

AM263x CC

PROC110E2

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Title REVISION HISTORY

Size	Variant Name = PROC110 001	Rev
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REVISION HISTORY

REV #	DATE	DESCRIPTION OF CHANGES	AUTHOR	REVIEWED BY	APPROVED BY
E2	10 NOV 2021	Drafted from E1	Mistral Design Team		
	11 NOV 2021	DNI'd R140 and R144 Swapped and connected U28 pin B7 to SOC_I2C2_SDA signal and U28 pin C7 to SOC_I2C2_SCL signal Added Pull up at U1.1 Added resistors at LIN PHY U69 and MUX U70 Added series termination on the output of the U49, U53 and U45 Changed U30 from TPS54334DRCT to TPS62913RPUR Changed U65 from TPS62826DMQR to TPS62913RPUR	Mistral Design Team		
	22 NOV 2021	Changed C136 and C1861 from 1210 to 0805 Changed L3 and L4 from 744316100 to IHLP2020BZER1R0M01	Mistral Design Team		
	29 NOV 2021	Added MUX U160 and U161 for ADC channels	Mistral Design Team		
	01 DEC 2021	Changed the ADC ESD diode connections	Mistral Design Team		
	02 DEC 2021	Changed the ADC connections	Mistral Design Team		
	22 DEC 2021	Updated the TI comments into the design	Mistral Design Team		
	23 DEC 2021	Updated the ADC section as per TI comments	Mistral Design Team		
	20 JAN 2022	Updated the SOC symbol pad names of RESERVED pins	Mistral Design Team		
	24 JAN 2022	Updated the ADC section by swapping the ESDs	Mistral Design Team		
	07 MAR 2022	Added jumper SH-J1 for enabling the bootmode buffer Updated SOC part number	Mistral Design Team		

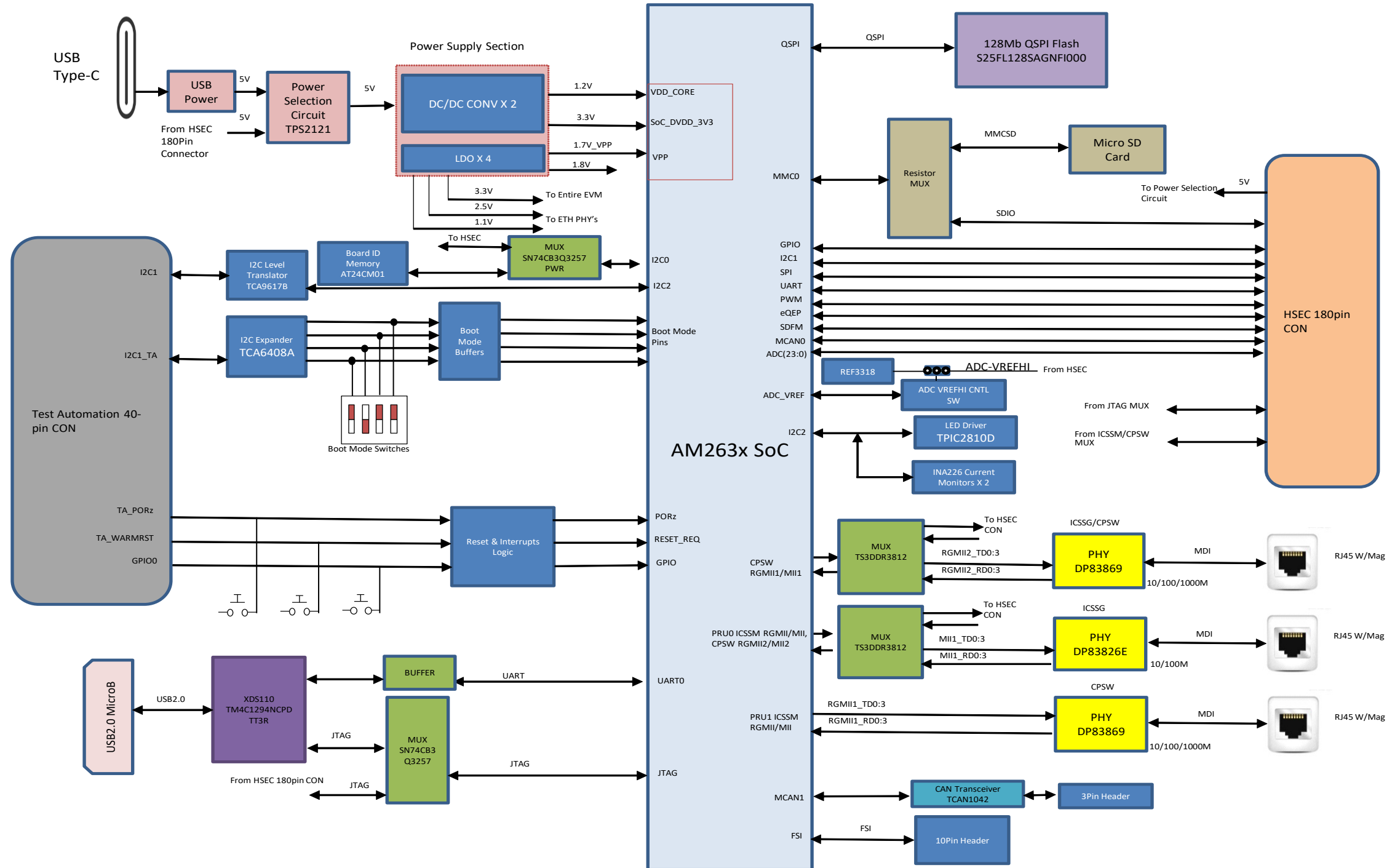
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SYSTEM BLOCK DIAGRAM



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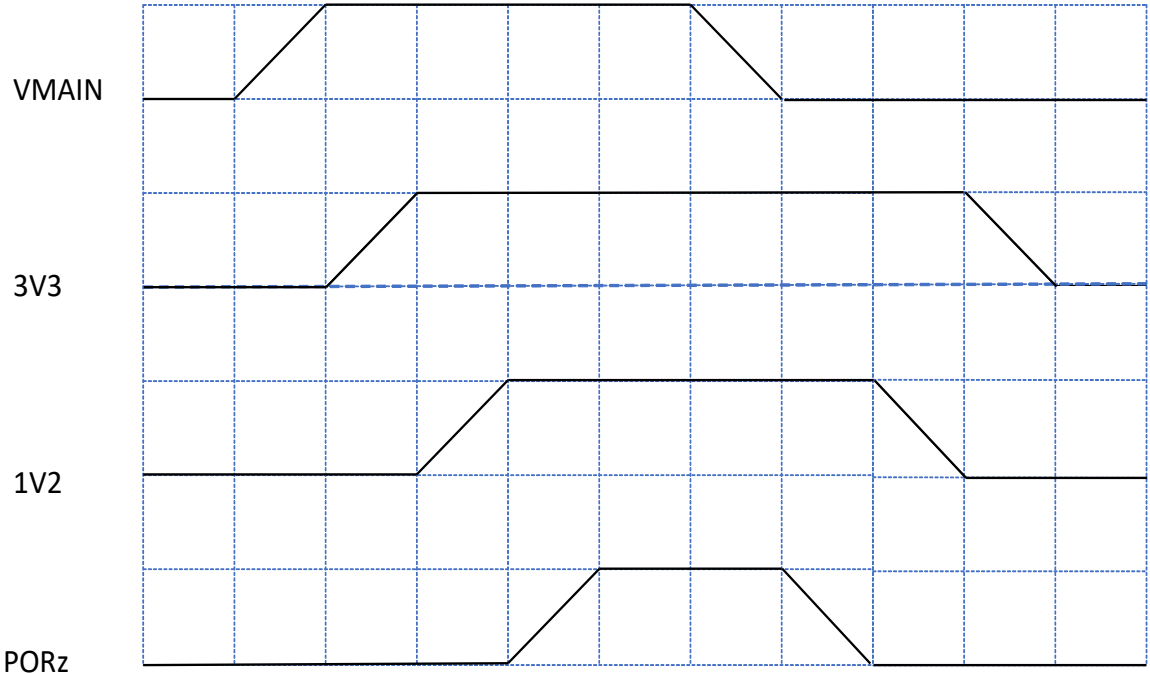
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POWER SEQUENCE

AM263x POWER UP / POWER DOWN SEQUENCE

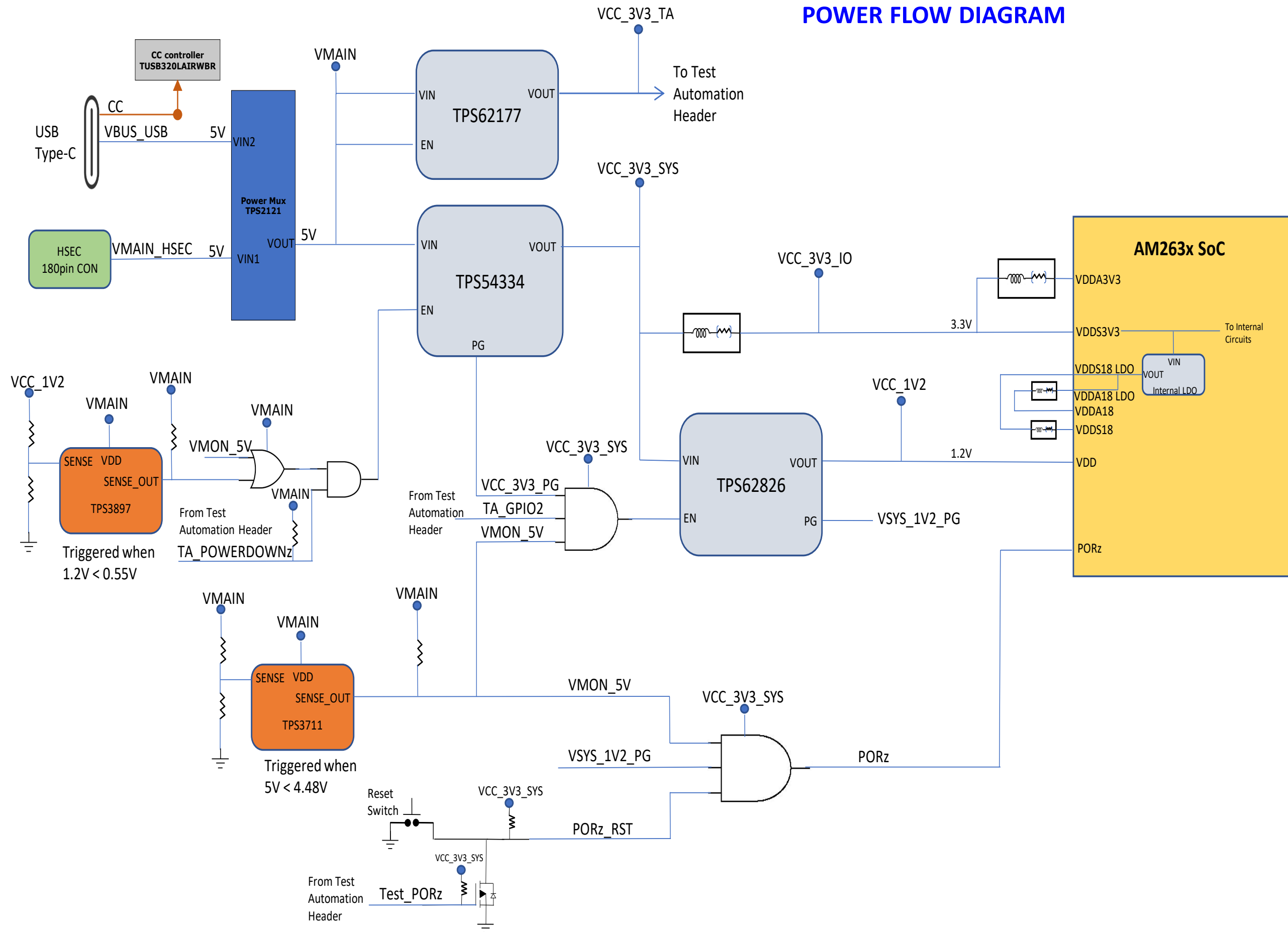


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POWER FLOW DIAGRAM



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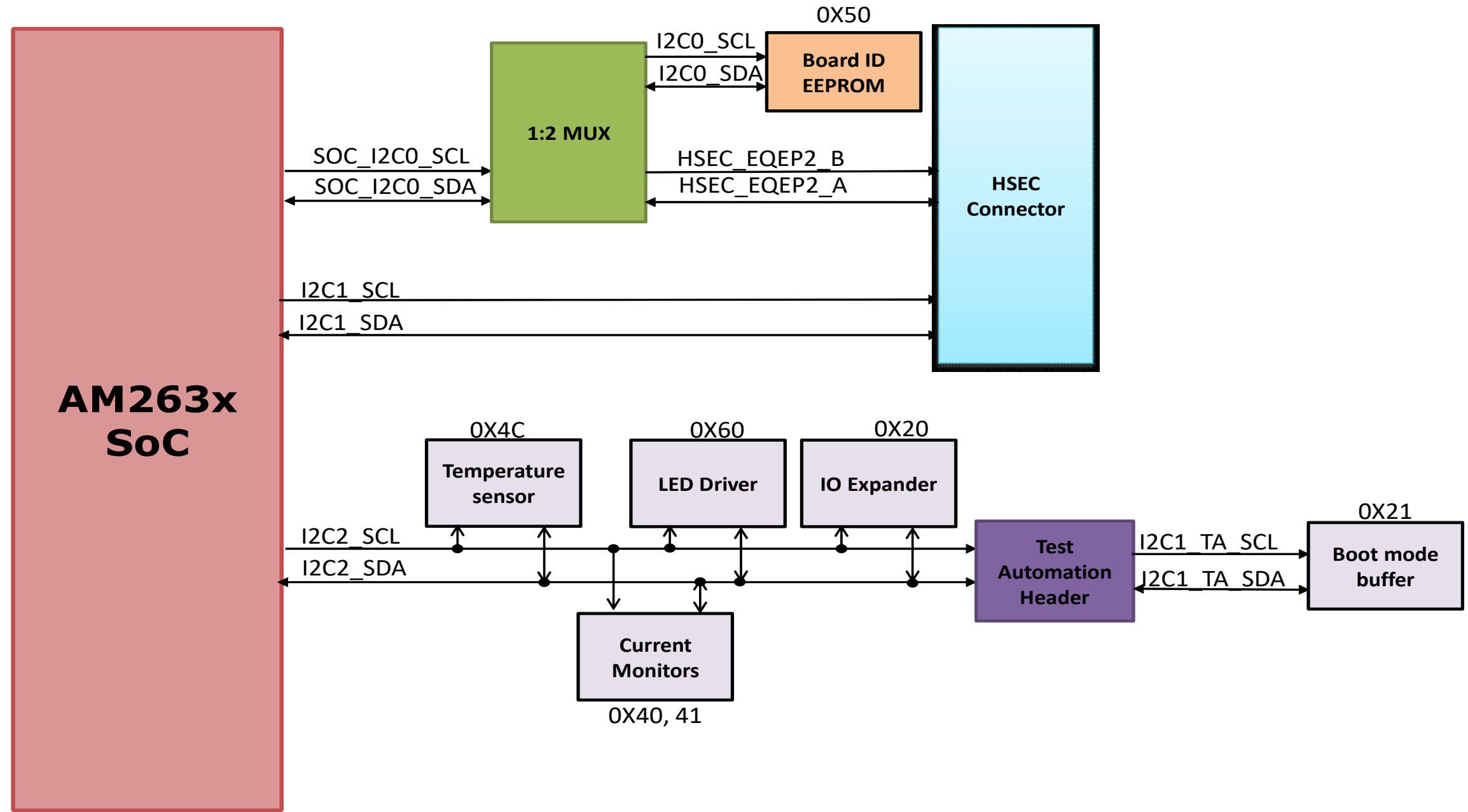


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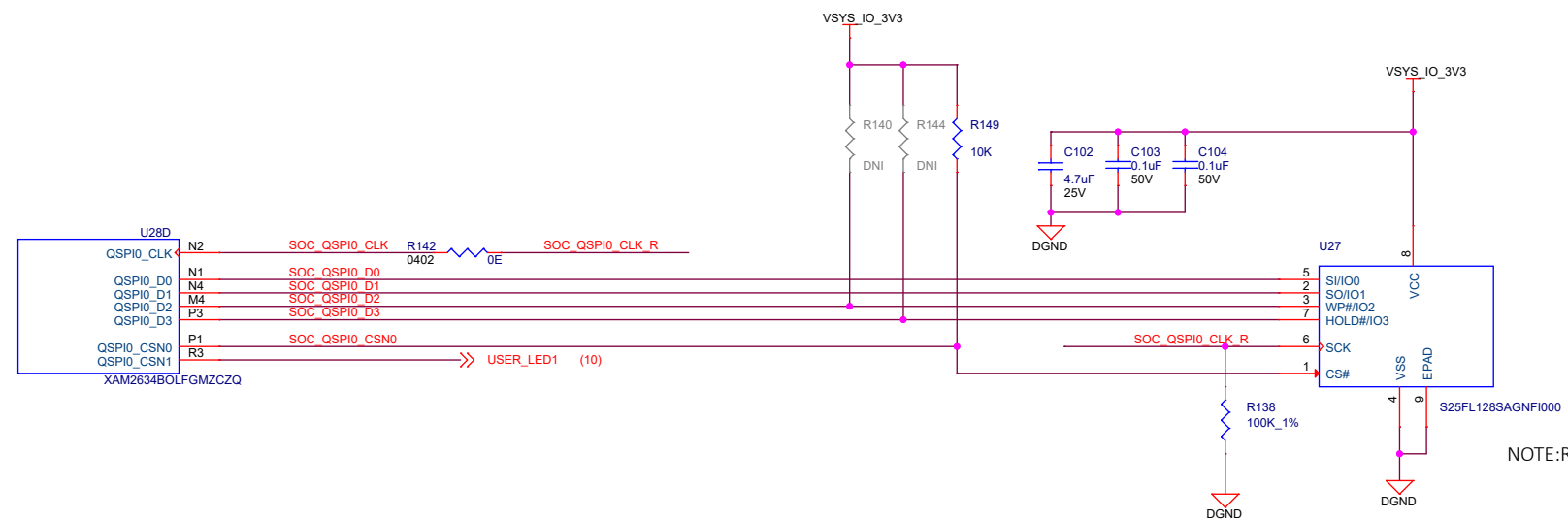
I2C TREE DIAGRAM



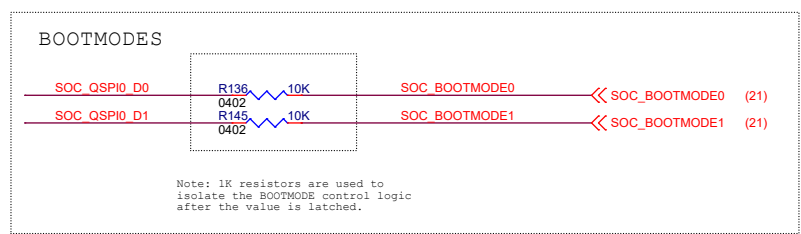
GPIO MAPPING TABLE

SI No.	GPIO DESCRIPTION	GPIO	Pin Name	FUNCTIONALITY	Net Name	ACTIVE STATE
1	Interrupt To SoC	GPIO21	LIN2_RXD	Interrupt	SOC_INTn	LOW
2	Interrupt To DP83826E	GPIO66	EPWM12_A	Interrupt	ICSSM2_PWDN/INTn	LOW
	got it working on gpio22 (GPIOAB_22 tresos)	GPIO67	EPWM11_B	Interrupt	RGMII1_INT	LOW
	worked fine	GPIO68	EPWM12_B	Interrupt	ICSSM1_INT	LOW
5	User Defined LED	GPIO20	LIN2_TXD	GPIO	USER_LED0	PREFERABLE
6	User Defined LED	GPIO1	QSPIO_CS _n 1	GPIO	USER_LED1	PREFERABLE
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 DP83869_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	Select line for RGMII1 MUX		P10	Mux Selection	RGMII_MUX_SEL	PREFERABLE
16	Reset Control to QSPI		P11	Reset	QSPIO_RESET	LOW
17	Select line for I2CO MUX		P12	Mux Selection	I2CO_MUX_SEL	PREFERABLE
18	GPIO output from TA header to SoC		P13	1.2V REG EN	TA_GPIO2	PREFERABLE
19	Enable control to 1.7V LDO		P14	LDO Enable	VPP_LDO_EN	High

SOC- QSPI Interface



NOTE:RST pin is not present in WSON

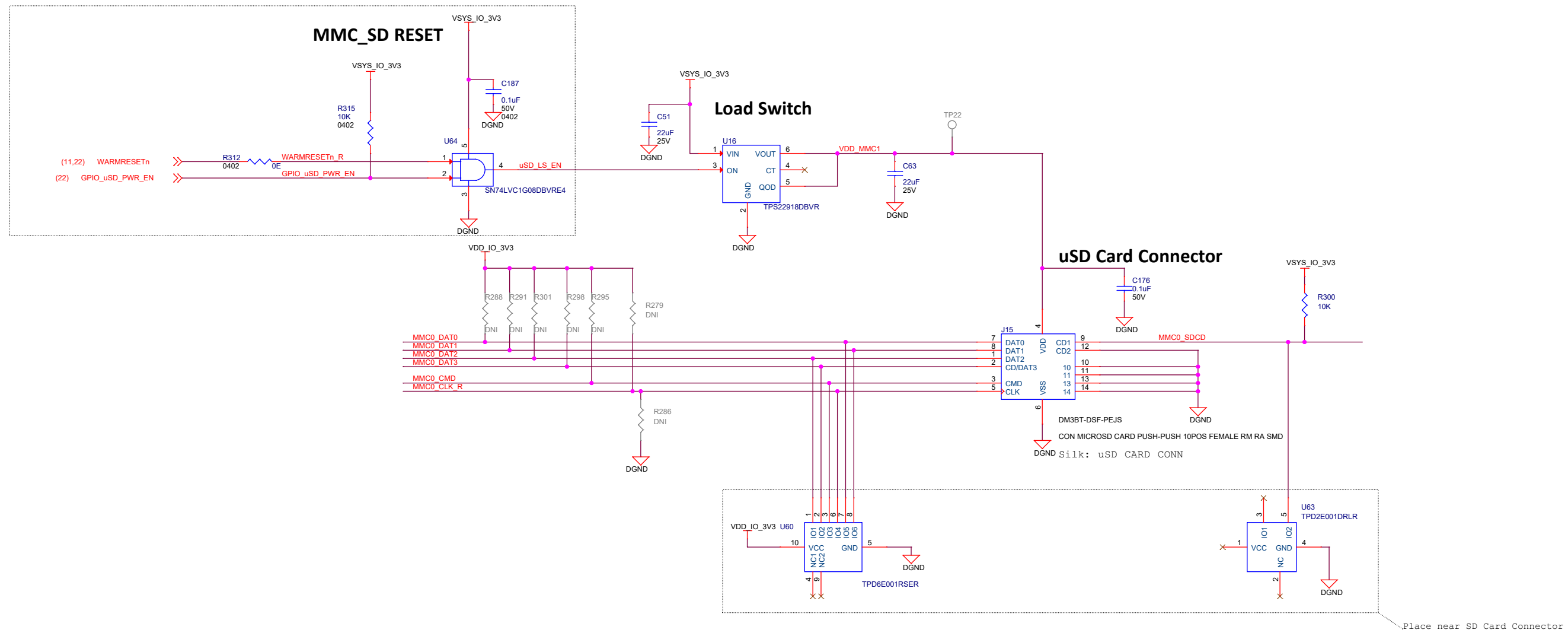
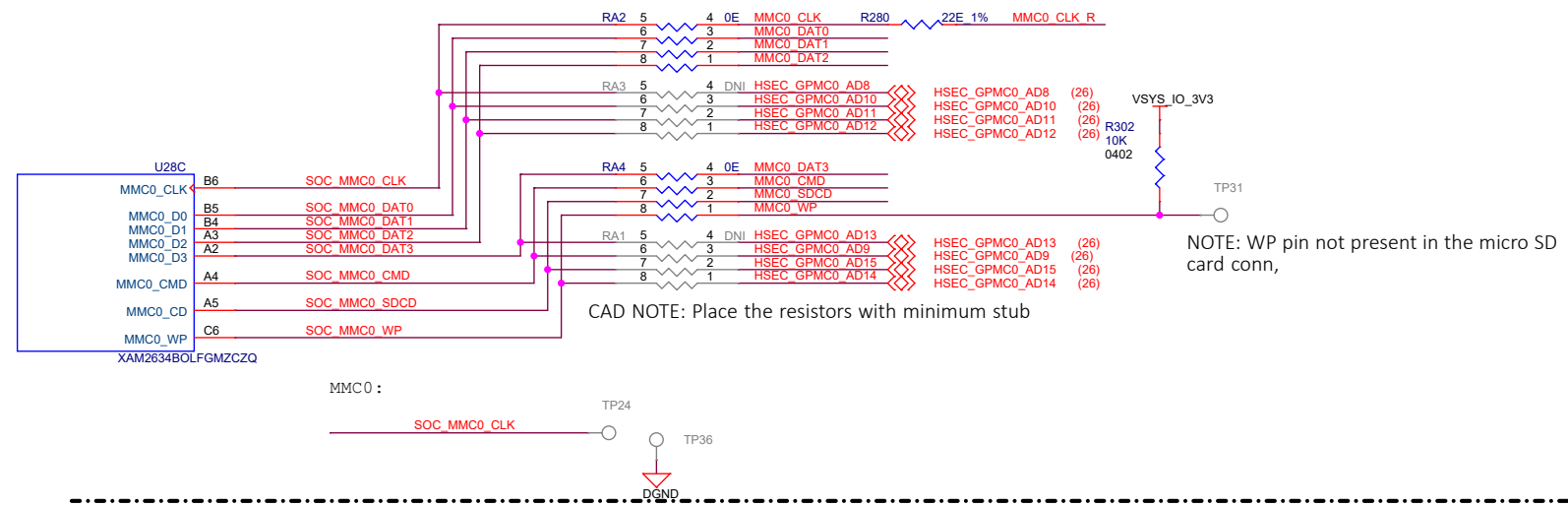


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SOC- MMC0 Interface



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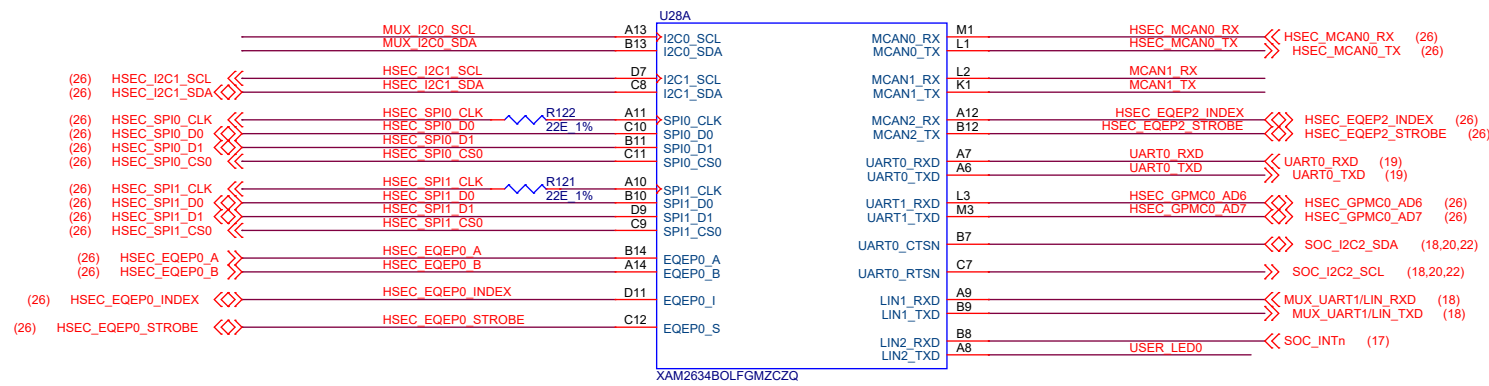
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Size	Rev
C	E2

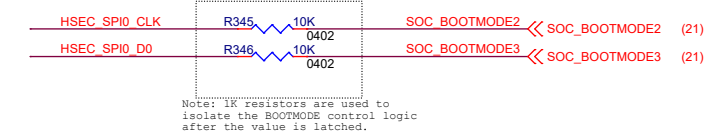
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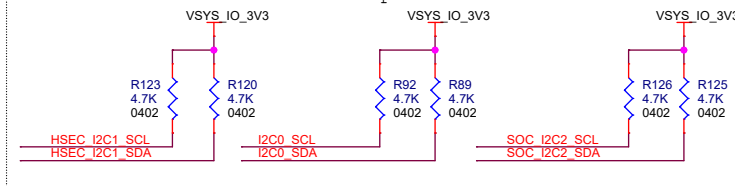
SOC-IO Interfaces



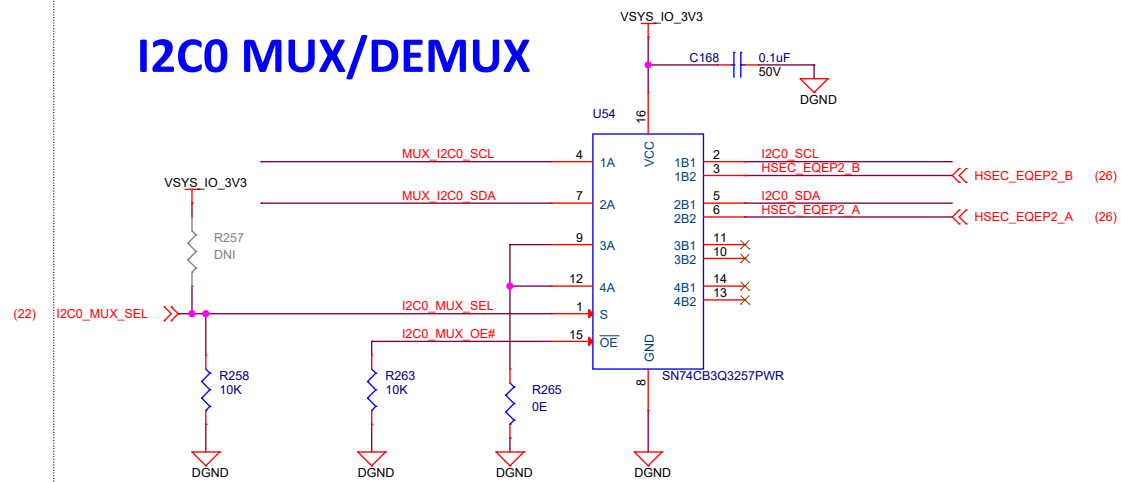
BOOTMODES



I2C Pull-ups



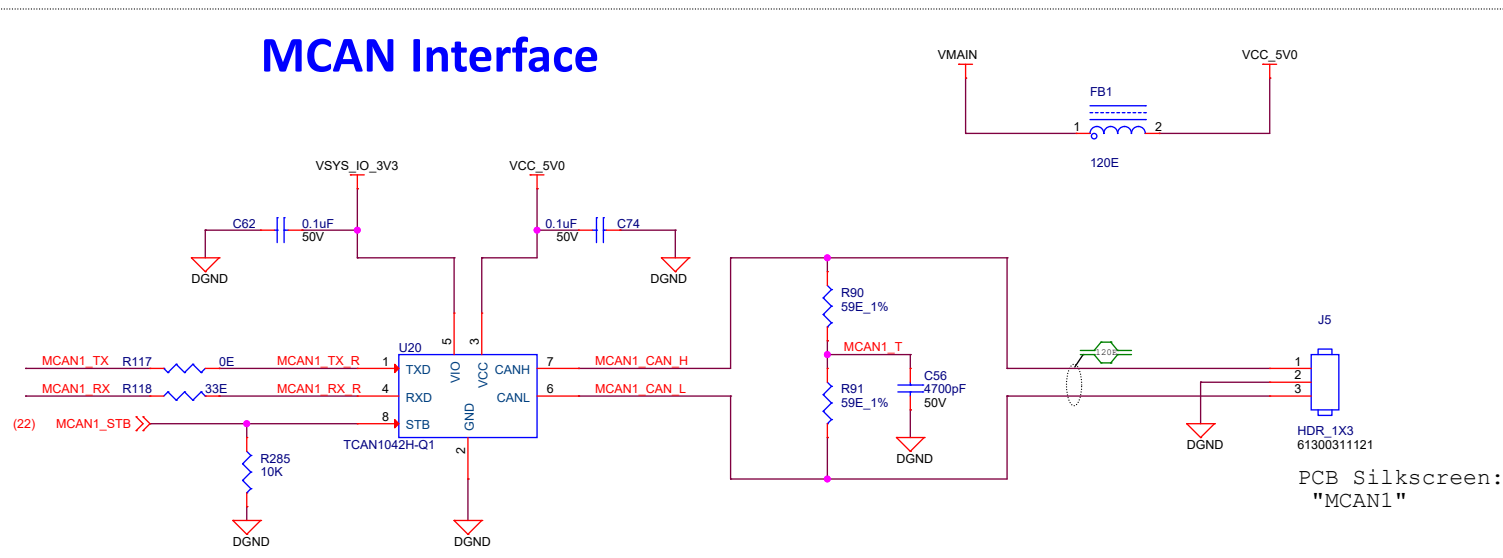
I2C0 MUX/DEMUX



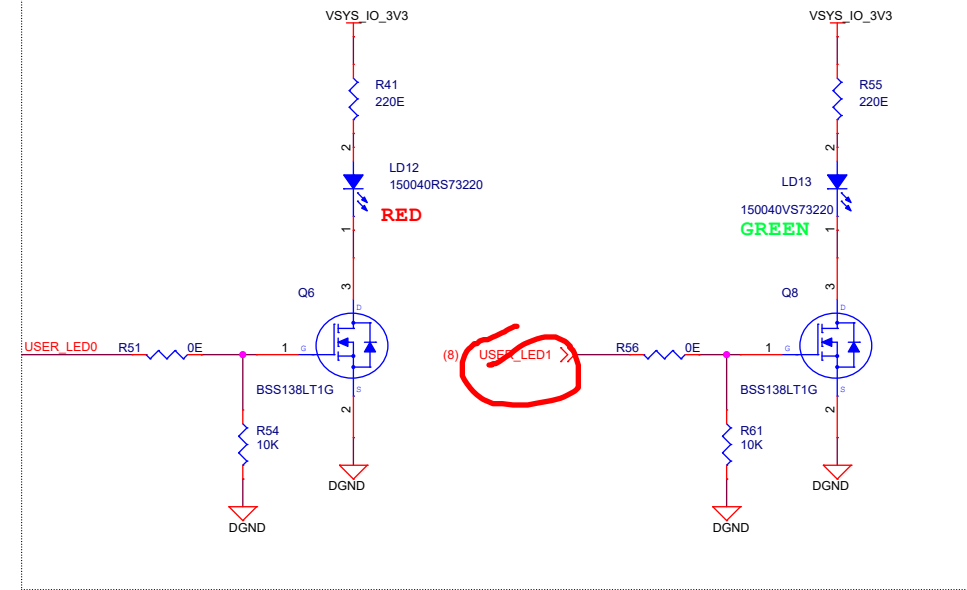
I2C0 - 1:2 MUX

SEL	CONDITION	FUNCTION
LOW	I2C0 SELECTED	A-->B1 port
HIGH	HSEC EQEP selected	A-->B2 port

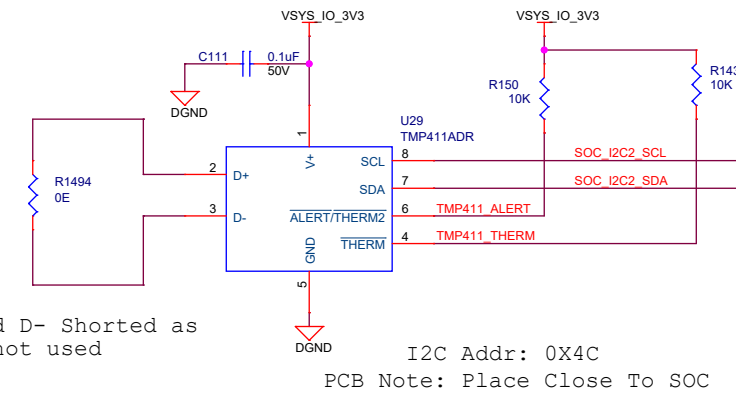
MCAN Interface



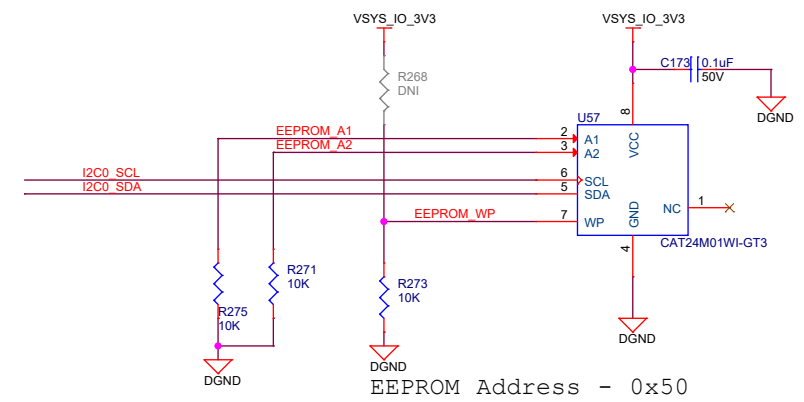
USER LED



Temperature Sensor



Board ID EEPROM



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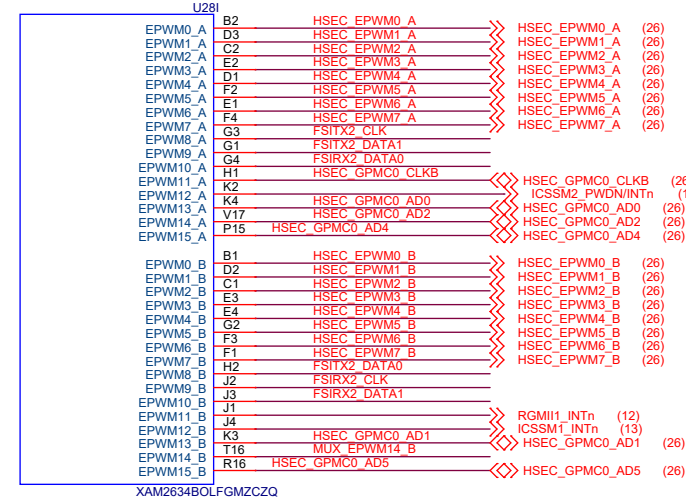
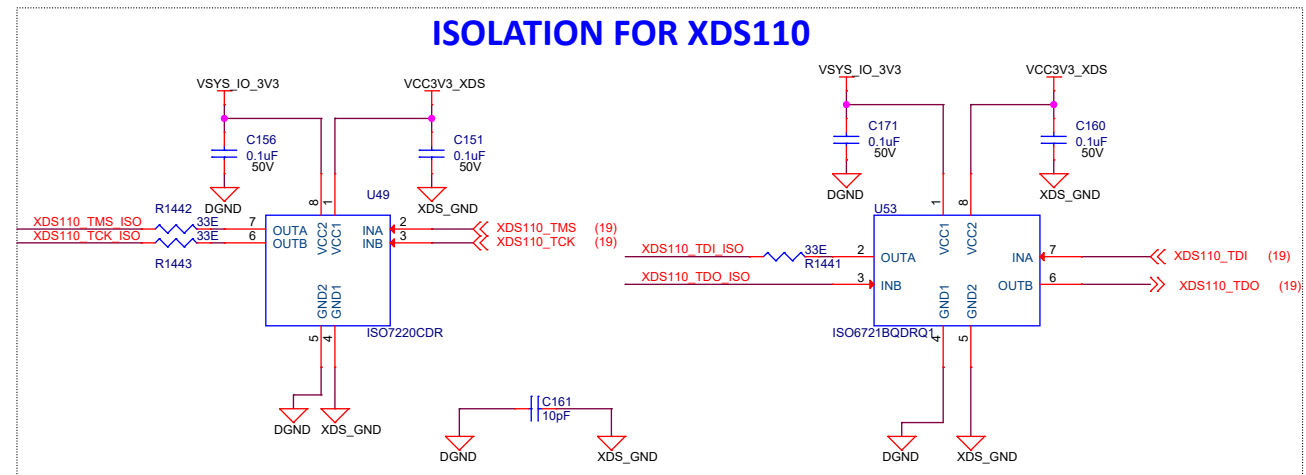
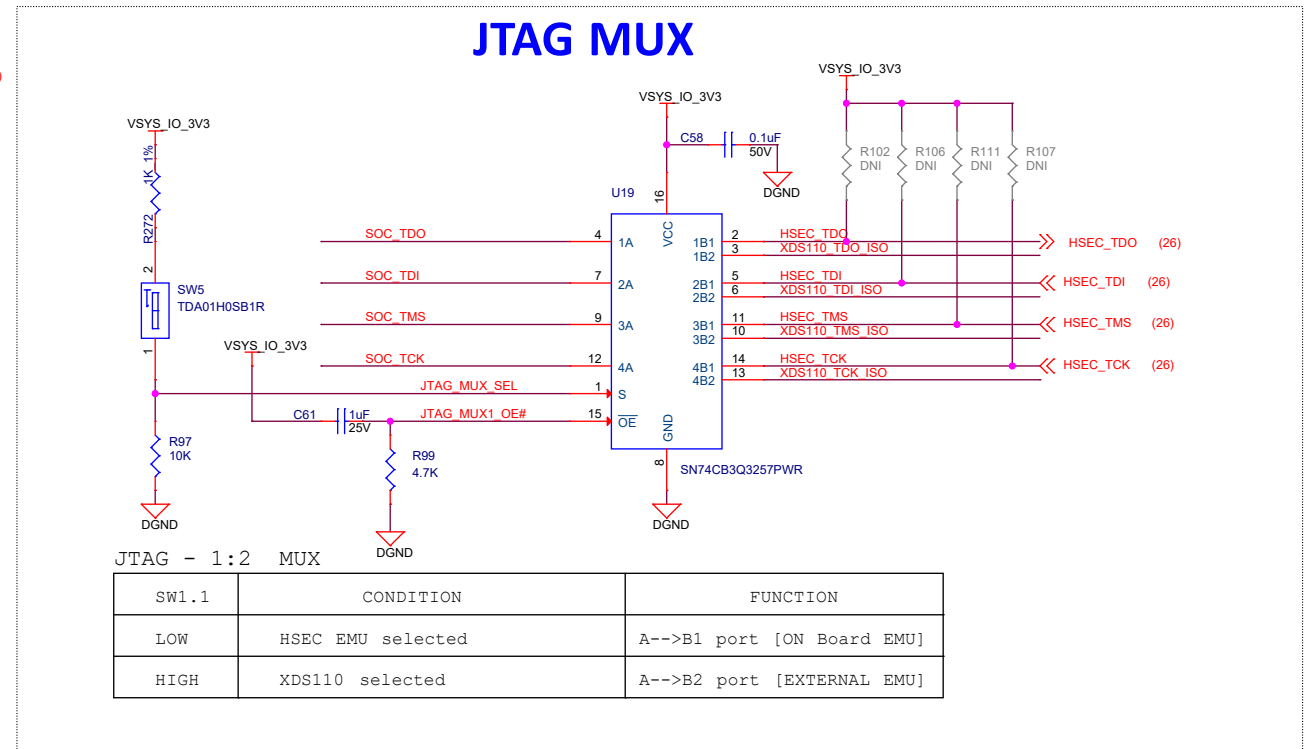
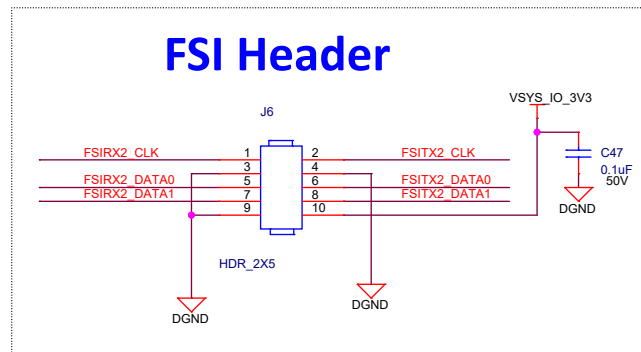
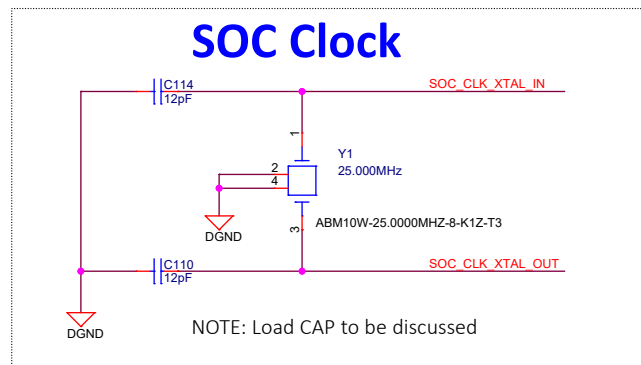
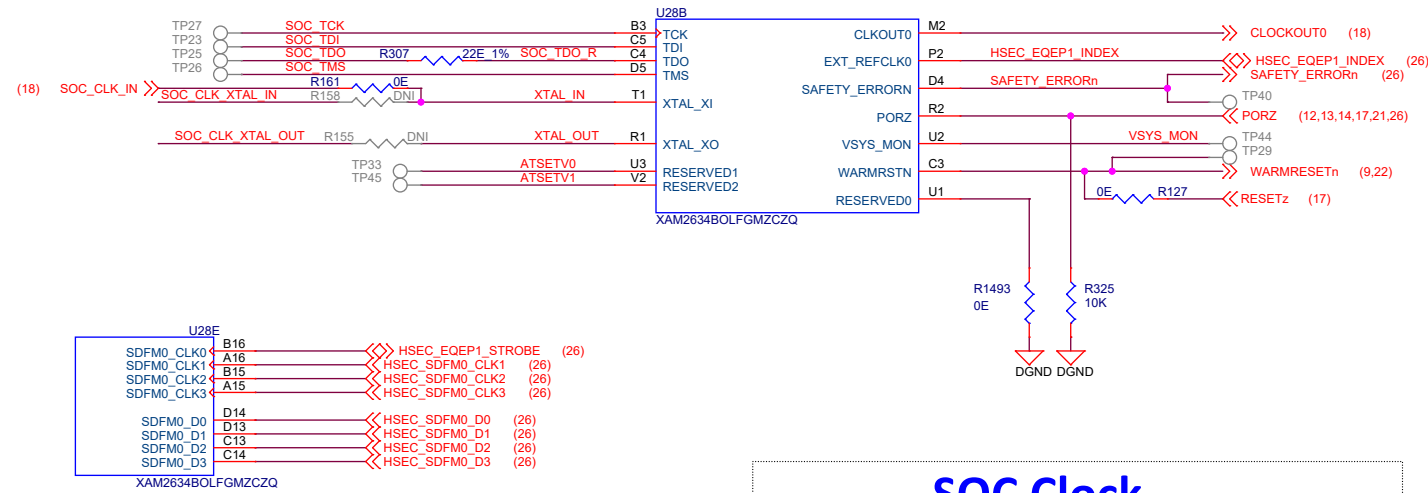


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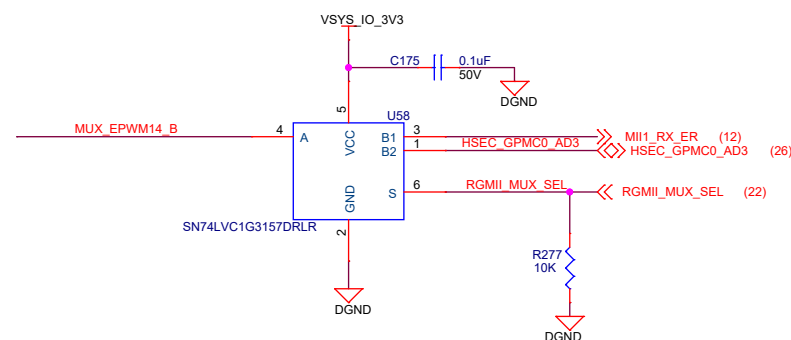
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SOC JTAG, RESET and CLKS

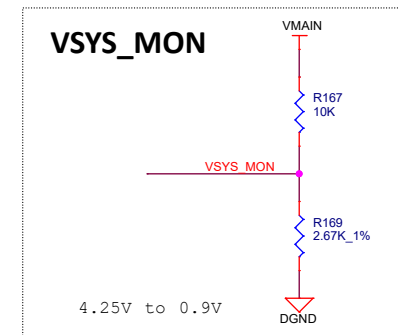


RGMII MUX

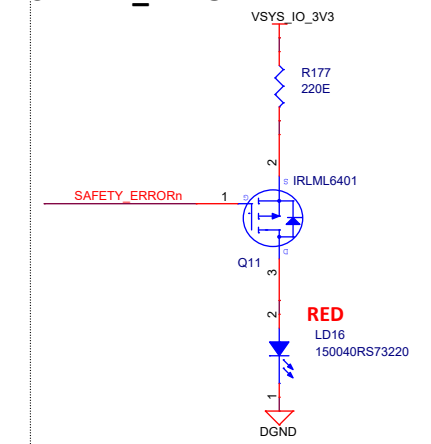


RGMII - 1:2 MUX

SEL	CONDITION	FUNCTION
LOW	RGMII SELECTED	A-->B1 port
HIGH	HSEC GPMC selected	A-->B2 port



SAFETY_ERROR



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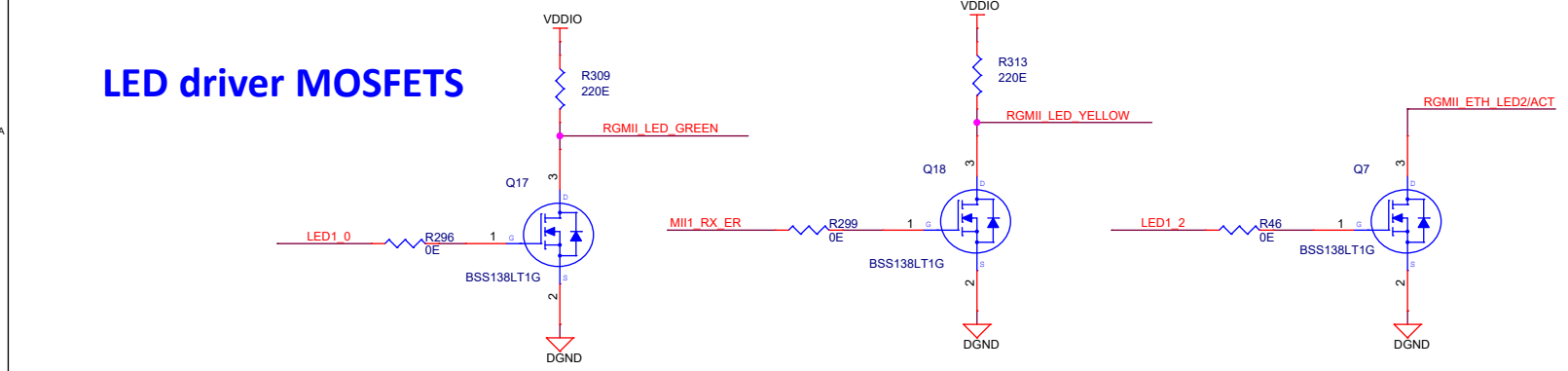
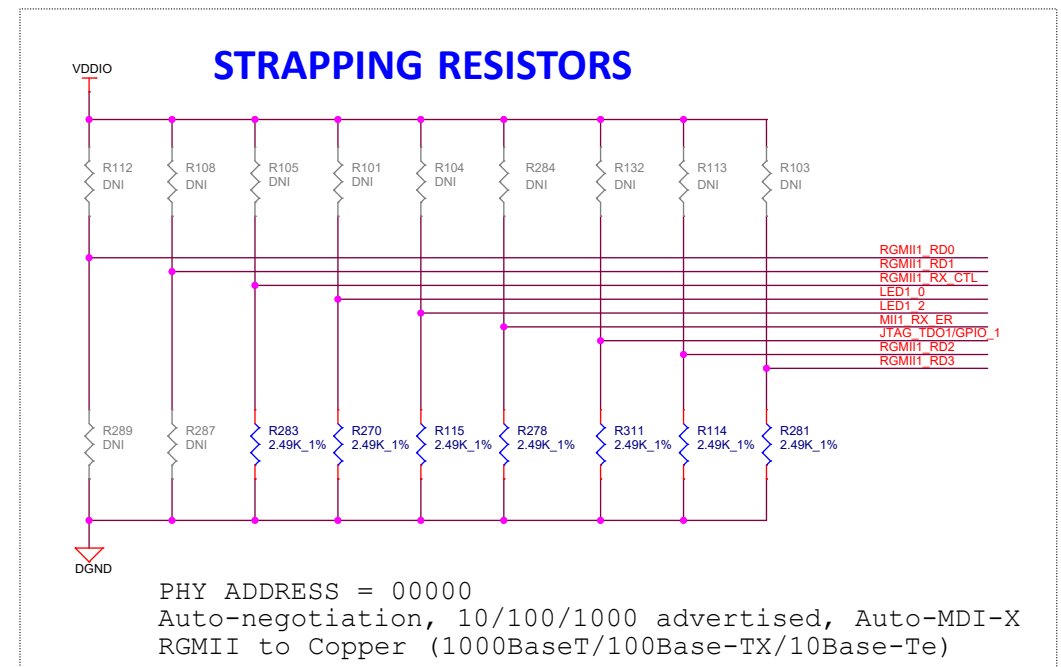
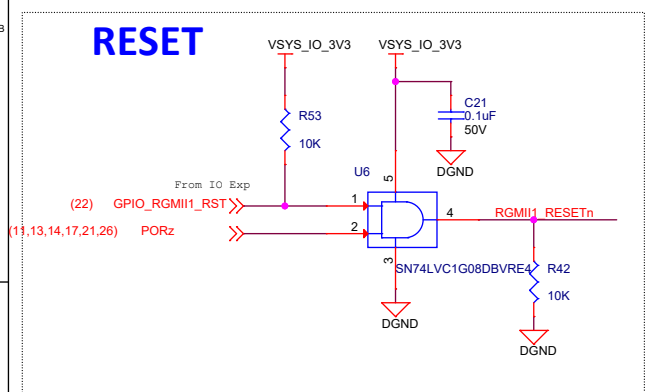
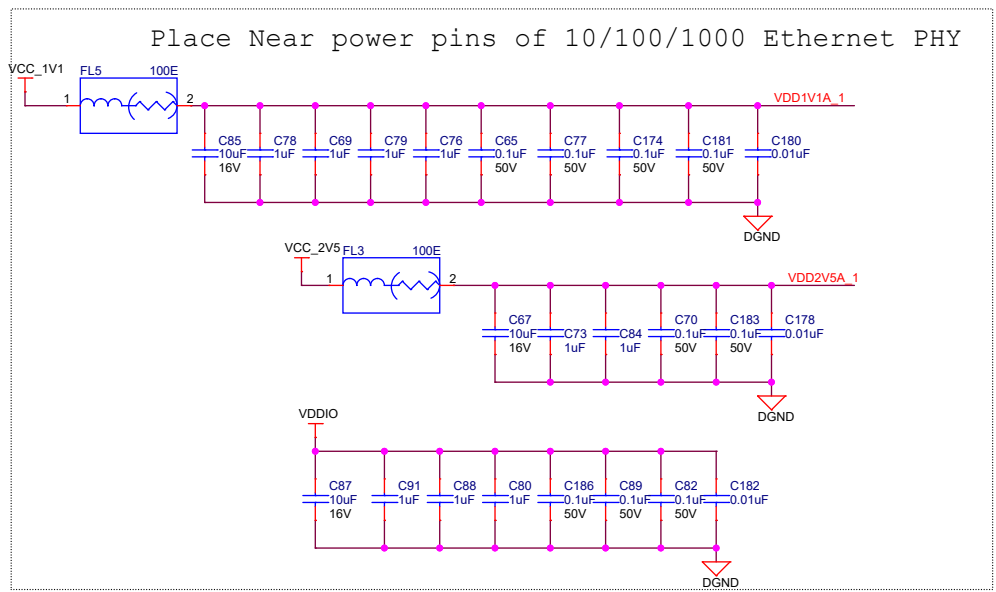
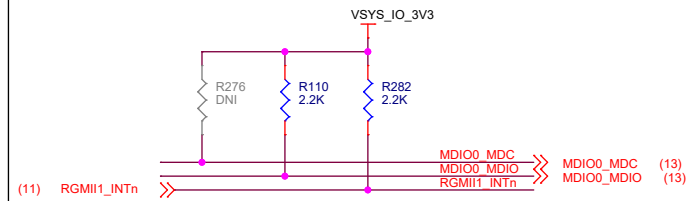
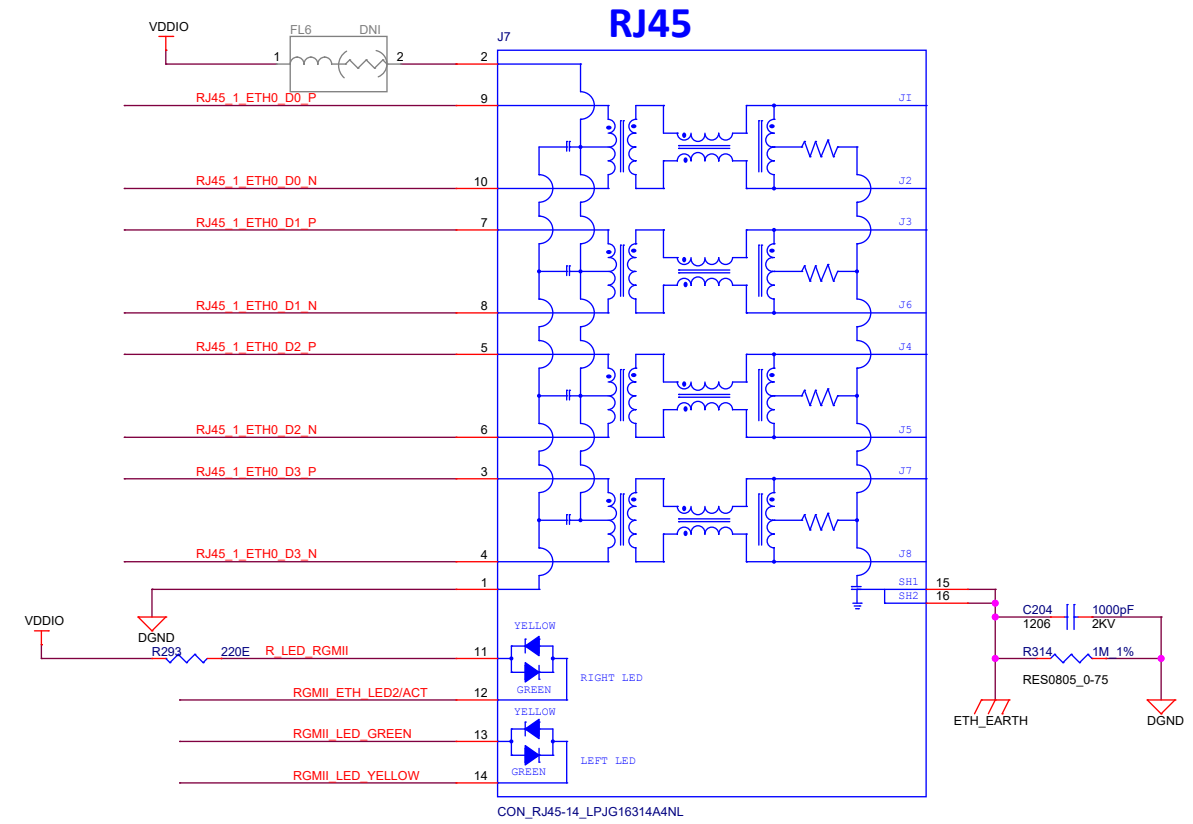
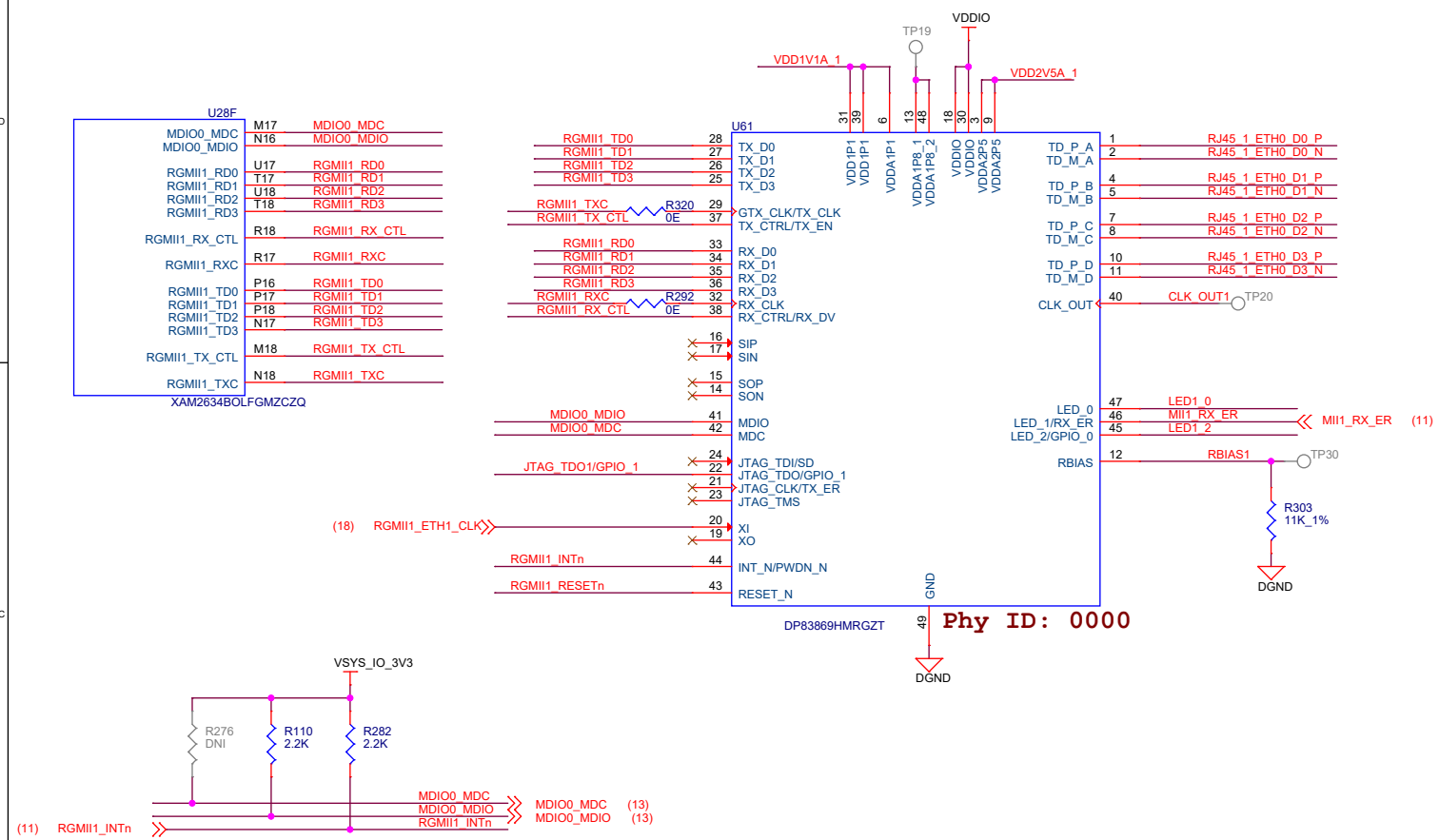


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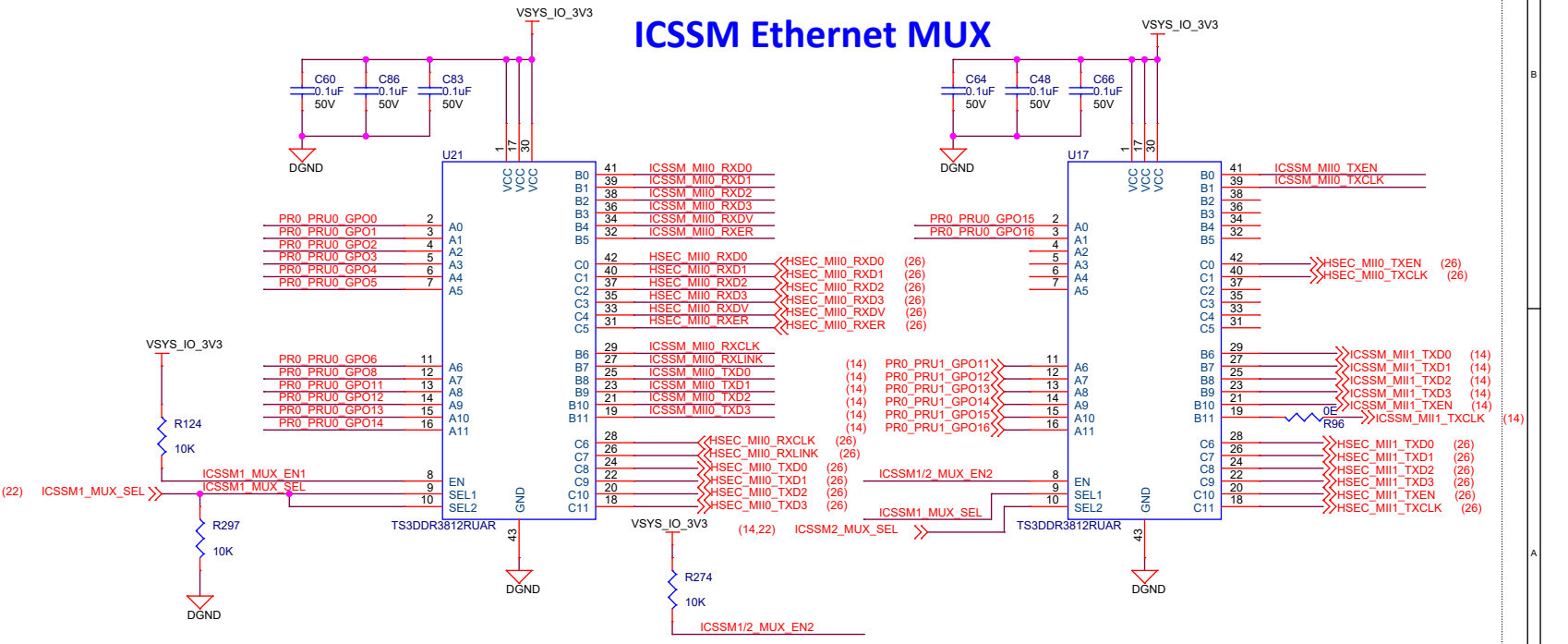
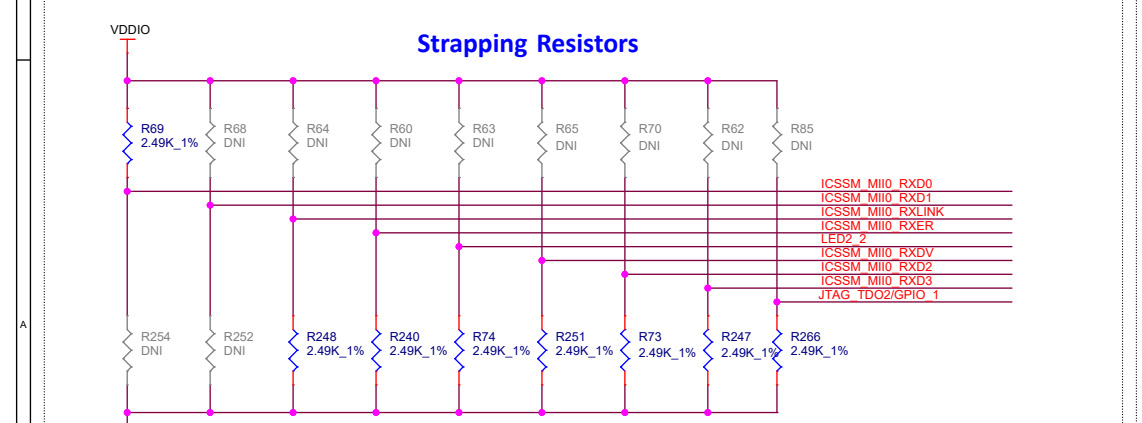
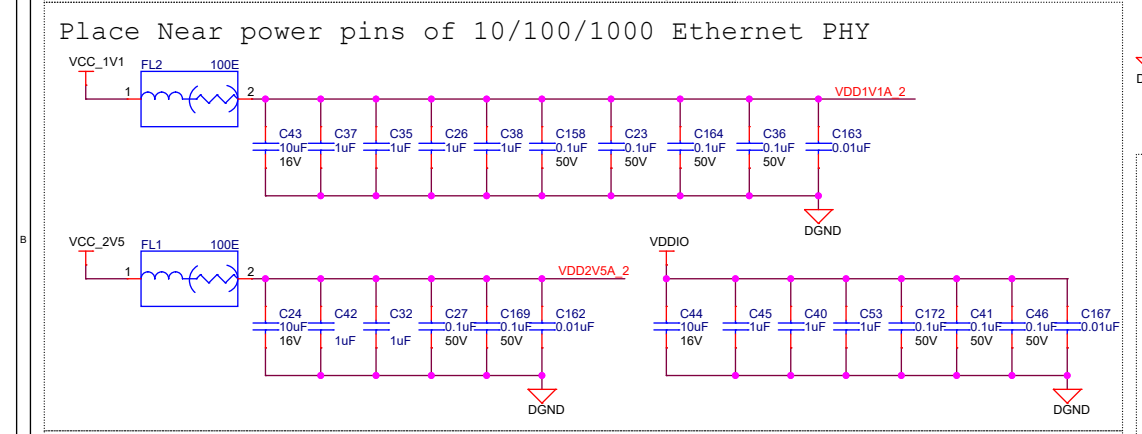
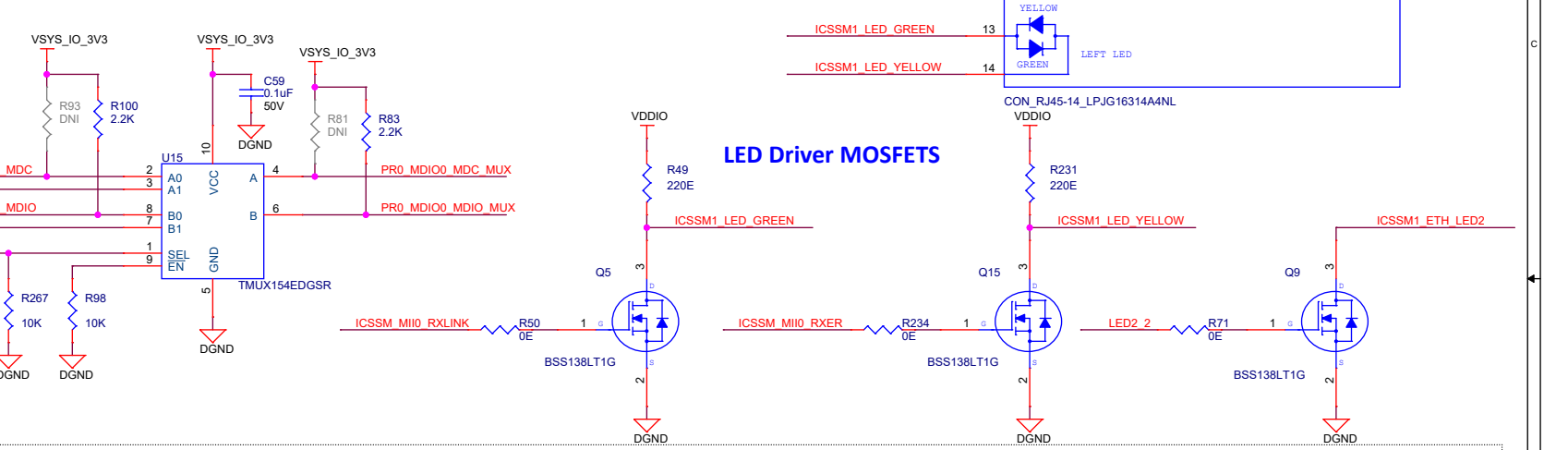
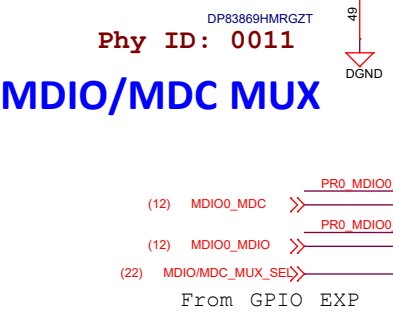
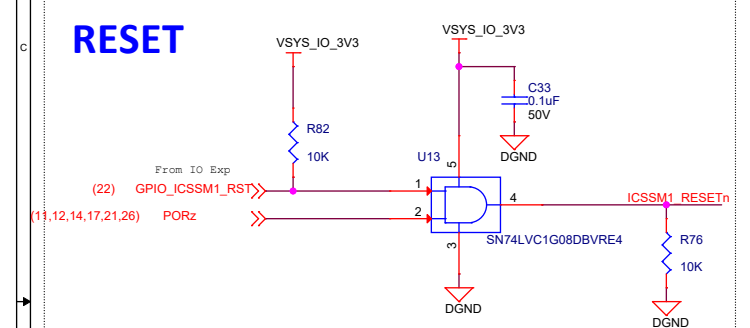
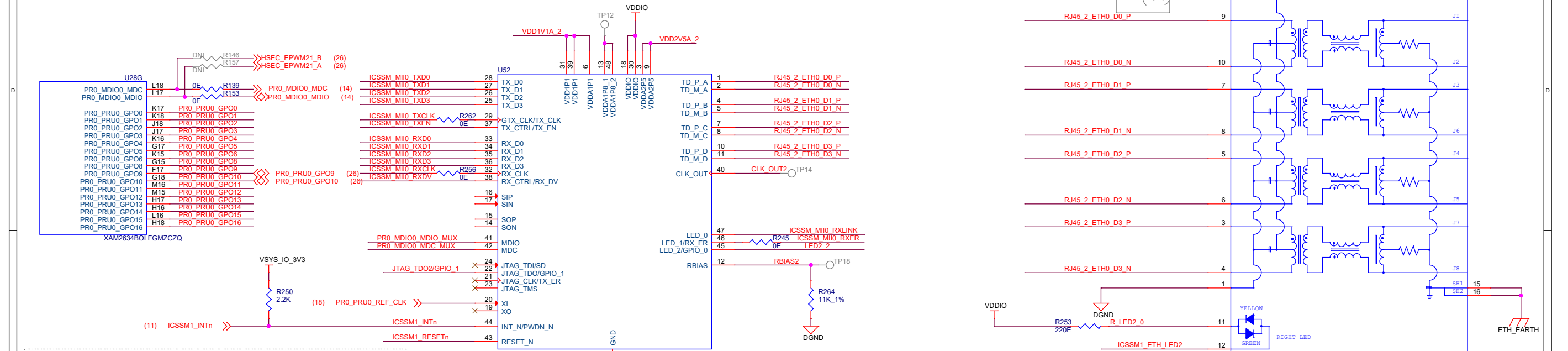
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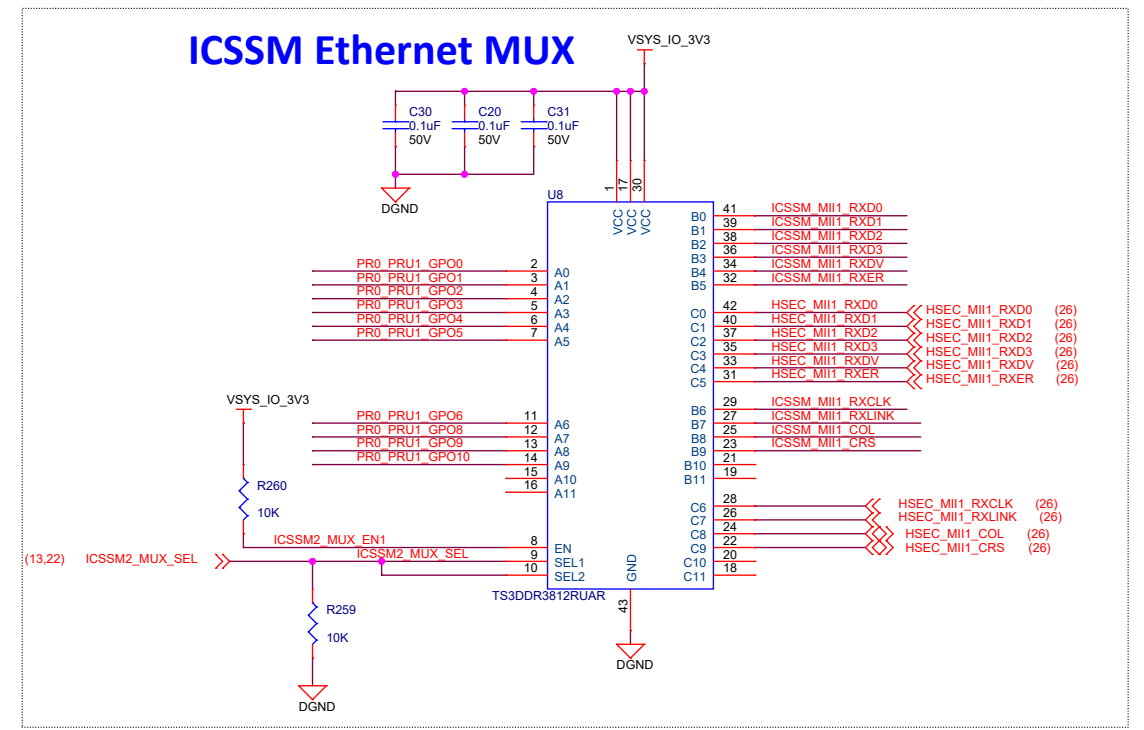
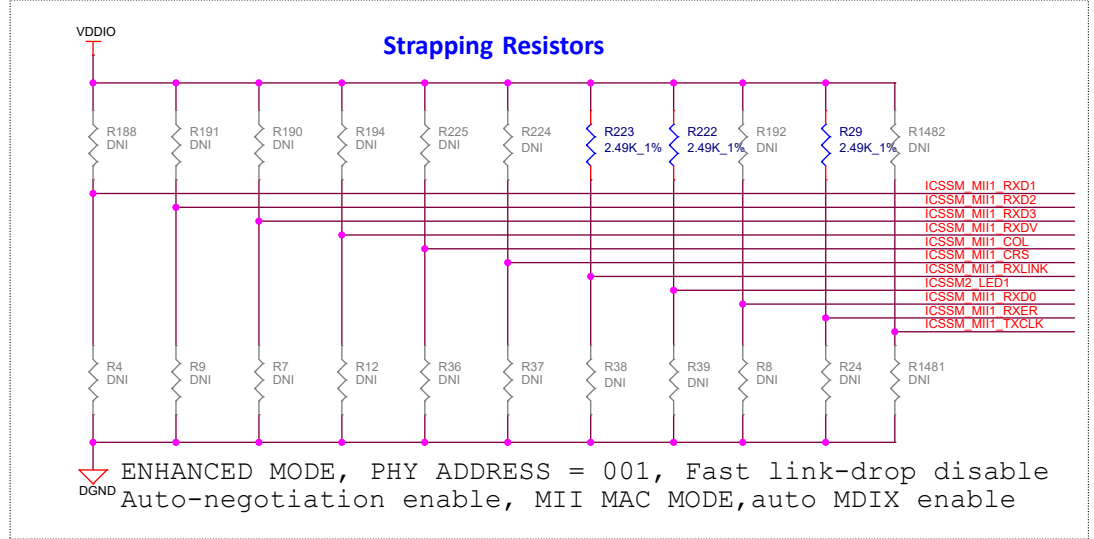
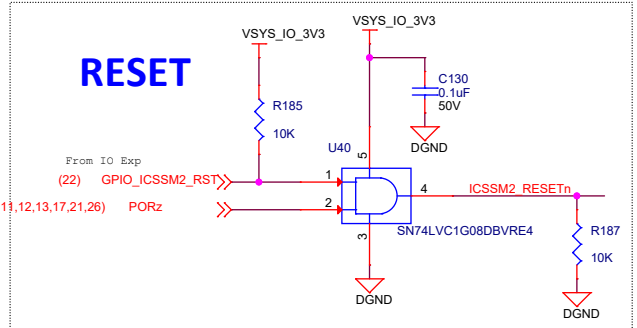
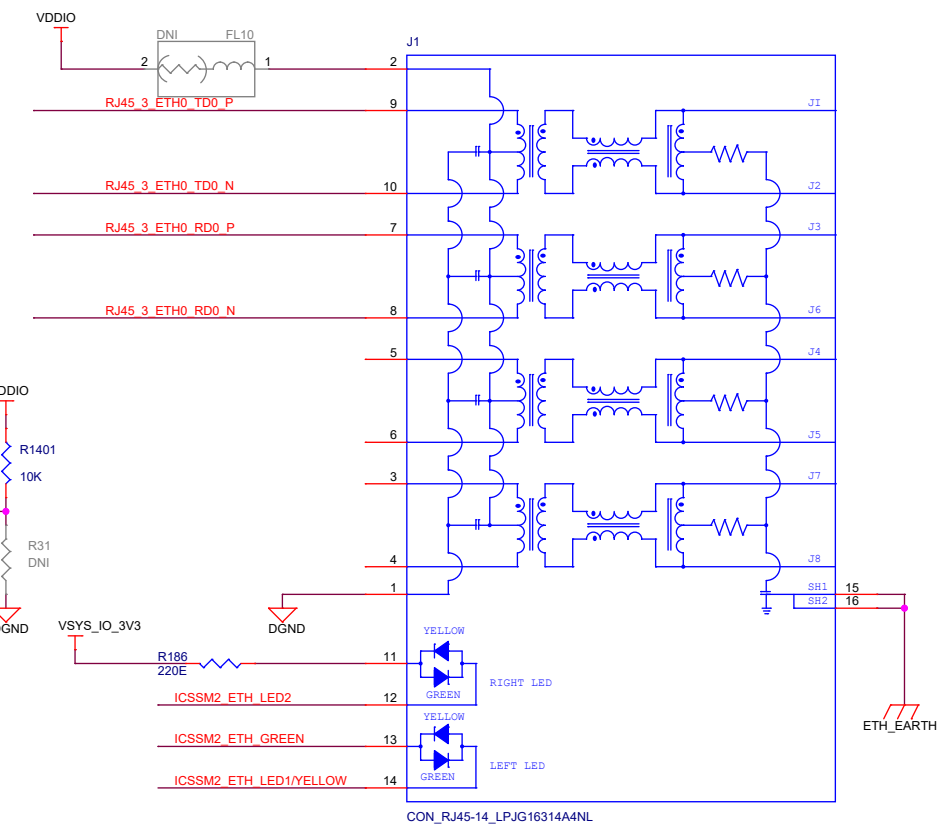
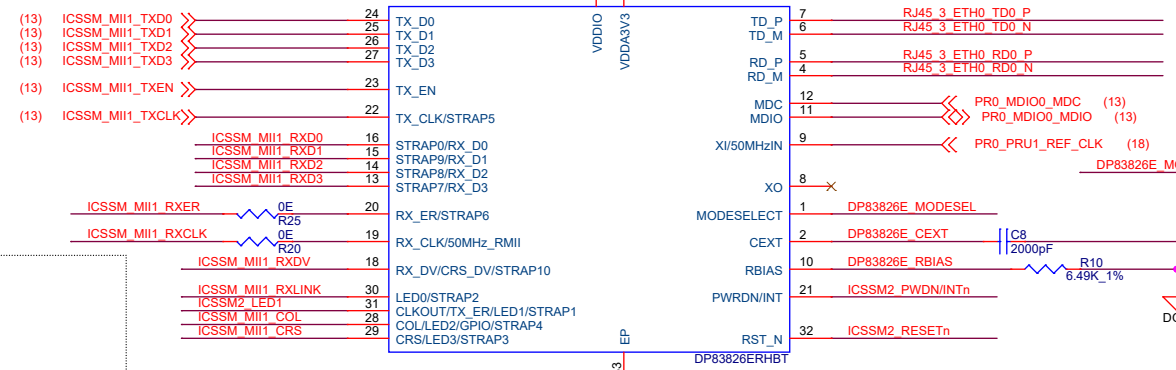
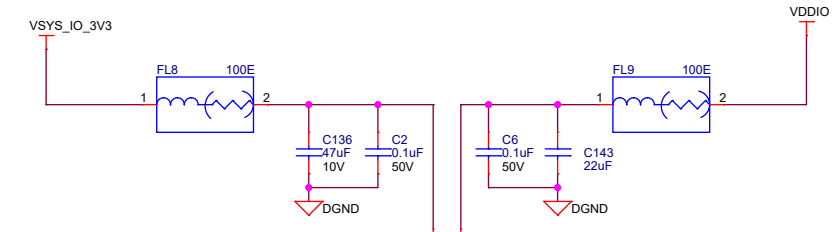
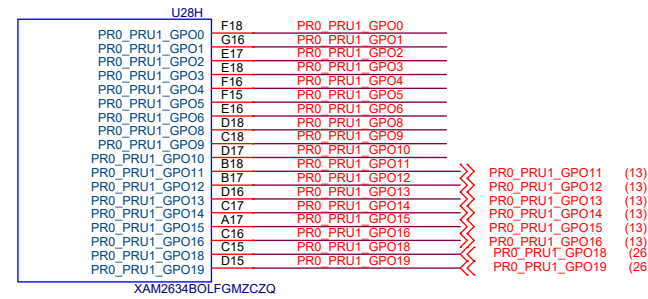
CPSW RGMII1/MDIO Ethernet



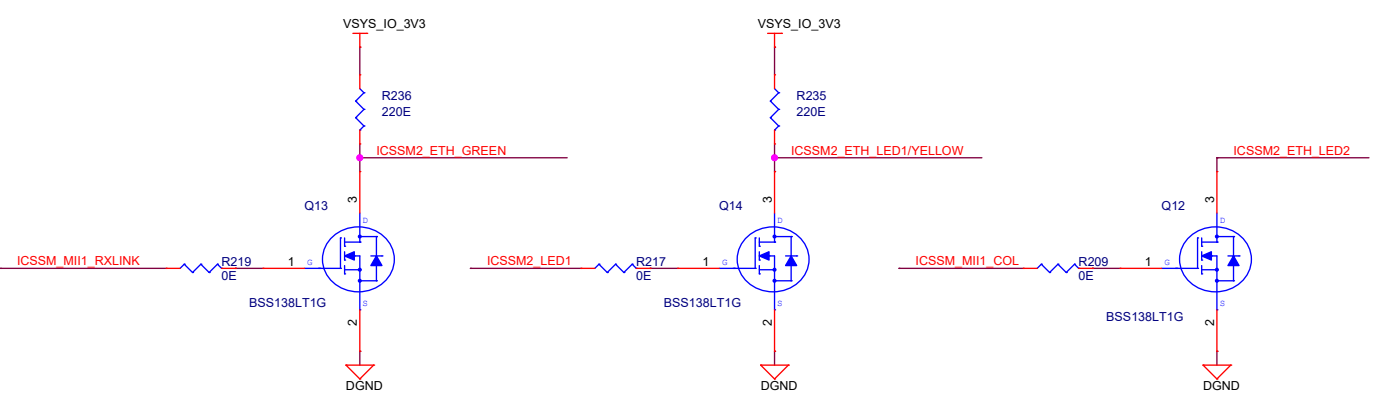
PRU0 ICSSM RGMII/MII, CPSW RGMII2/MII2 Ethernet



PRU1 ICSSM RGMII/MII Ethernet



LED Driver MOSFETS



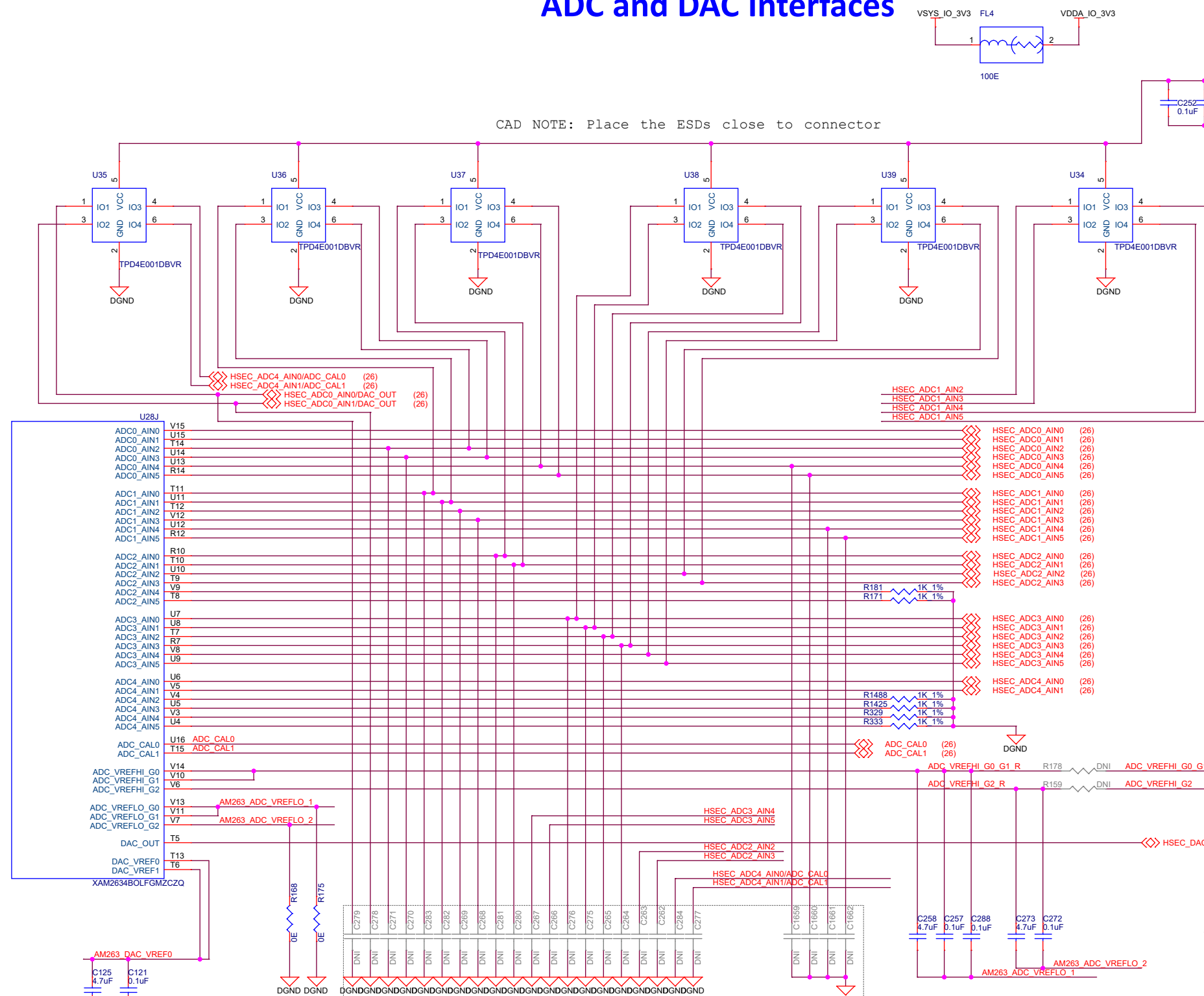
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TEXAS INSTRUMENTS **MISTRAL**

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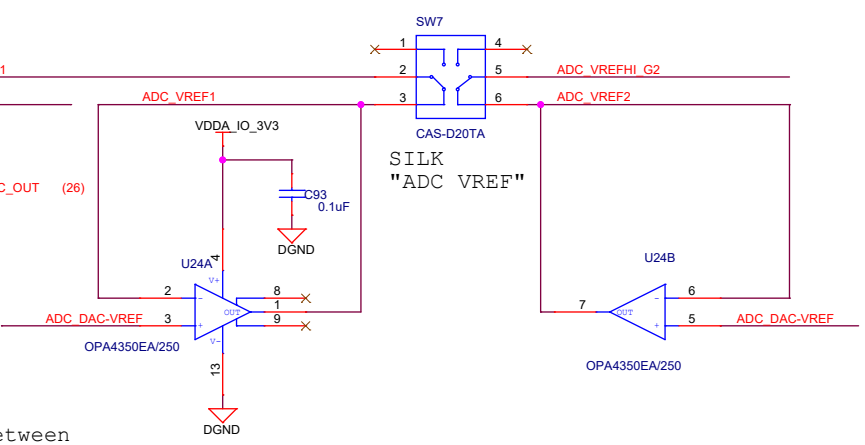
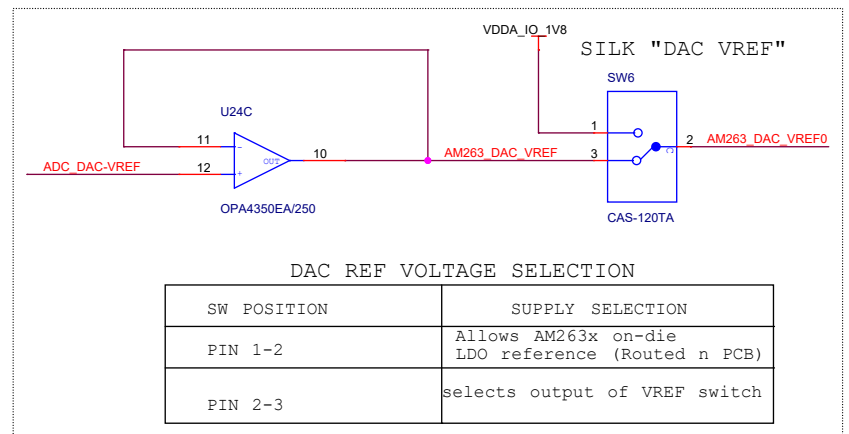
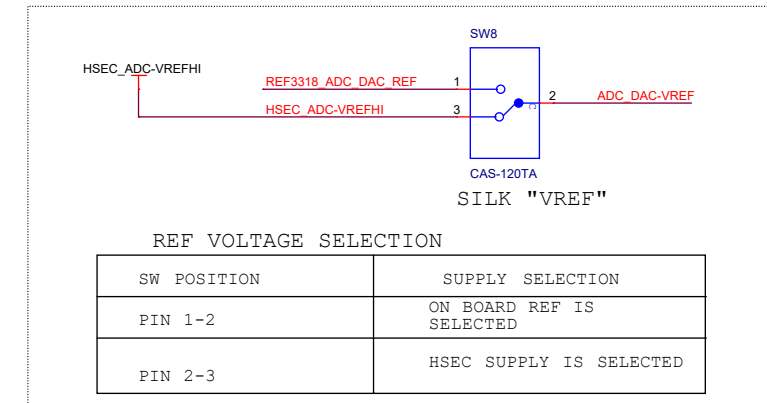
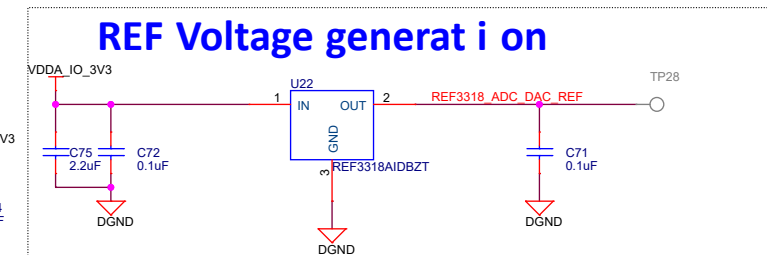
ADC and DAC Interfaces

CAD NOTE: Place the ESDs close to connector

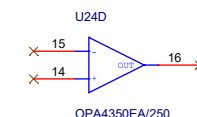


CAD NOTE: Place the CAPs close to connector

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



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

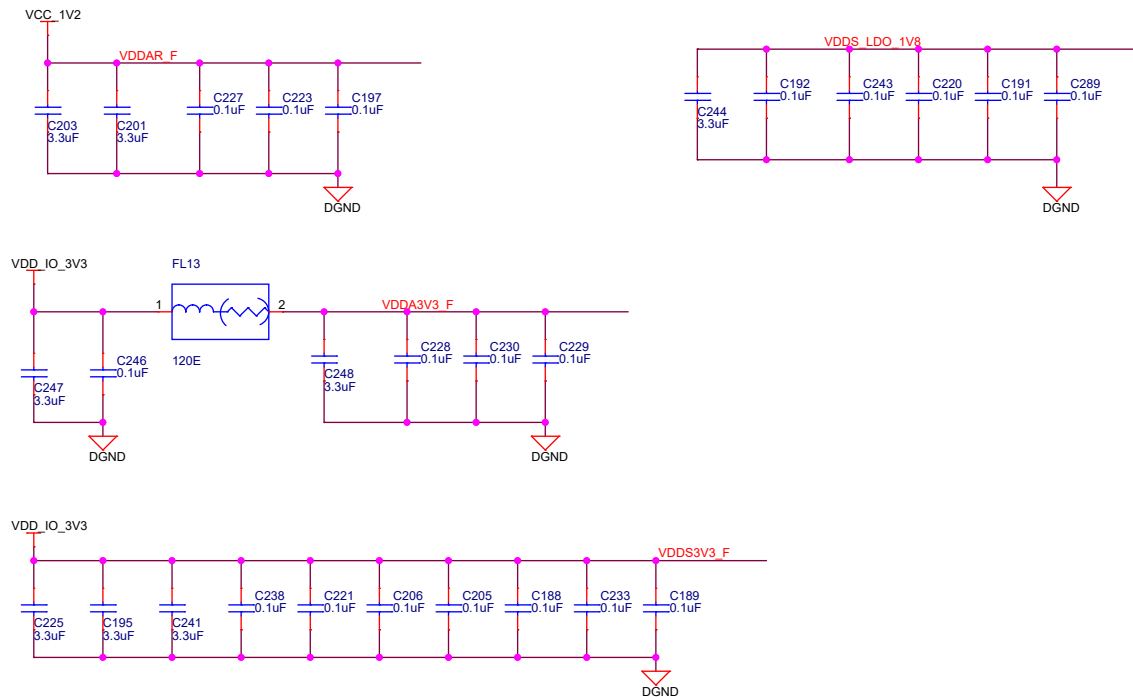
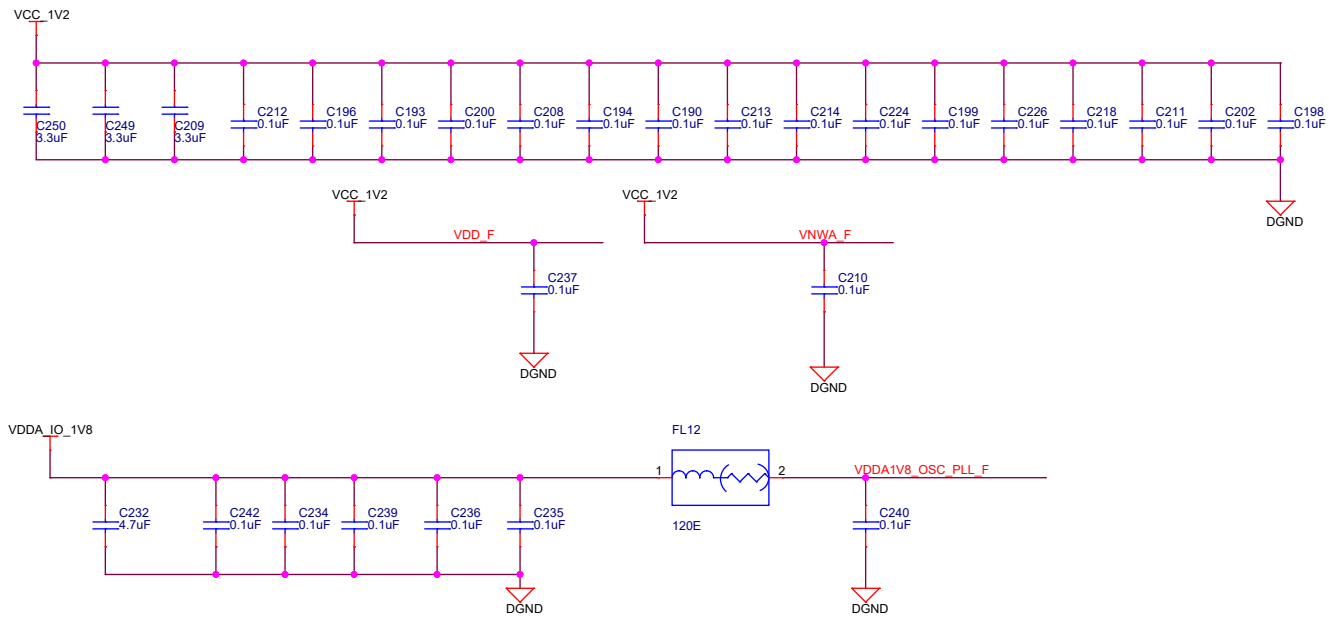
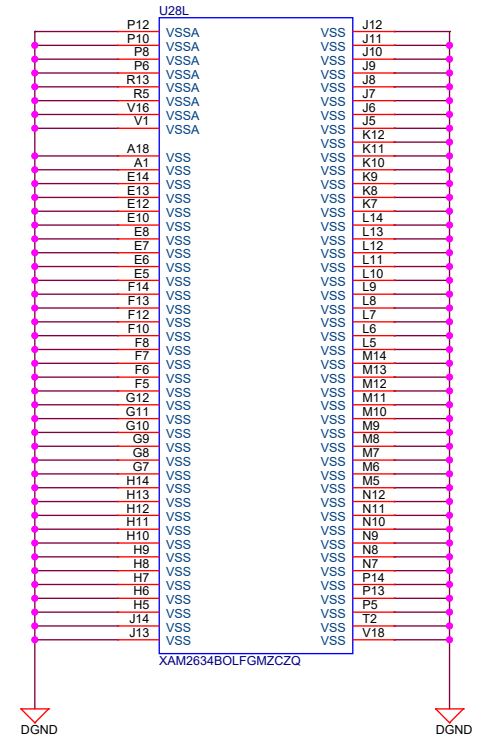
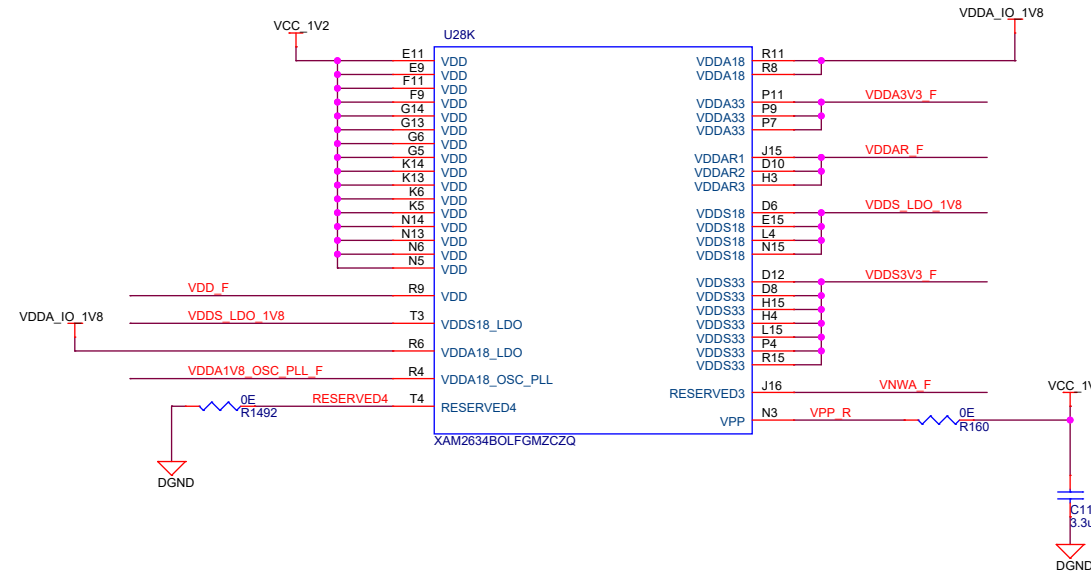


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SOC-POWER and GND

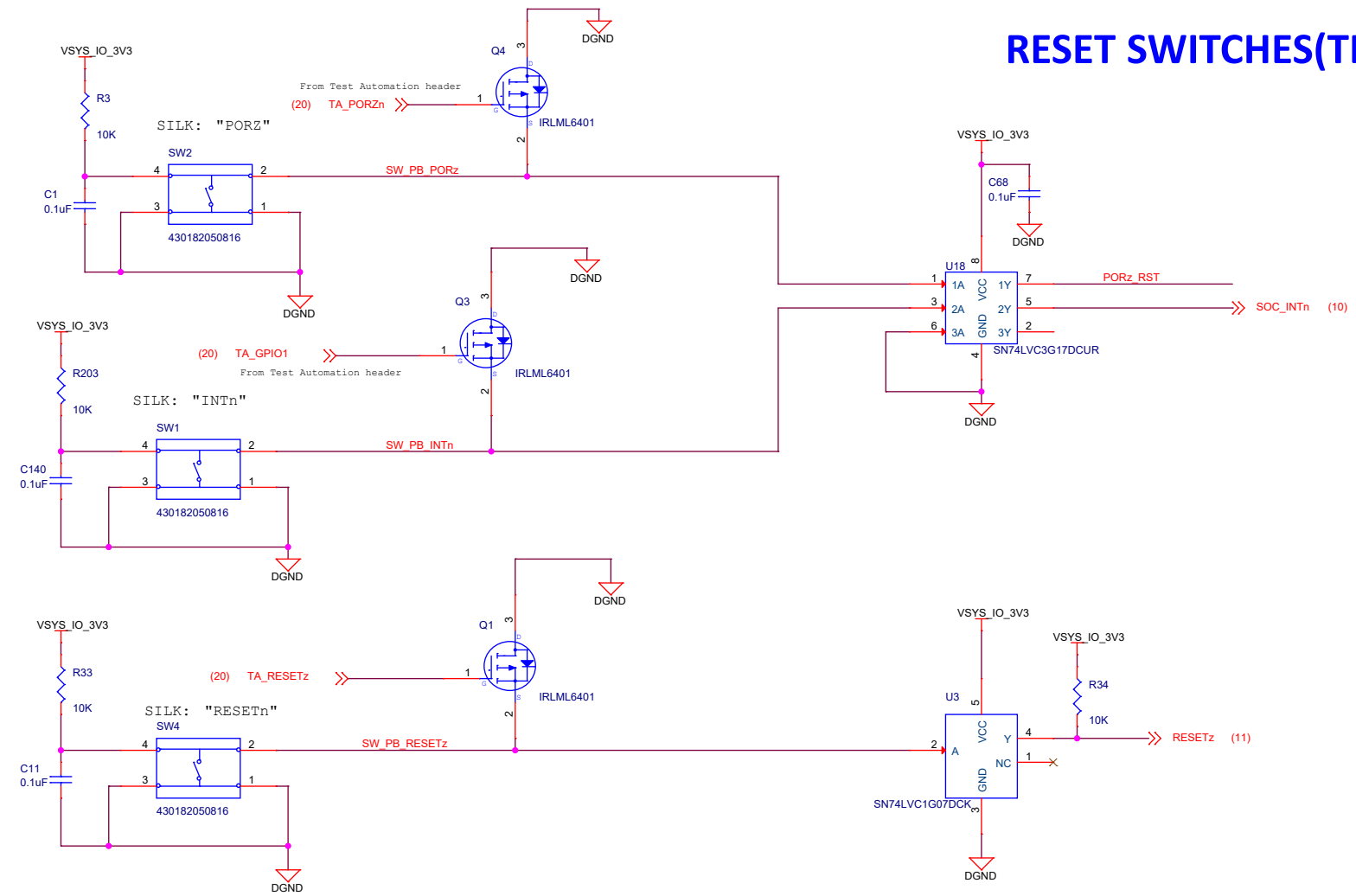


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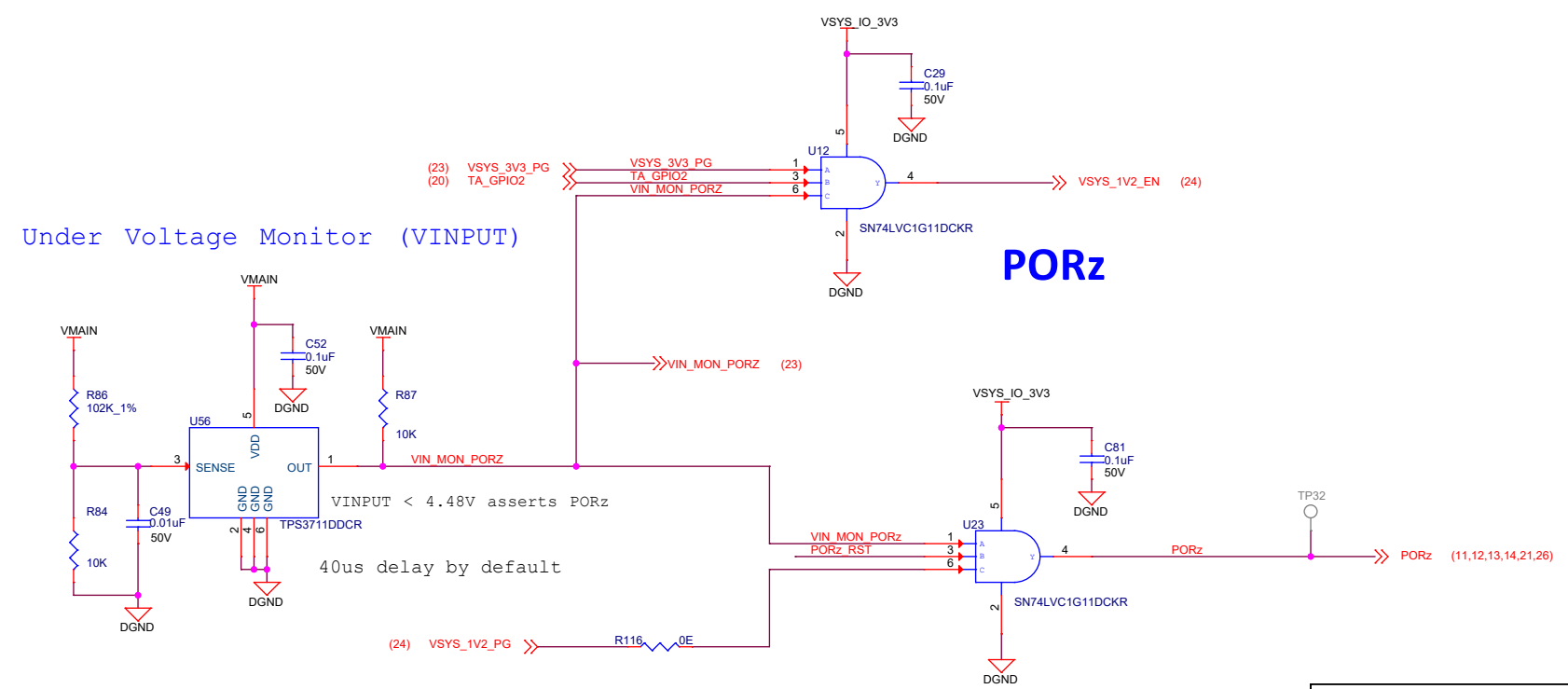


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RESET SWITCHES(TBD)



Under Voltage Monitor (VINPUT)

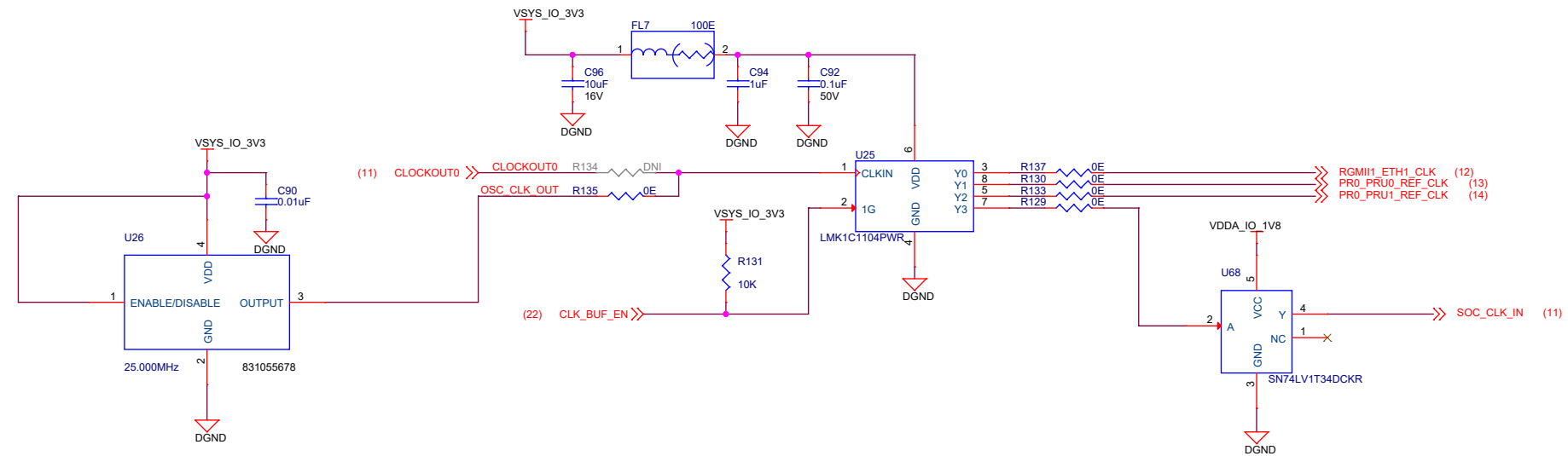


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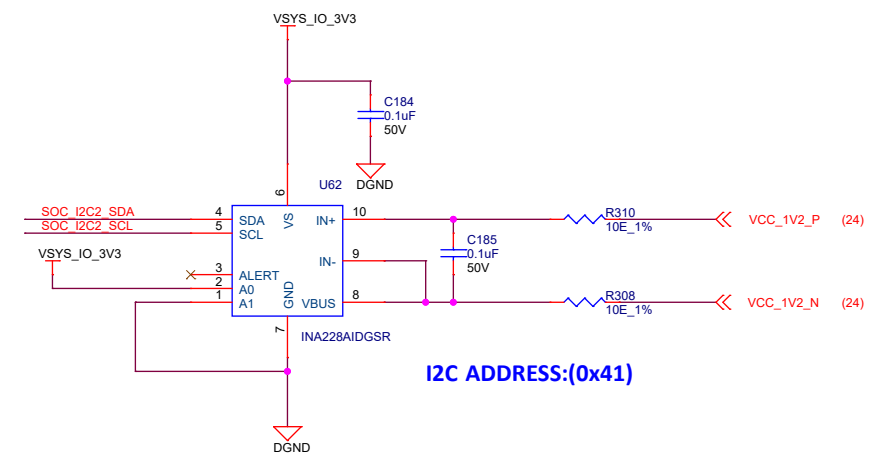
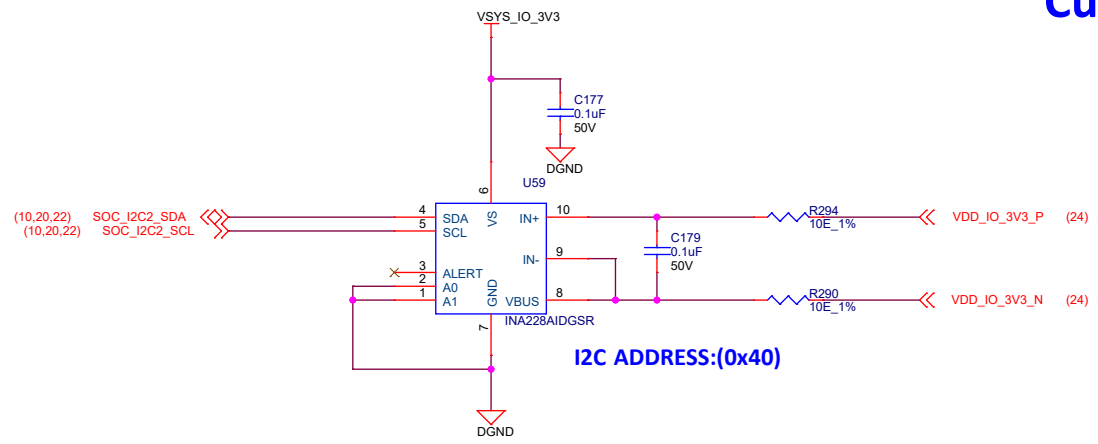


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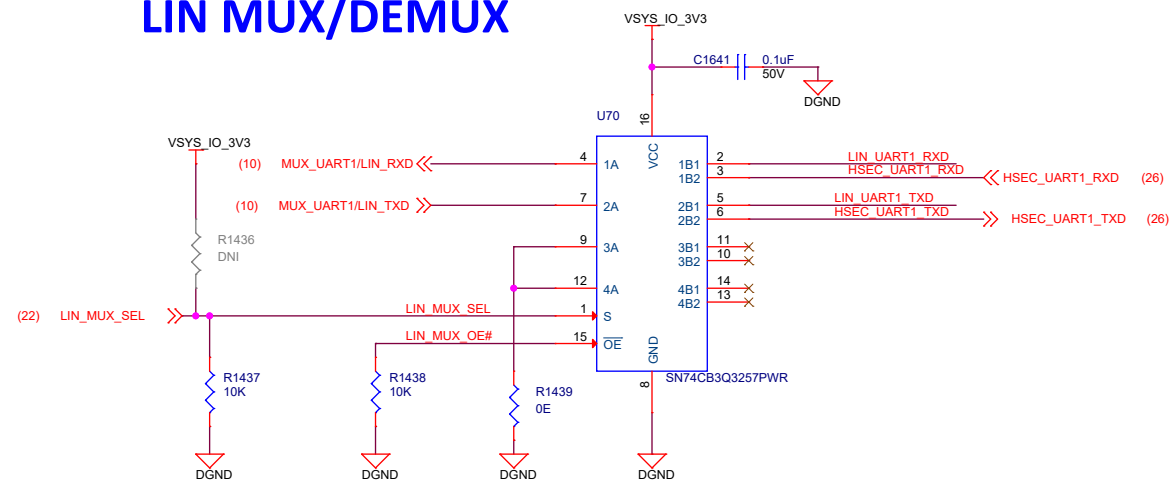
CLOCKS



Current Monitors



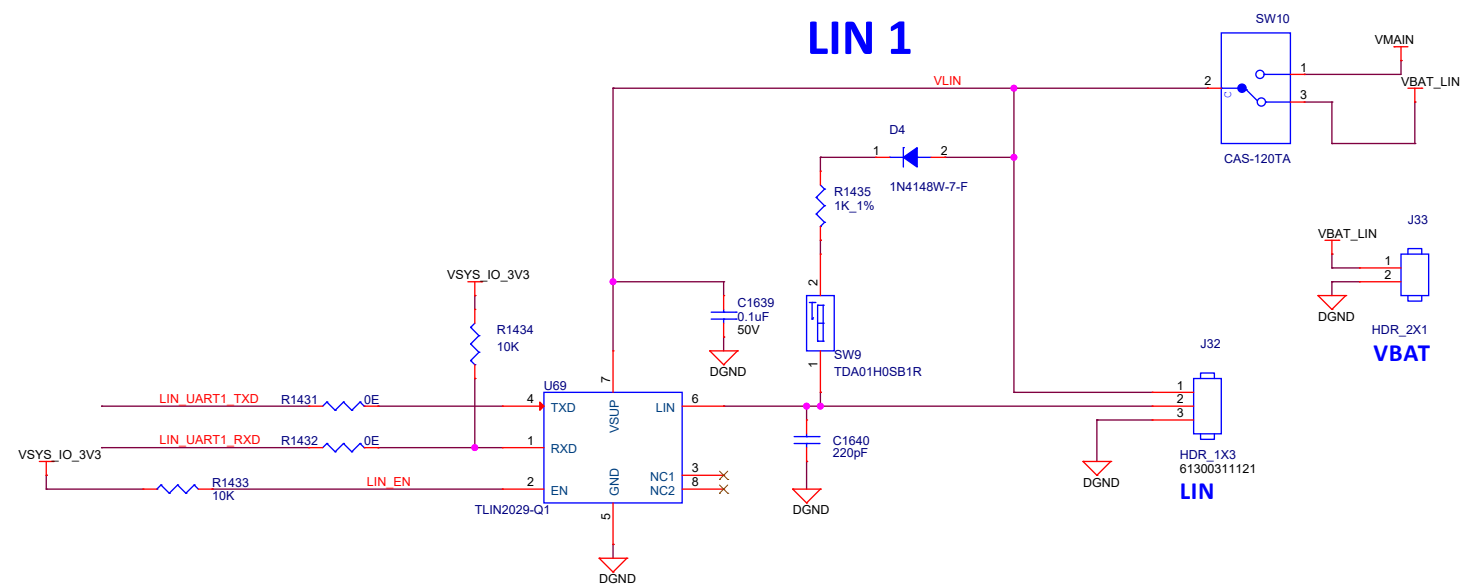
LIN MUX/DEMUX



I2C0 - 1:2 MUX

SEL	CONDITION	FUNCTION
LOW	LIN SELECTED	A-->B1 port
HIGH	HSEC UART selected	A-->B2 port

LIN 1



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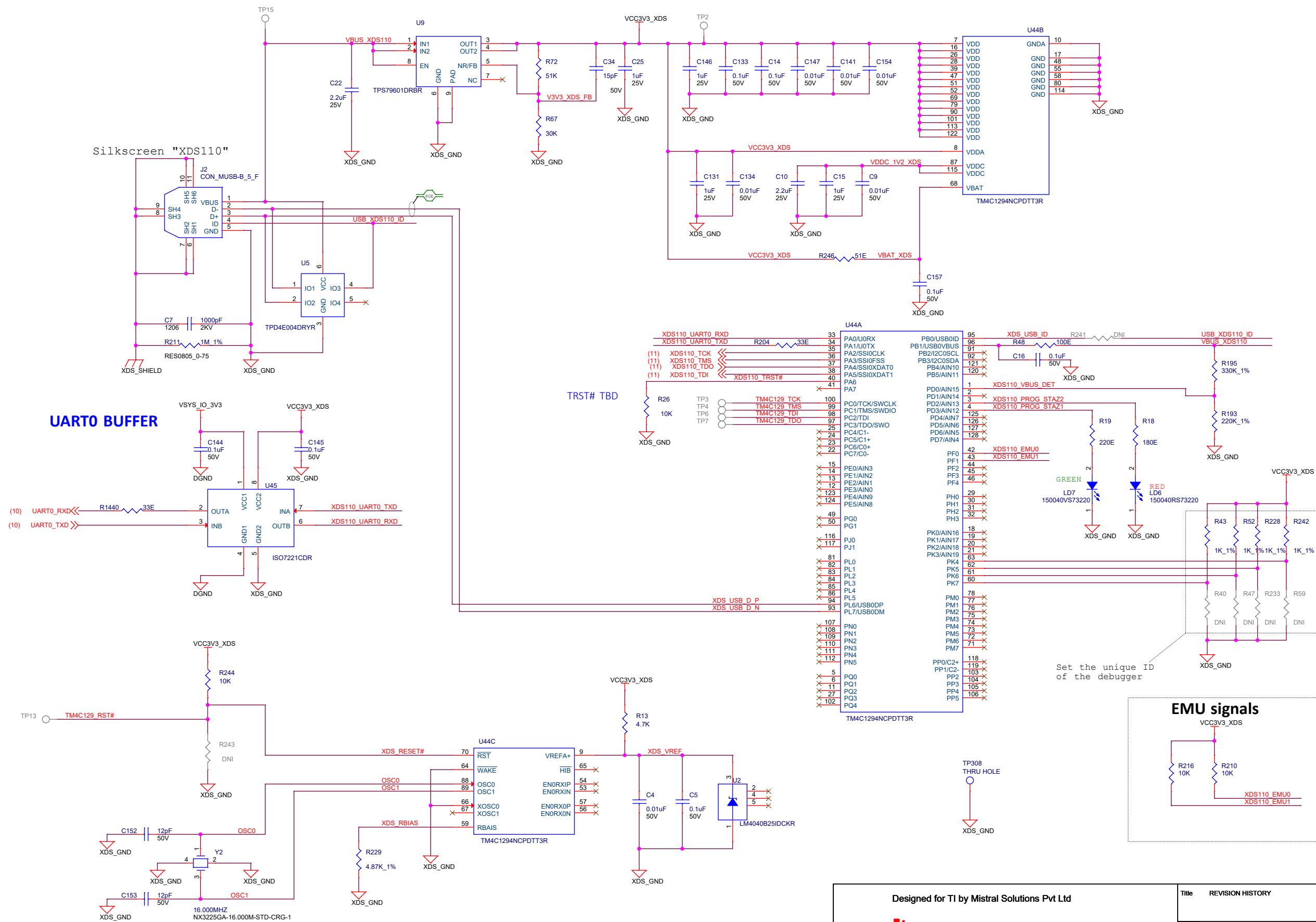


Title REVISION HISTORY

Size	Variant Name = PROC110 001	Rev
C		E2

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XDS110 DEBUGGER



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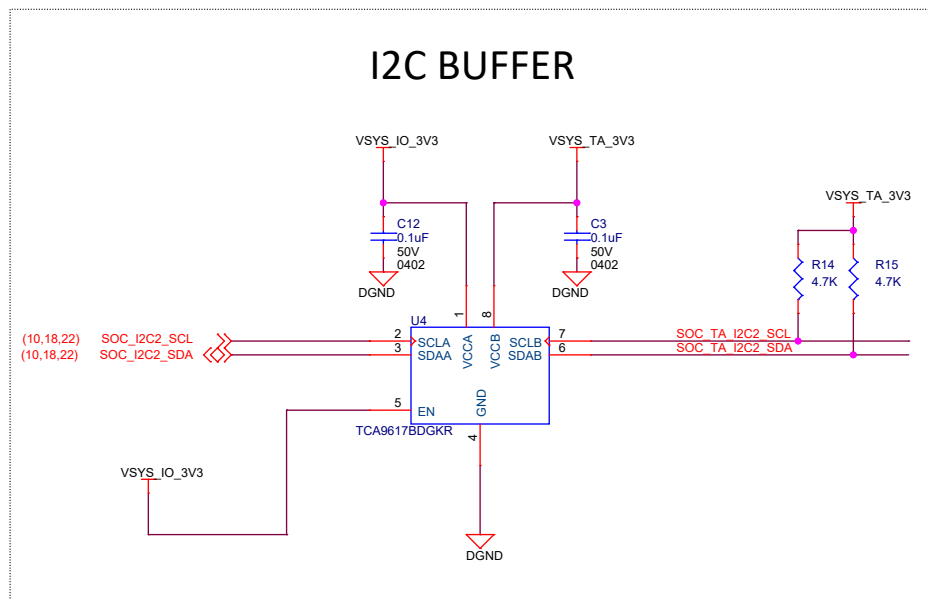
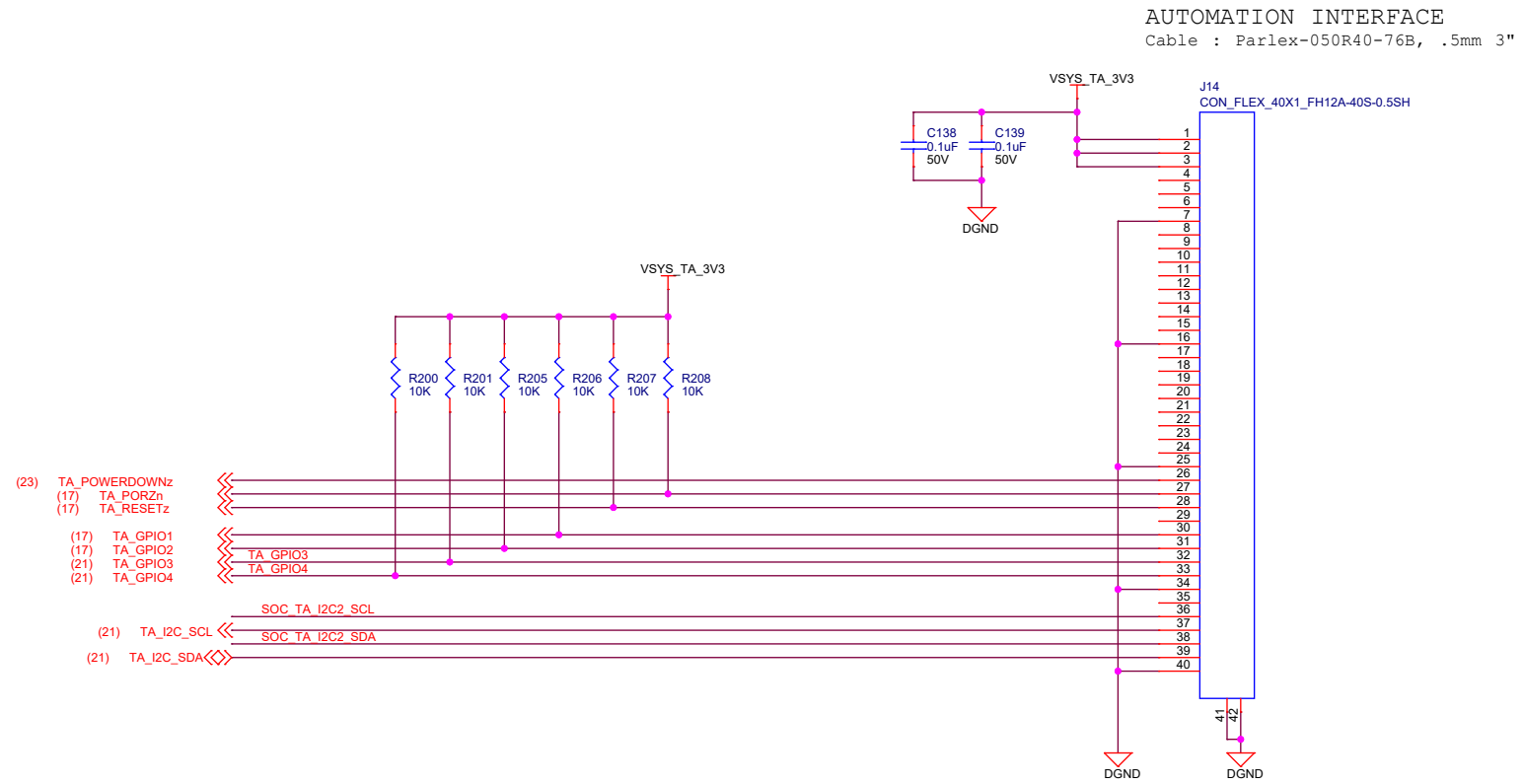
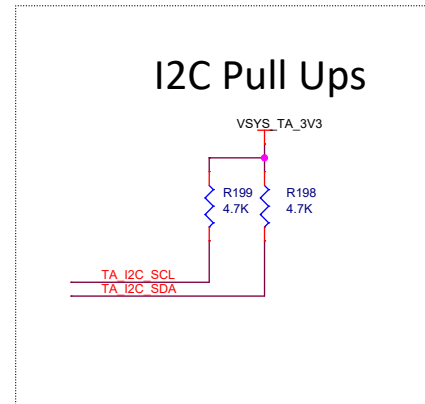


Title REVISION HISTORY

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TEST AUTOMATION HEADER



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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Title REVISION HISTORY

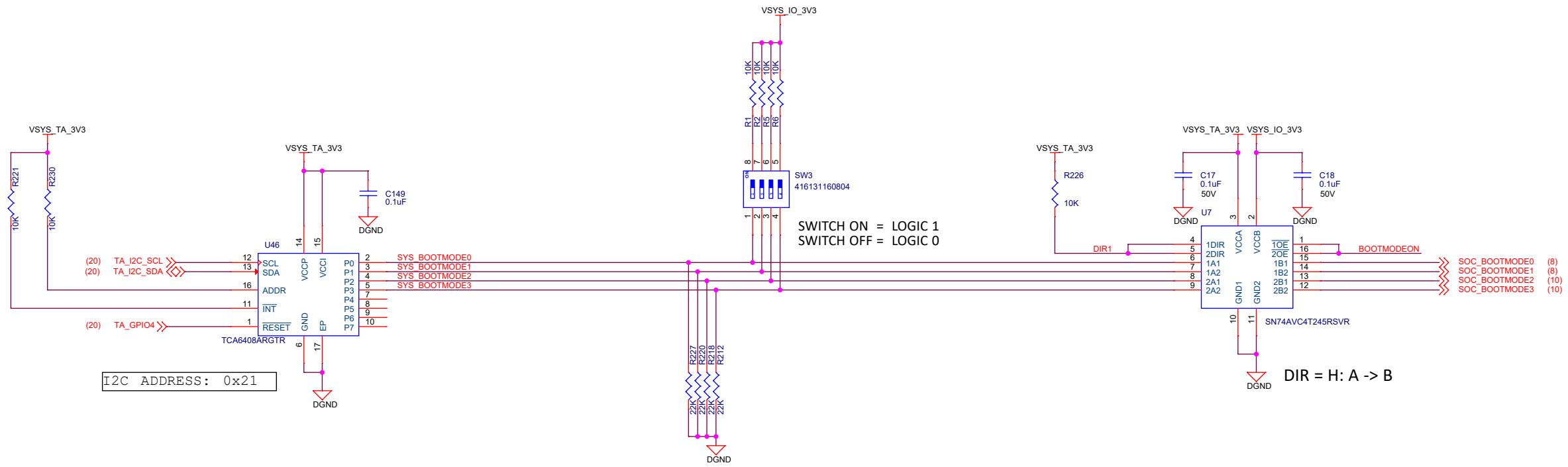
Size	Rev
C	E2

Variant Name = PROC110 001

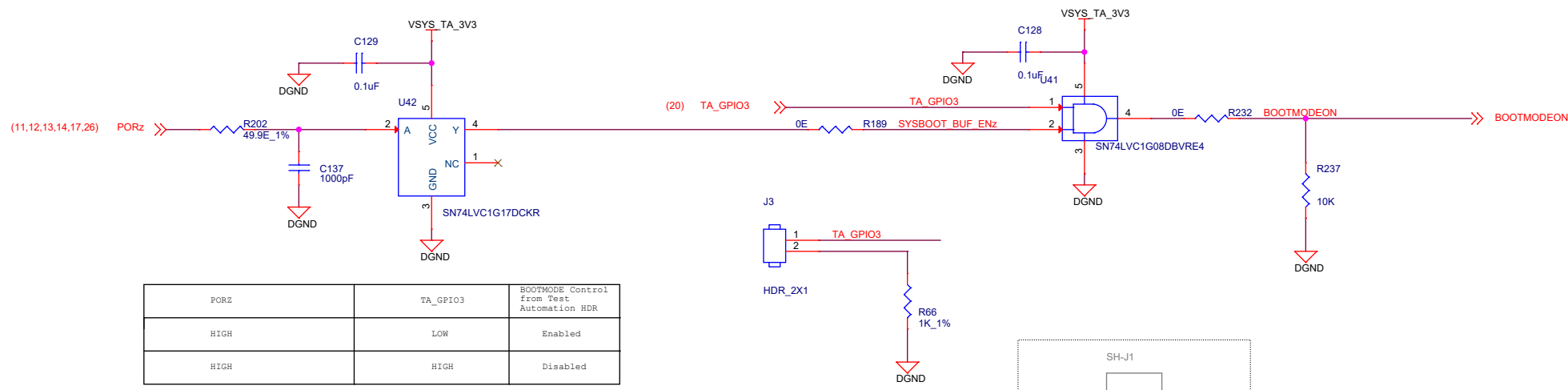
Date: Friday, January 21, 2022

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BOOTMODE BUFFER AND SWITCH



I2C ADDRESS: 0x21



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

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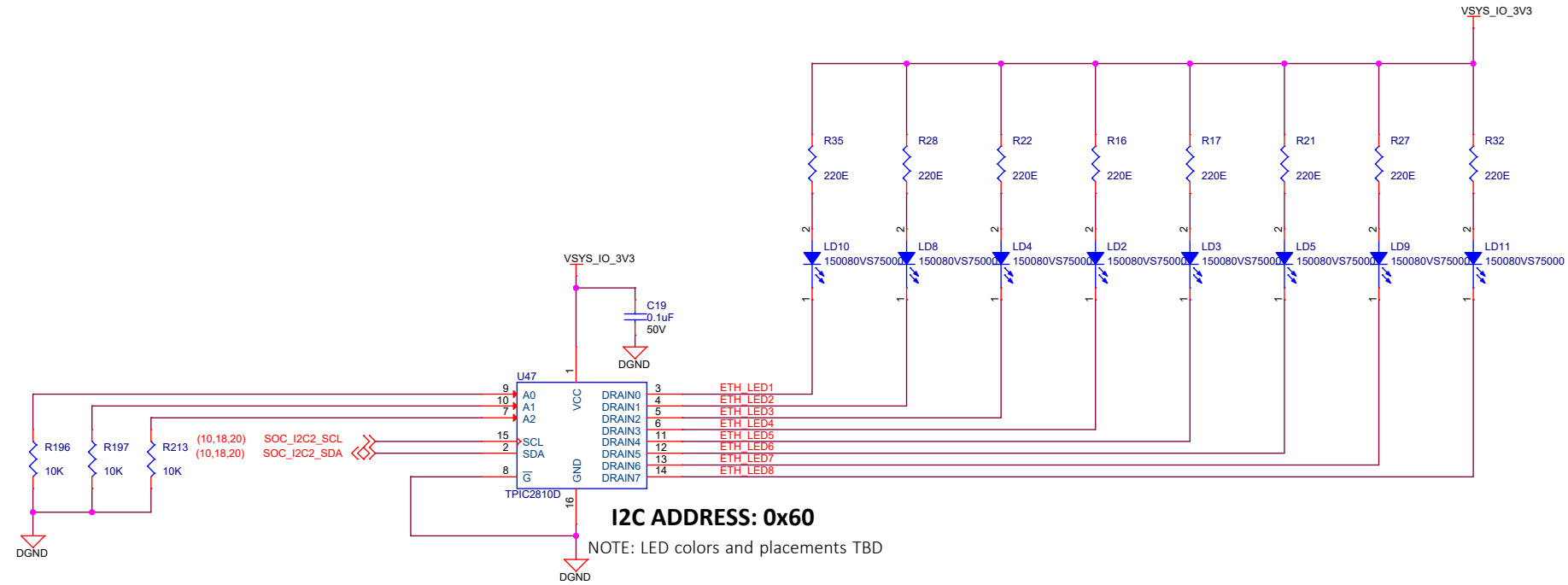


Title REVISION HISTORY

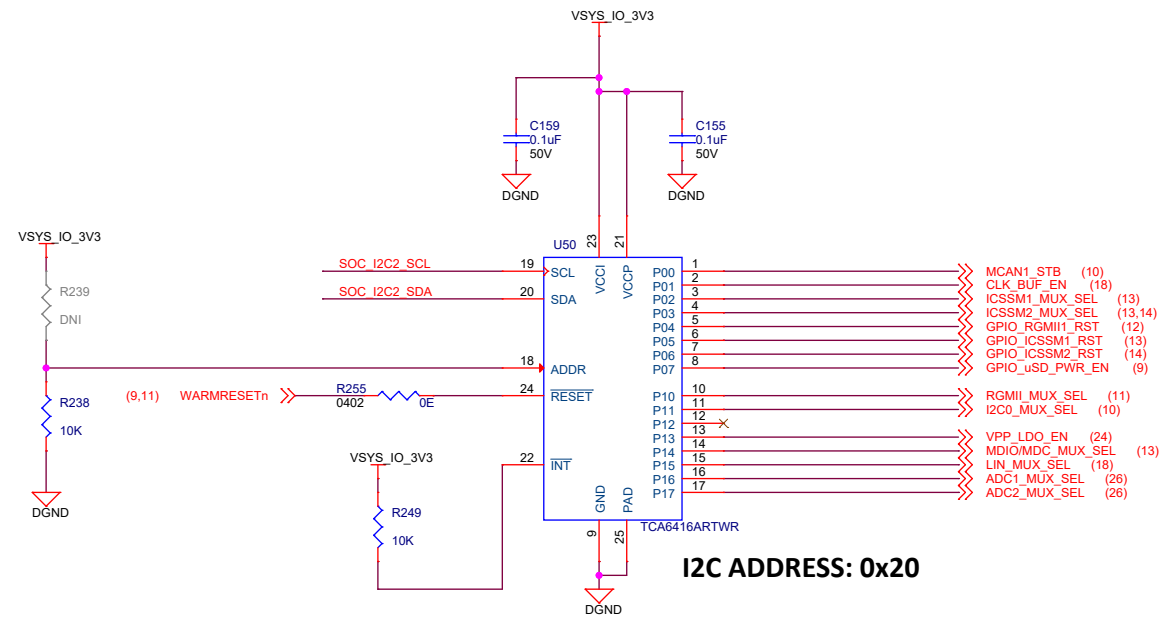
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LED Driver



IO Expander



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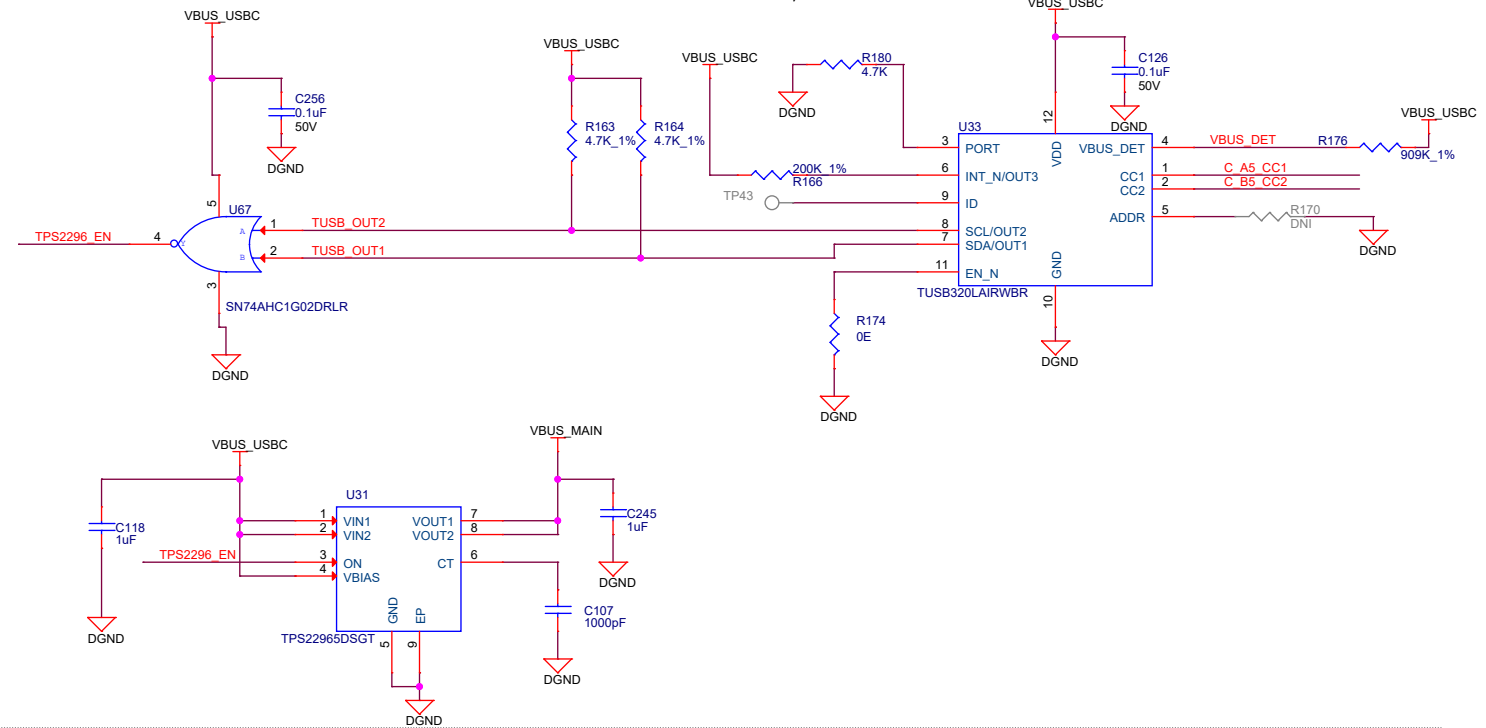
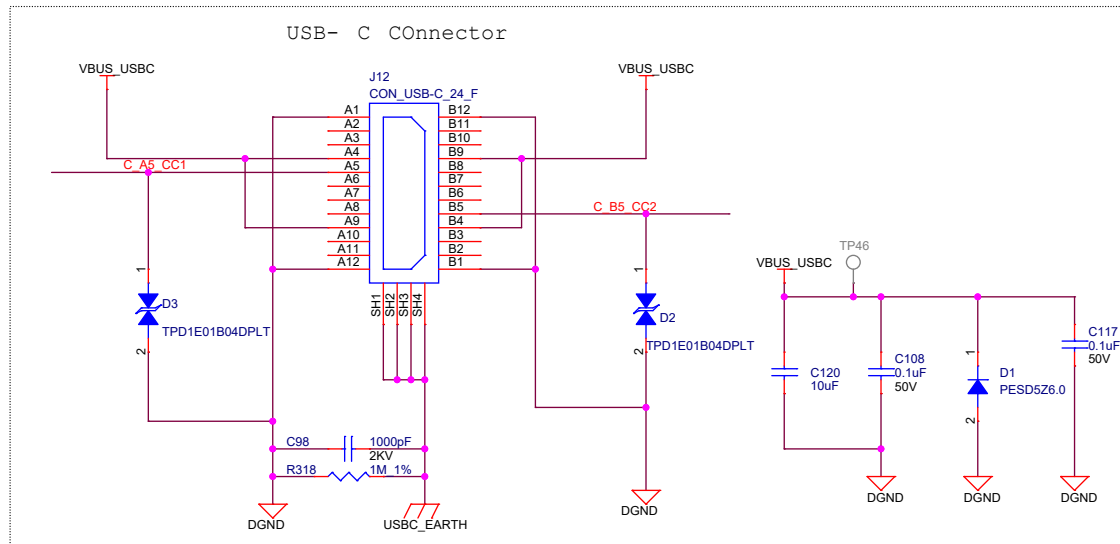
Title REVISION HISTORY

Size	Rev
C	E2

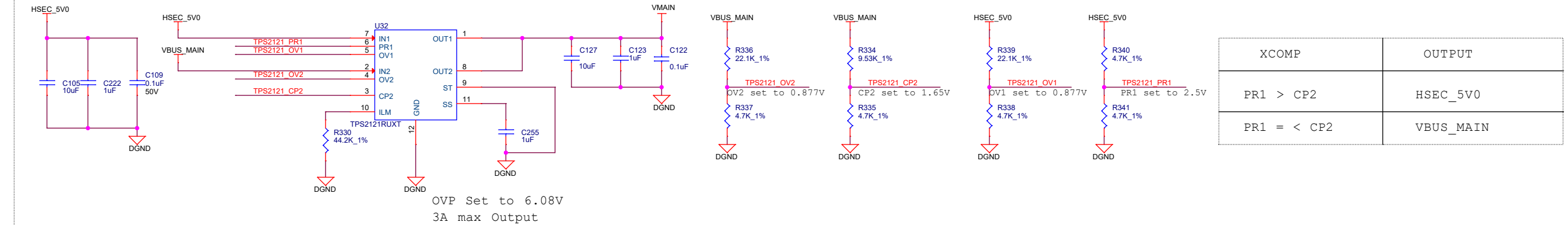
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USB-C Power

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



Power MUX

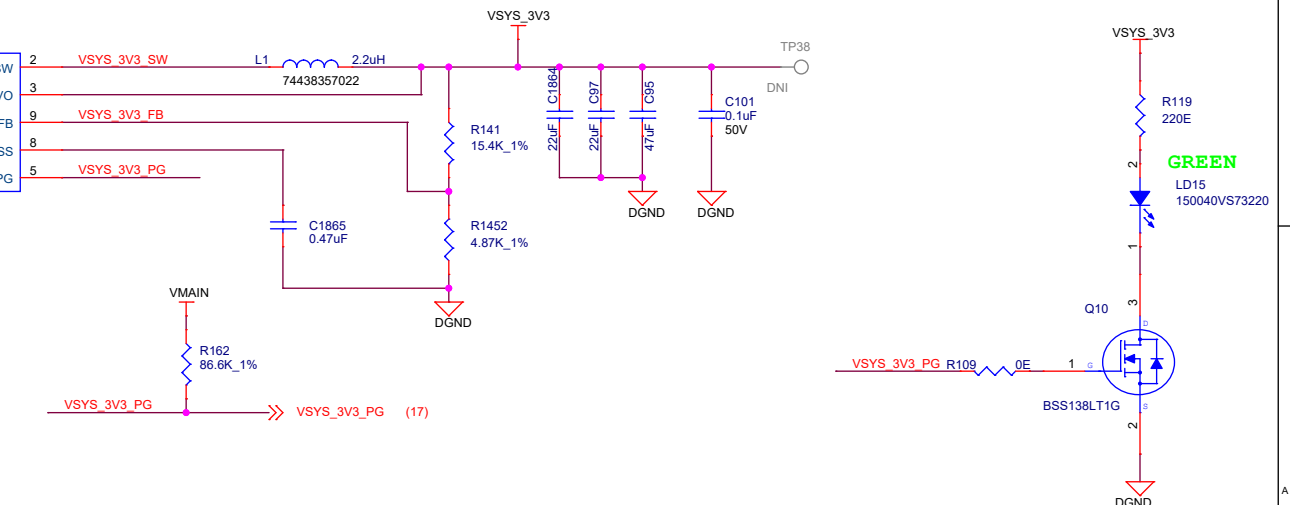
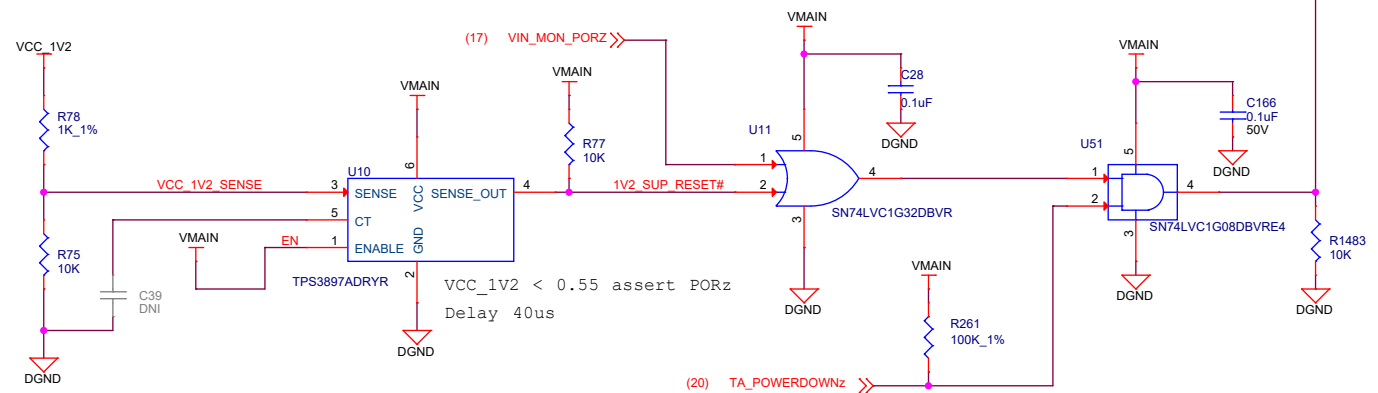


DC-DC STAGE-1 VMAIN to 3.3V

TPS62913 3.3V BUCK REGULATOR
Vin = 5V
Vout = 3.3V
Iout = 3A

S-CONF:
- 2.2MHz switching frequency
- spread-spectrum disabled
- output discharge enabled

Under Voltage Monitor (VCC_1V2)



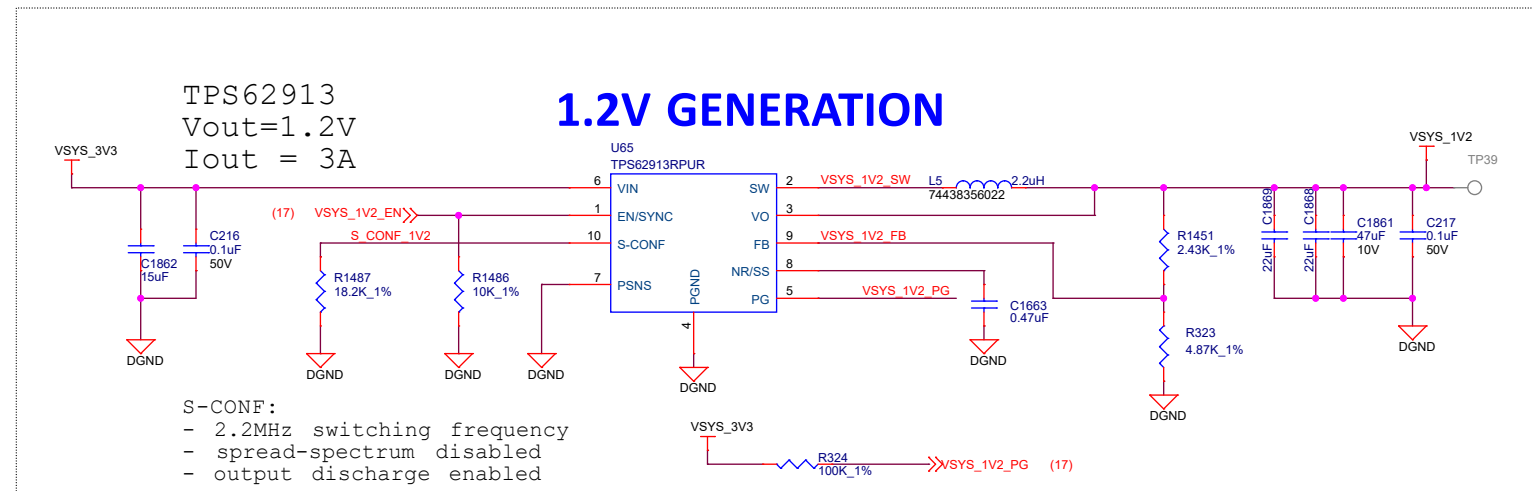
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Title REVISION HISTORY

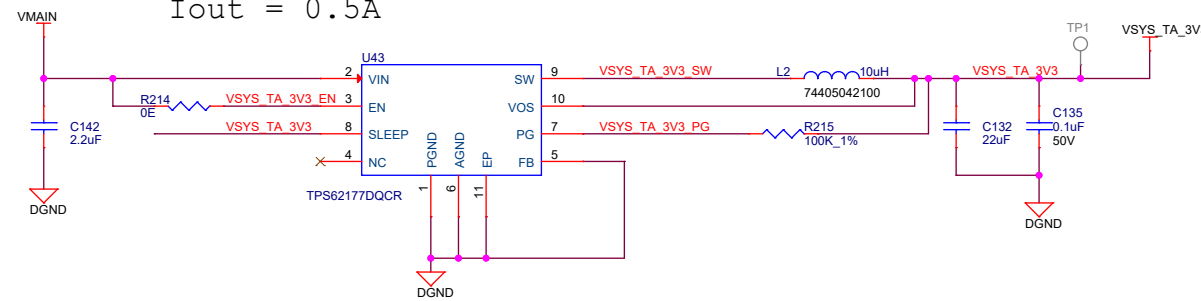
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Power Supply #1



Test Automation Header Supply

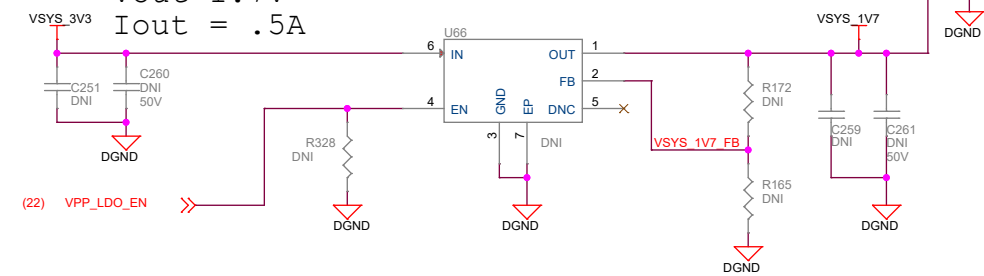
TPS62177 3.3V BUCK REGULATOR
 Vout = 3.3V
 Iout = 0.5A



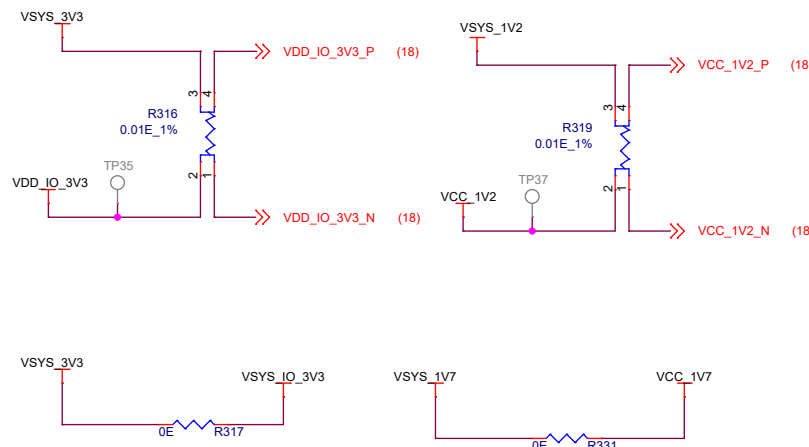
1.7V VPP Generation

TPS75801
 Vout=1.7V
 Iout = .5A

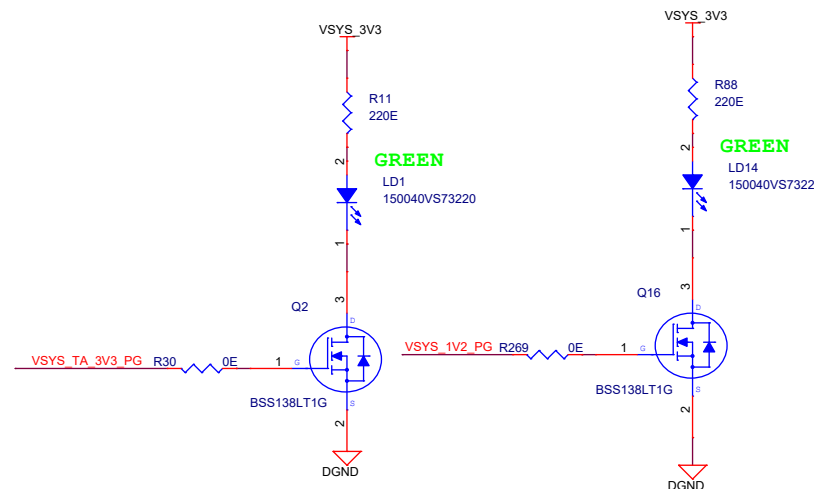
Place testpoints with 100mils spacing to insert external jumper



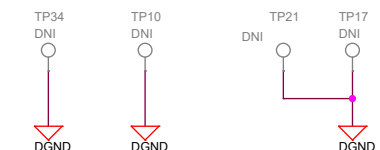
Voltage In-Line Resistors



Power LED



Ground Test Points



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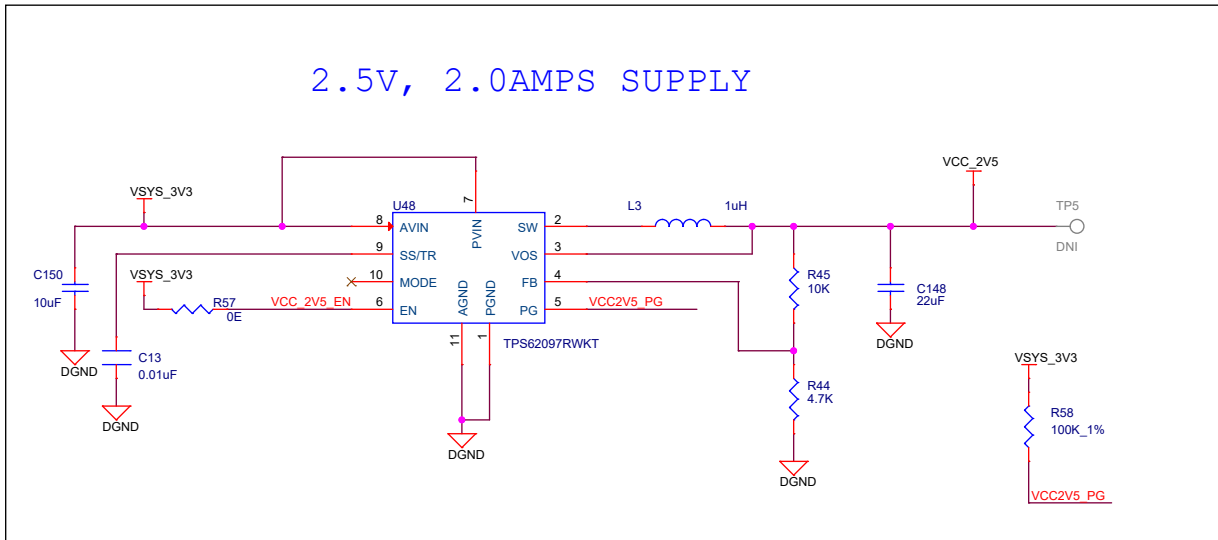
Title REVISION HISTORY

Size	Rev
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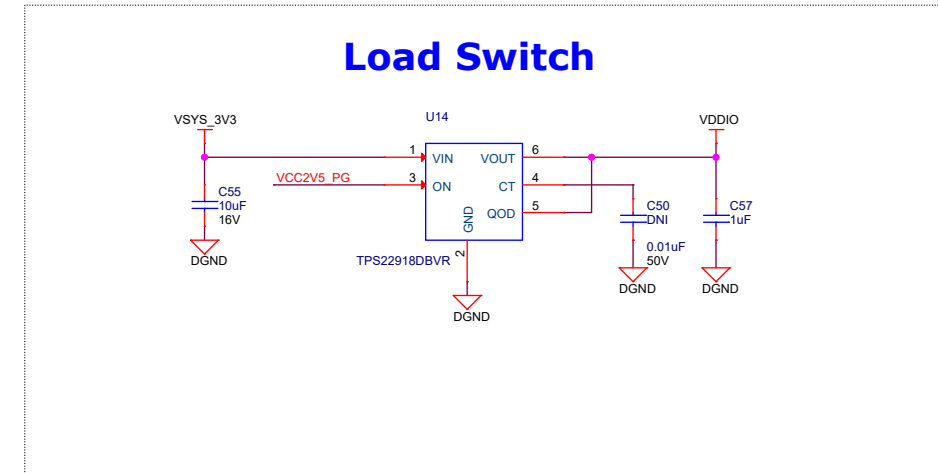
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Ethernet Powers

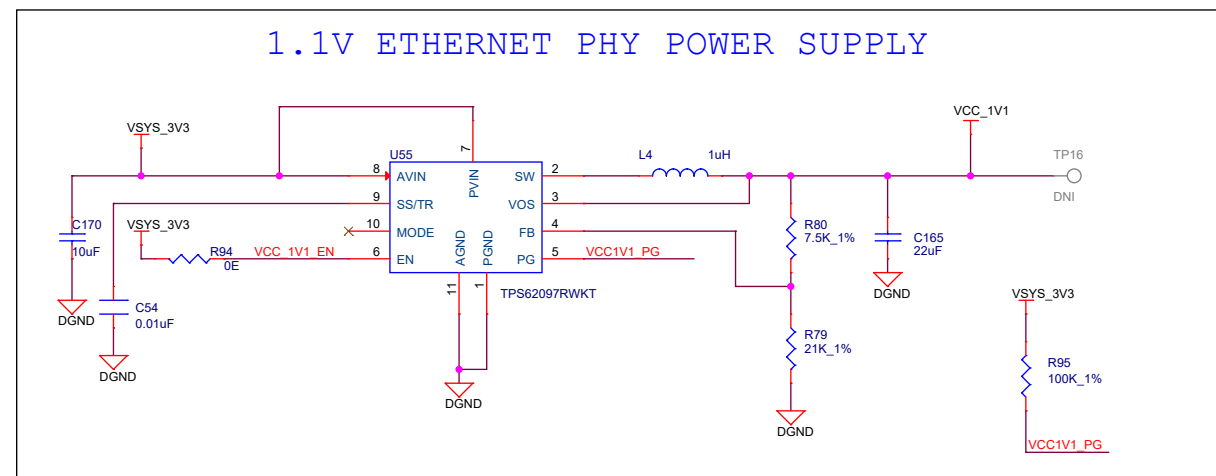
2.5V, 2.0AMPS SUPPLY



Load Switch



1.1V ETHERNET PHY POWER SUPPLY



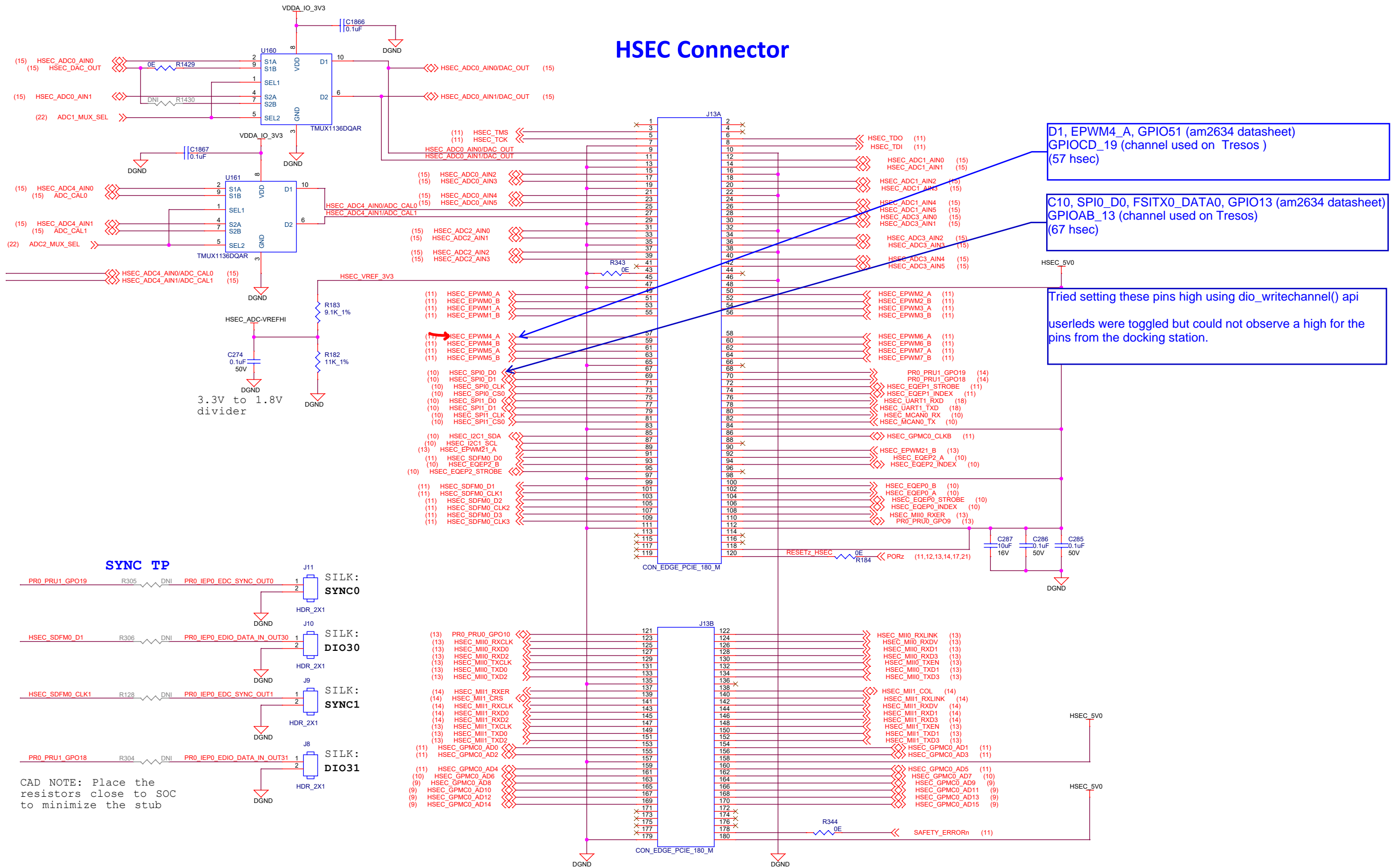
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HSEC Connector



CAD NOTE: Place the resistors close to SOC to minimize the stub

EVM Development & Evaluation test circuitry

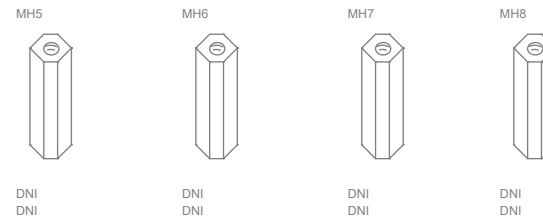
(TI EVM Only)

NOTES, HW & LABELS

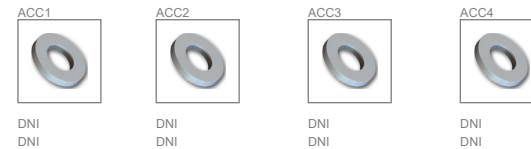
ASSEMBLY NOTES

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.

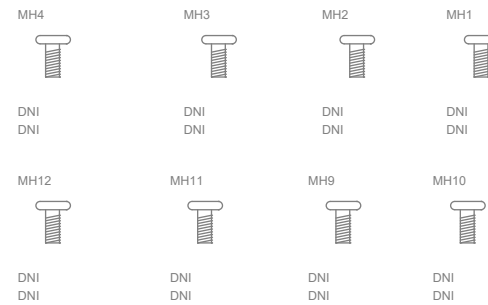
STANDOFFS



WASHER'S



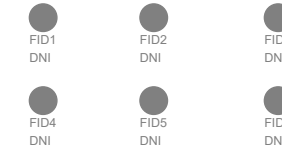
SCREWS



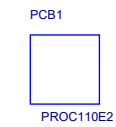
RUBBER FEET



FIDUCIALS



BARE PCB



LABELS

Board Serial No.



Assembly Revision.



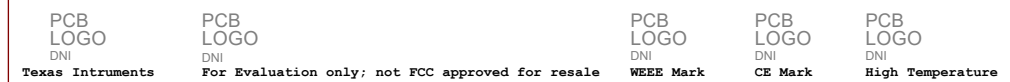
EVM Orderable No.



Orderable Part Numbers

Variant	Label Text
001	TMDSCNCD263

LOGOs



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Size	Rev
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Variant Name = PROC110 001

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