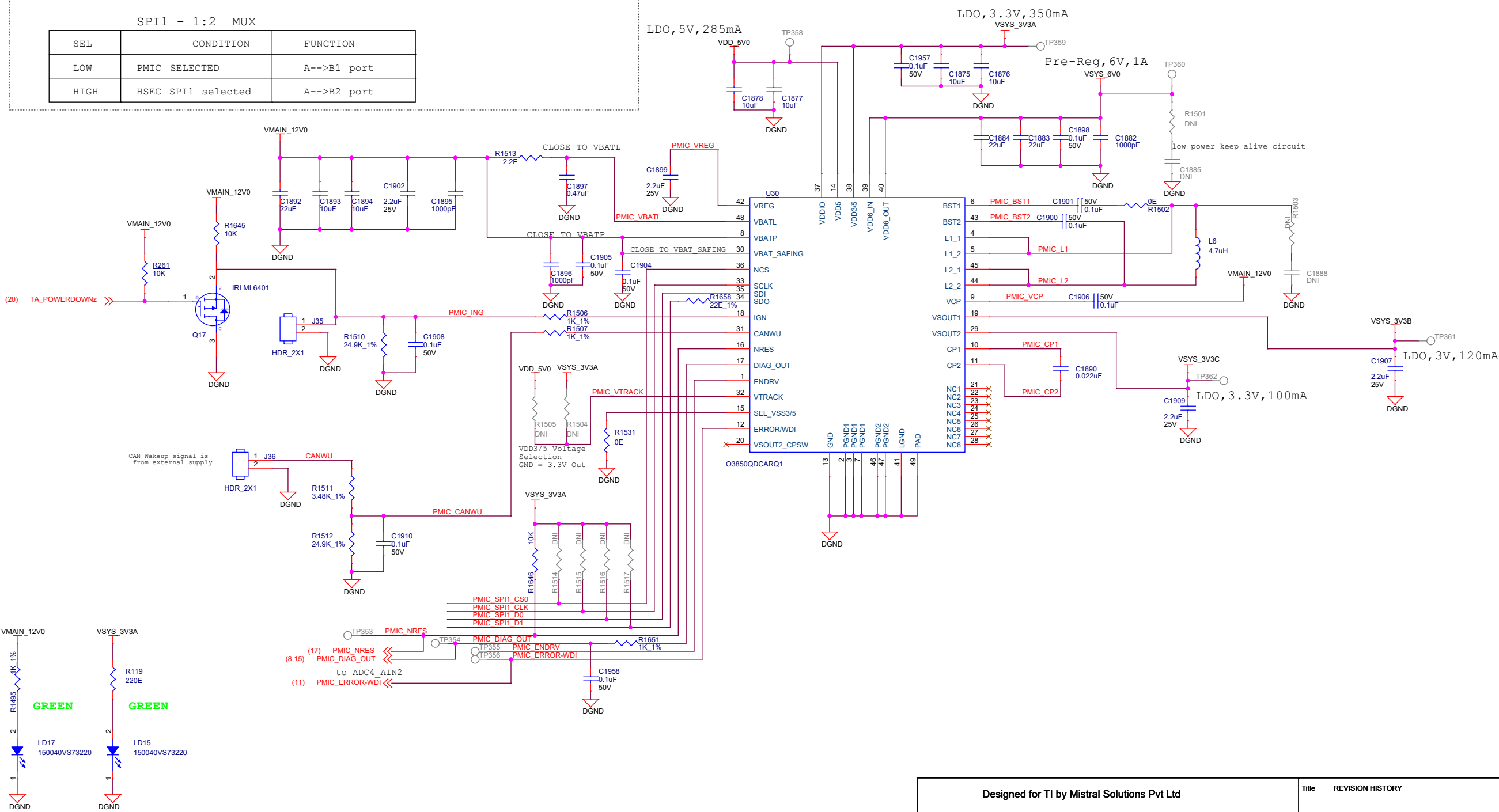
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SPI MUX/DEMUX



SPI1 - 1:2 MUX		
SEL	CONDITION	FUNCTION
LOW	PMIC SELECTED	A-->B1 port
HIGH	HSEC SPI1 selected	A-->B2 port

MAIN Power and PMIC



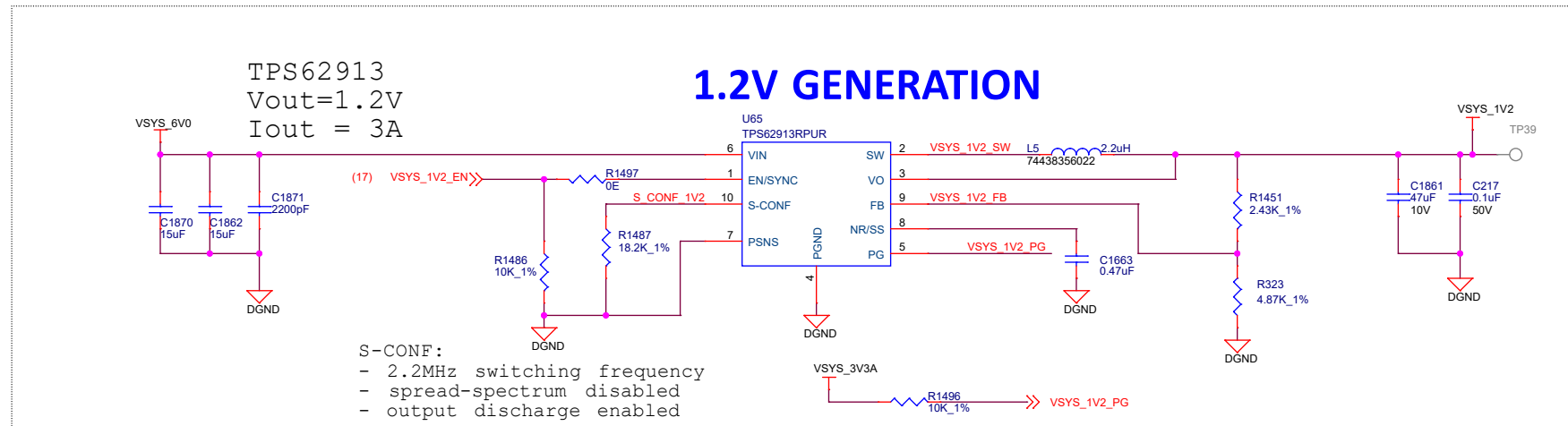
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REVISION HISTORY

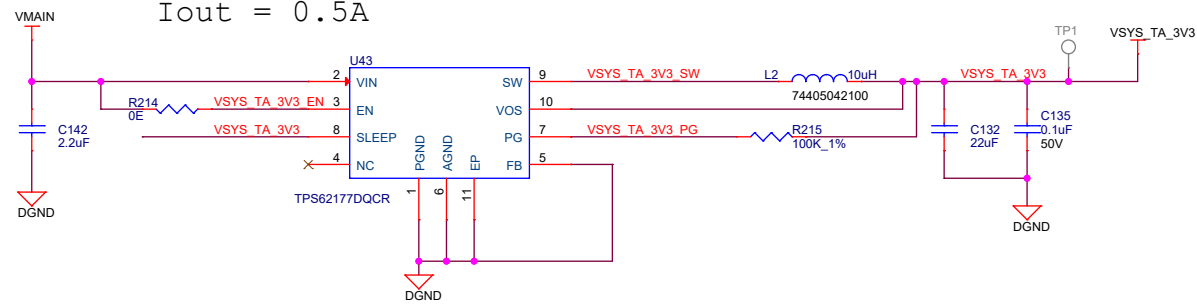
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Power Supply #1



Test Automation Header Supply

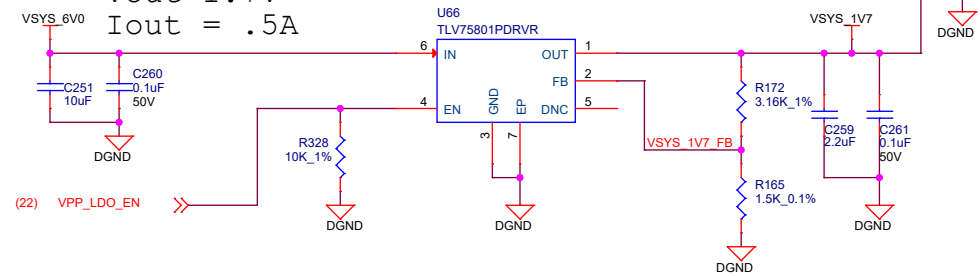
```
TPS62177 3.3V BUCK REGULATOR
Vout = 3.3V
Iout = 0.5A
```



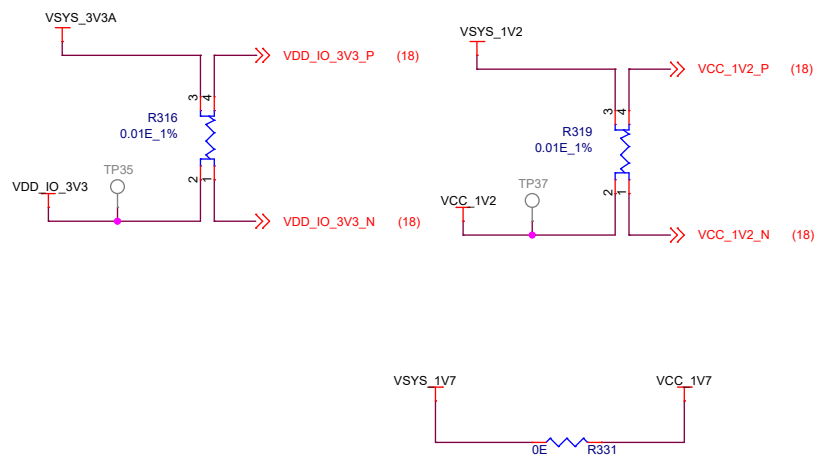
1.7V VPP Generation

Place testpoints with
100mils spacing to
insert external jumper

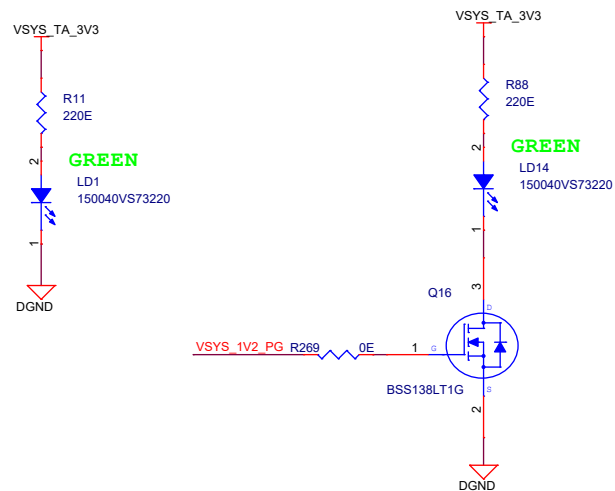
TLV75801
Vout=1.7V
Iout = .5A



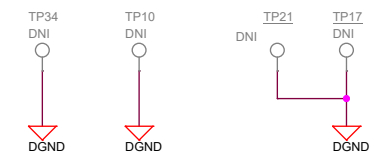
Voltage In-Line Resistors



Power LED



Ground Test Points



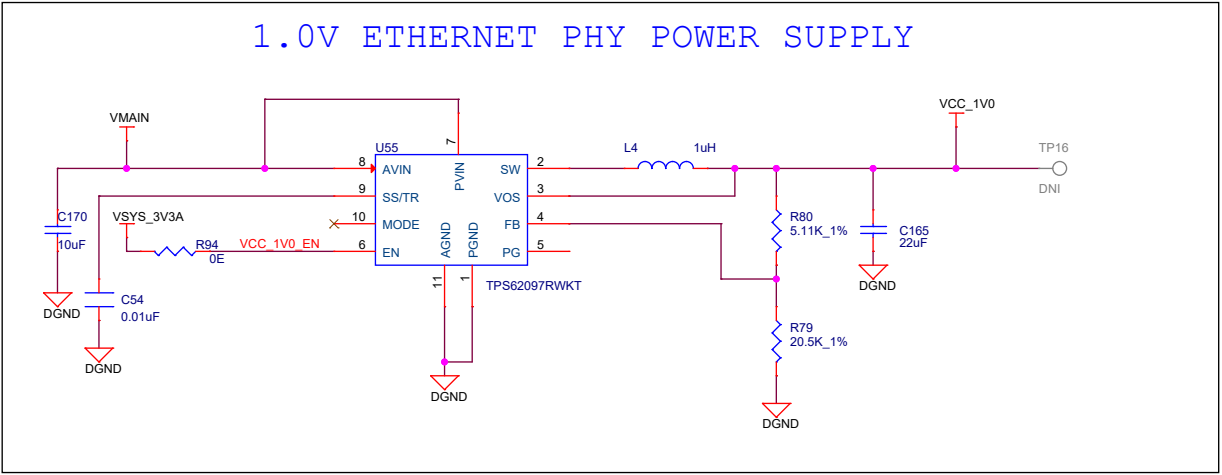
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Title	REVISION HISTORY
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Ethernet Powers



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Rev

E2

EVM Development & Evaluation test circuitry

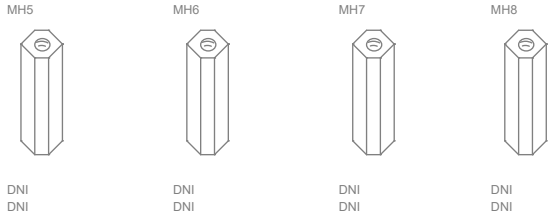
(TI EVM Only)

NOTES, HW & LABELS

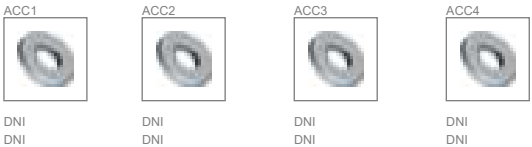
ASSEMBLY NOTES

1. All MSL components should be baked as per JEDEC standard.
2. PCB should be baked at 120 degree for 8 hours.
3. Board assembly must comply with workmanship standards. IPC-A-610 Class 2, unless otherwise specified.
4. These assemblies are ESD sensitive, ESD precautions shall be observed.
5. These assemblies must be clean and free from flux and all contaminants. Use of no clean flux is not acceptable.
6. Provide serial numbers to the assembled boards for identification.
7. The assembled board are wrapped in ESD Covers(individual) and packed securely before shipment.

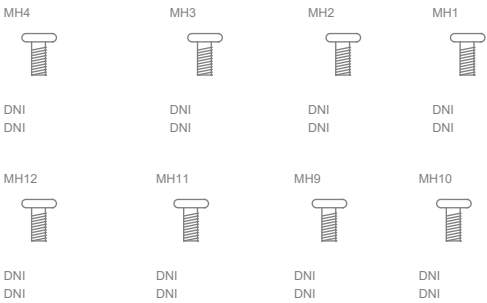
STANDOFFS



WASHER's



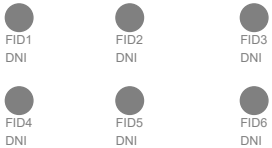
SCREWS



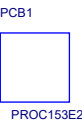
RUBBER FEET



FIDUCIALS



BARE PCB



LABELS

Board Serial No.



Assembly Revision.



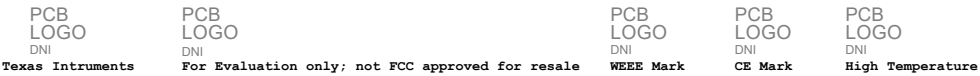
EVM Orderable No.



Orderable Part Numbers

Variant	Label Text
001	TMDSCNCD263AUTO

LOGOs



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Title REVISION HISTORY

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