

AM62 SIP STARTER KIT EVM

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|-----|------|
| REV | E1 |
| VER | 0.02 |

REVISION HISTORY

| VER # | DATE | DESCRIPTION OF CHANGES | AUTHOR | REVIEWED BY | APPROVED BY |
|-------|--------------|---|---------------------|-------------|-------------|
| 0.01 | 20 APR 2023 | Changed the HDMI external swing resistance to 7.5K. Added Standoff,Screw & Washer for M.2 connector. DNI'd R650 on SoC_USB1_DRVVBUS | Mistral Design Team | | |
| 0.02 | 16 MAY 2023 | Test Automation Board power section populated and DNI'd the R738 resistor. | Mistral Design Team | | |
| 0.03 | 24 JUNE 2024 | SoC Symbol part# XAM6254ATLHJAMK Structured and rotated R148 sense resistor for footprint compatibility | Mistral Design Team | | |
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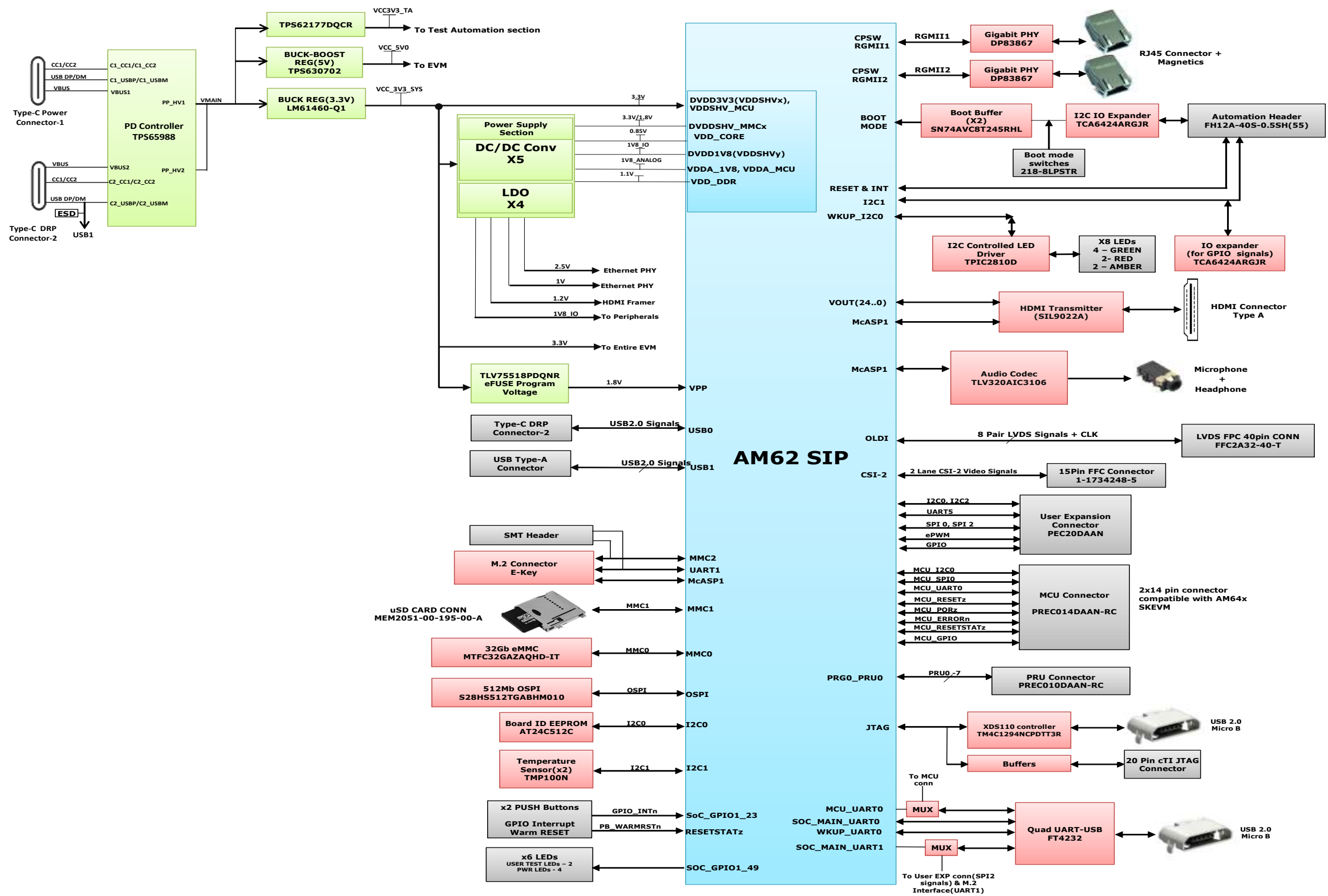
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| Title REVISION HISTORY | | |
| Size | PROC162E1 | Rev |
| C | | E1 |
| Date: | Tuesday, June 25, 2024 | Sheet 2 of 44 |

BLOCK DIAGRAM AM62 SIP_SKEVM

Main Block Diagram



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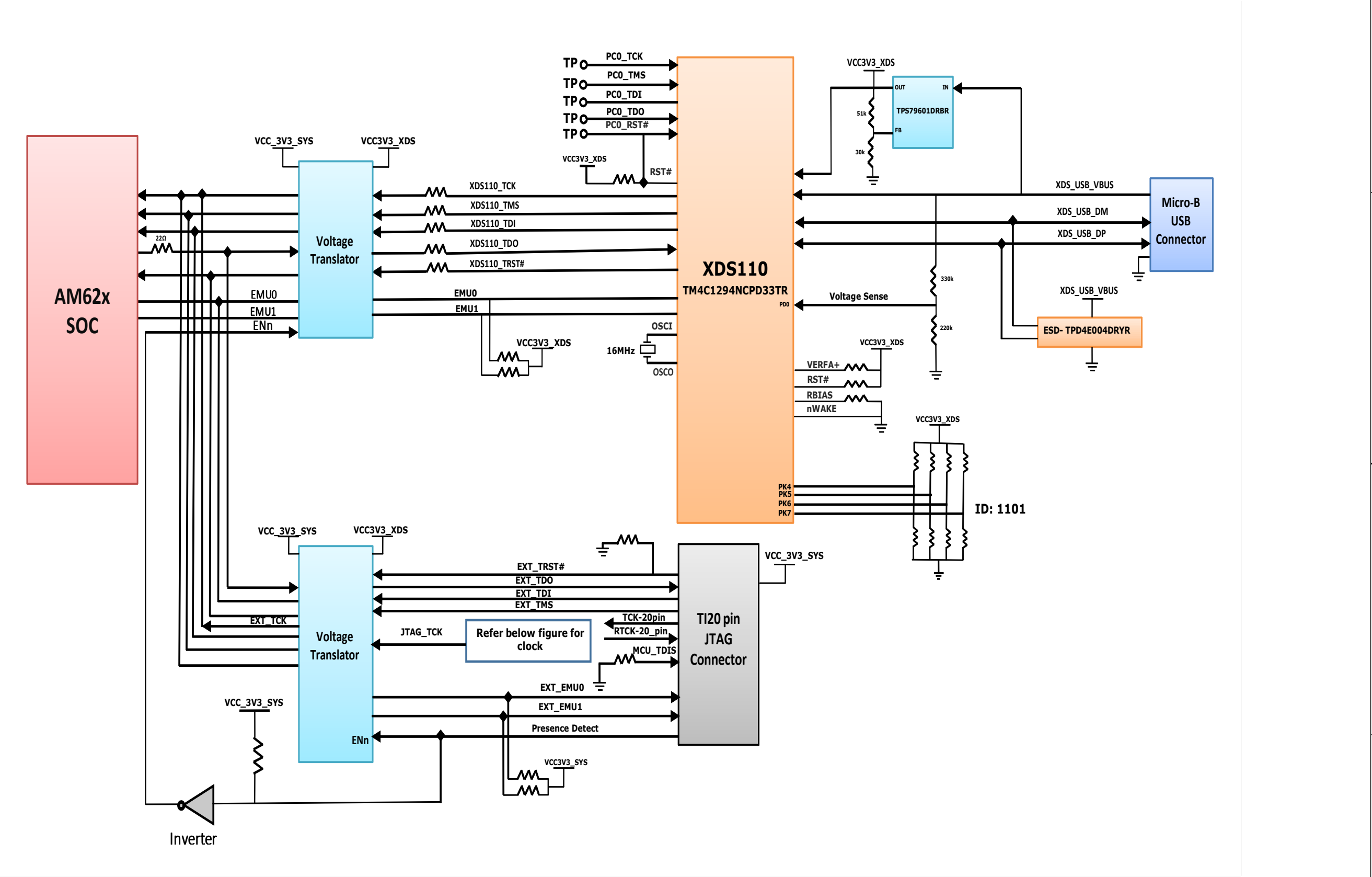


Title BLOCK DIAGRAM AM62x SKEVM

| Size | Rev |
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| C | E1 |
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BLOCK DIAGRAM_XDS110



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Title BLOCK DIAGRAM_XDS110

Size PROC162E1

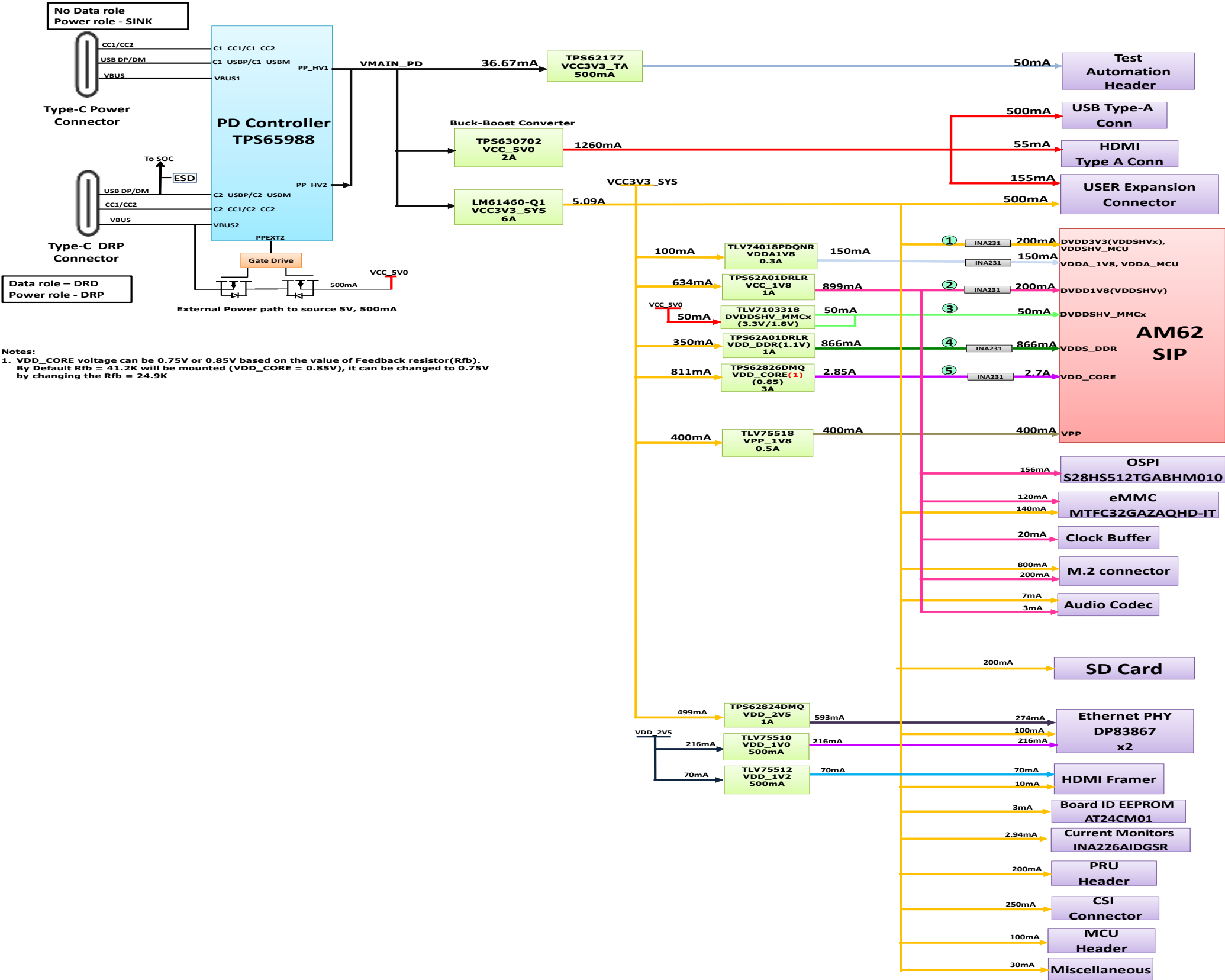
Rev

E1

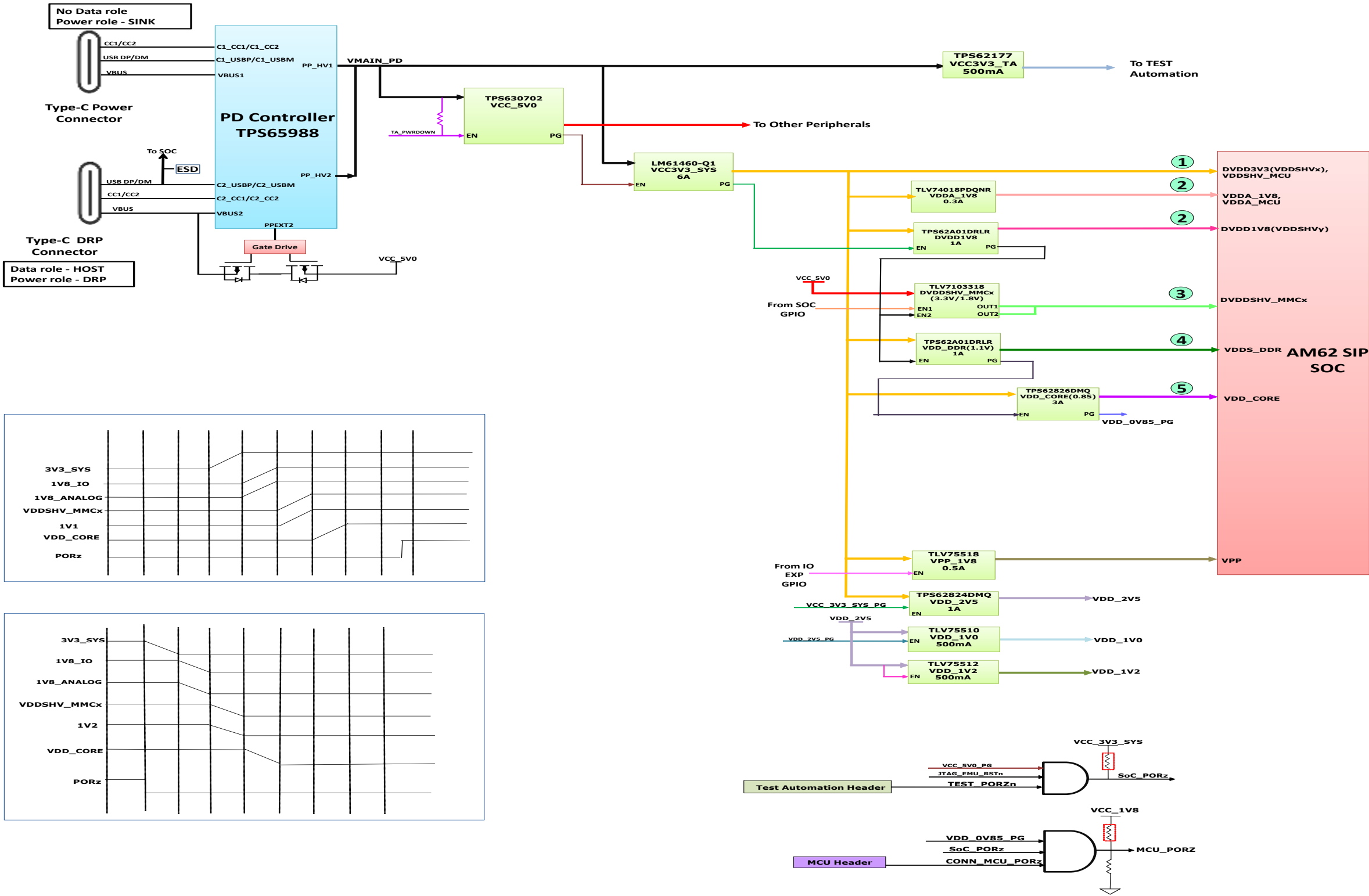
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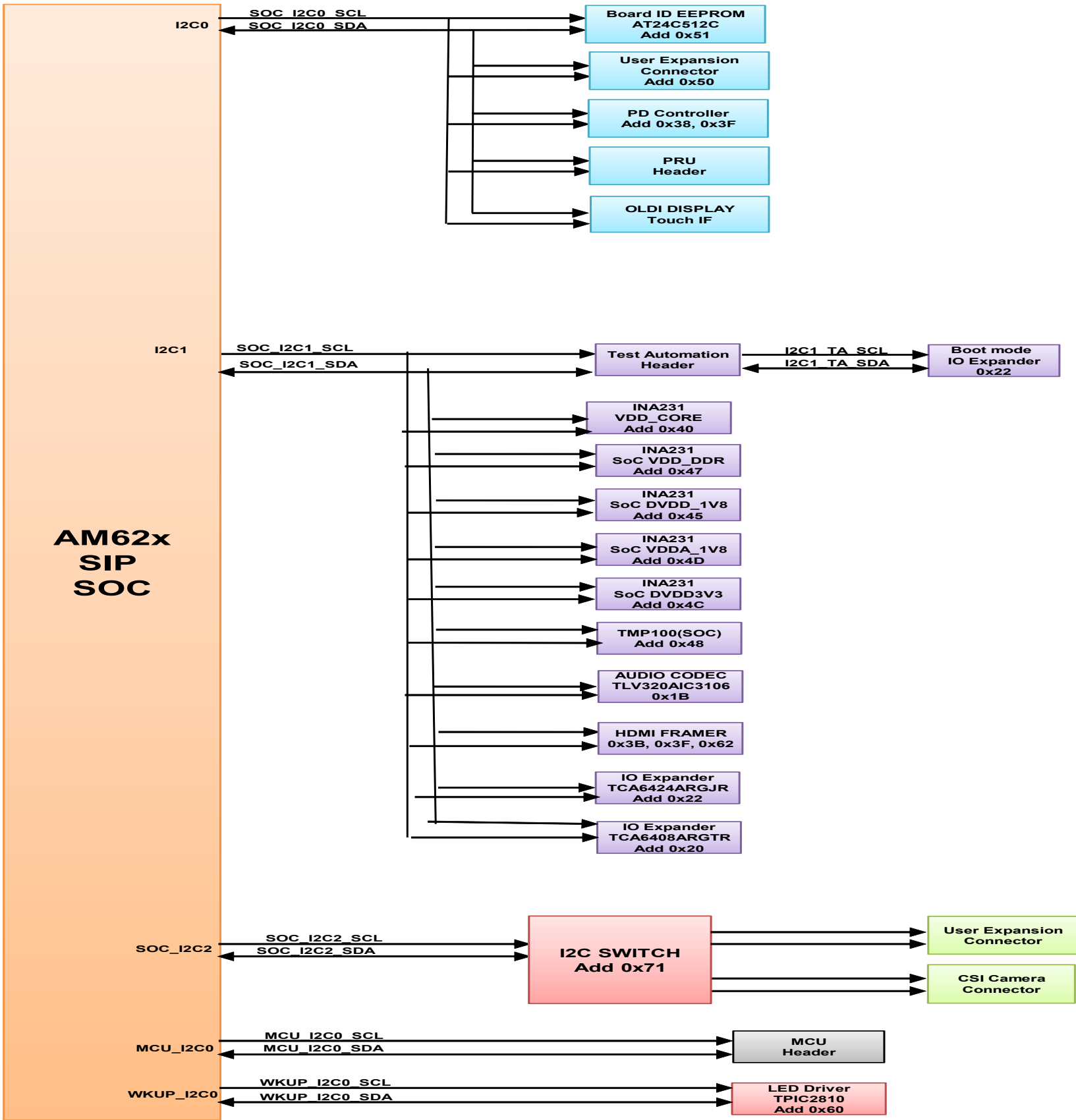
POWER BLOCK DIAGRAM



POWER SEQUENCE



I2C TREE



GPIO MAPPING TABLE

| SL NO. | GPIO DESCRIPTION | GPIO NETNAME | Functionality | GPIO USED | SOC MUXED SIGNAL NAME | DIRECTION WITH RESPECT TO CONTROL | DEFAULT STATE | ACTIVE STATE | VOLTAGE DOMAIN ON SOC SIDE | VOLTAGE CONNECTED ON SKEVM |
|------------------|---|--------------------------|------------------------------------|-------------------|-----------------------|-----------------------------------|---------------|--------------|----------------------------|----------------------------|
| 1 | Enable for WLAN Interface | SoC_WLAN_EN_1V8 | ENABLE | GPIO0_71 | MMC2_SDCD | OUTPUT | LOW | HIGH | VDDSHV6 | SoC_DVDD1V8 |
| 2 | WLAN Interrupt | SoC_WLAN_IRQ_1V8 | INTERRUPT | GPIO0_72 | MMC2_SDWP | INPUT | HIGH | LOW | VDDSHV6 | SoC_DVDD1V8 |
| 3 | Enable for BT Interface | BT_EN_SOC_3V3 | ENABLE | MCU_GPIO0_1 | MCU_SPIO_CS0 | OUTPUT | HIGH | LOW | VDDSHV_MCU | SoC_DVDD3V3 |
| 4 | CPSW Ethernet PHY Interrupt | CPSW_RGMII_INTn/PRU_INTn | INTERRUPT | GPIO1_31 | EXTINTn | INPUT | HIGH | LOW | VDDSHV0 | SoC_DVDD3V3 |
| | PRU Connector Interrupt | | | | | | | | | |
| | PMIC_INTn | | | | | | | | | |
| 5 | OSPI Reset Control GPIO | GPIO_OSPI_RSTn | RESET | GPIO0_12 | OSPI0_CSn1 | OUTPUT | HIGH | LOW | VDDSHV1 | SoC_DVDD1V8 |
| 6 | OSPI Interrupt | OSPI_INTn | INTERRUPT | GPIO0_13 | OSPI0_CSn2 | INPUT | HIGH | LOW | VDDSHV1 | SoC_DVDD1V8 |
| 7 | SD Card IO Voltage Select | VSEL_SD | ENABLE | GPIO0_31 | GPMC0_CLK | OUTPUT | LOW | HIGH | VDDSHV3 | SoC_DVDD3V3 |
| 8 | IO Expander Interrupt | MCU_GPIO0_15 | INTERRUPT | MCU_GPIO0_15 | MCU_MCAN1_TX | INPUT | HIGH | LOW | VDDSHV_CANUART | SoC_DVDD3V3 |
| 9 | TEST GPIO1 from Test Automation Connector/ User Interrupt Push Button | | | | | | | | | |
| 10 | User Test LED 1 | SOC_GPIO1_49 | GPIO | GPIO1_49 | MMC1_SDWP | OUTPUT | LOW | HIGH | VDDSHV0 | SoC_DVDD3V3 |
| IO EXPANDER - 01 | | | | | | | | | | |
| 1 | CPSW Ethernet PHY-2 Reset Control GPIO | GPIO_CPSW2_RST | RESET | IO EXPANDER - P01 | | OUTPUT | HIGH | LOW | VDDSHV0 | SoC_DVDD3V3 |
| 2 | CPSW Ethernet PHY-1 Reset Control GPIO | GPIO_CPSW1_RST | RESET | IO EXPANDER - P01 | | OUTPUT | HIGH | LOW | VDDSHV0 | SoC_DVDD3V3 |
| 3 | PRU Board Detection | PRU_DETECT | DETECTION | IO EXPANDER - P02 | | INPUT | HIGH | LOW | VDDSHV0 | SoC_DVDD3V3 |
| 4 | SD Card Load Switch Enable | MMC1_SD_EN | ENABLE | IO EXPANDER -P03 | | OUTPUT | HIGH | LOW | VDDSHV0 | SoC_DVDD3V3 |
| 5 | SOC eFuse Voltage(VPP=1.8V) Regulator Enable | VPP_LDO_EN | ENABLE | IO EXPANDER - P04 | | OUTPUT | LOW | HIGH | VDDSHV0 | SoC_DVDD3V3 |
| 6 | EXP CONN 3.3V Power Switch Enable | EXP_PS_3V3_EN | ENABLE | IO EXPANDER - P05 | | OUTPUT | LOW | HIGH | VDDSHV0 | SoC_DVDD3V3 |
| 7 | EXP CONN 5V Power Switch Enable | EXP_PS_5V0_EN | ENABLE | IO EXPANDER - P06 | | OUTPUT | LOW | HIGH | VDDSHV0 | SoC_DVDD3V3 |
| 8 | EXP CONN HAT Board Detection | RPI_HAT_DETECT | DETECTION | IO EXPANDER - P07 | | INPUT | HIGH | LOW | VDDSHV0 | SoC_DVDD3V3 |
| 9 | M.2 Connector Alert | WLAN_ALERT_3V3 | ALERT | IO EXPANDER – P10 | | OUTPUT | HIGH | LOW | VDDSHV0 | SoC_DVDD3V3 |
| 10 | M.2 Connector WAKEUP | BT_UART_WAKE_SOC_3V3 | WAKEUP | IO EXPANDER – P11 | | OUTPUT | HIGH | LOW | VDDSHV0 | SoC_DVDD3V3 |
| 11 | SOC UART1 Mux Select | UART1_MUX_SEL | SELECT | IO EXPANDER - P12 | | OUTPUT | LOW | HIGH | VDDSHV0 | SoC_DVDD3V3 |
| 12 | Enable for Wilink Level Translators | WL_LT_EN | ENABLE | IO EXPANDER - P13 | | OUTPUT | LOW | HIGH | VDDSHV0 | SoC_DVDD3V3 |
| 13 | HDMI Transmitter Reset Control GPIO | GPIO_HDMI_RSTn | RESET | IO EXPANDER - P14 | | OUTPUT | HIGH | LOW | VDDSHV0 | SoC_DVDD3V3 |
| 14 | Raspberry Pi Camera CSI0 GPIO1 | CSI_GPIO1 | INPUT/OUTPUT | IO EXPANDER - P15 | | NA | NA | NA | VDDSHV0 | SoC_DVDD3V3 |
| 15 | Raspberry Pi Camera CSI0 GPIO2 | CSI_GPIO2 | INPUT/OUTPUT | IO EXPANDER - P16 | | NA | NA | NA | VDDSHV0 | SoC_DVDD3V3 |
| 16 | PRU Power Switch Enable | PRU_3V3_EN | ENABLE | IO EXPANDER - P17 | | OUTPUT | LOW | HIGH | VDDSHV0 | SoC_DVDD3V3 |
| 17 | HDMI Interrupt | HDMI_INTn | INTERRUPT | IO EXPANDER - P20 | | INPUT | HIGH | LOW | VDDSHV0 | SoC_DVDD3V3 |
| 18 | TEST GPIO2 from Test Automation Connector | TEST_GPIO2 | GPIO for communications with AM62x | IO EXPANDER - P21 | | INPUT | HIGH | LOW | VDDSHV0 | SoC_DVDD3V3 |
| 19 | MCASP2 Enable and Direction Control | AUD_BUF_EN | ENABLE | IO EXPANDER - P22 | | OUTPUT | LOW | HIGH | VDDSHV0 | SoC_DVDD3V3 |
| 20 | | WL_BUF_EN | ENABLE | IO EXPANDER - P23 | | OUTPUT | HIGH | LOW | VDDSHV0 | SoC_DVDD3V3 |
| 21 | | AUD_BUF_CLK_DIR | DIRECTION CONTROL | IO EXPANDER - P24 | | OUTPUT | HIGH | LOW | VDDSHV0 | SoC_DVDD3V3 |
| 22 | | WL_BUF_CLK_DIR | DIRECTION CONTROL | IO EXPANDER - P25 | | OUTPUT | HIGH | LOW | VDDSHV0 | SoC_DVDD3V3 |
| 23 | OLDI Display Touch Interrupt | TS_INT# | INTERRUPT | IO EXPANDER - P26 | | INPUT | HIGH | LOW | VDDSHV0 | SoC_DVDD3V3 |
| 24 | User Test LED 2 | IO_EXP_TEST_LED | GPIO | IO EXPANDER - P27 | | OUTPUT | LOW | HIGH | VDDSHV0 | SoC_DVDD3V3 |
| IO EXPANDER - 02 | | | | | | | | | | |
| 1 | M.2 Connector SDIO Reset Control GPIO | WLAN_SDIO_RST_3V3 | RESET | IO EXPANDER – P0 | | INPUT | HIGH | LOW | VDDSHV0 | SoC_DVDD3V3 |
| 2 | OLDI Display Reset control | GPIO_TS_RSTn | RESET | IO EXPANDER – P1 | | INPUT | HIGH | LOW | VDDSHV0 | SoC_DVDD3V3 |
| 3 | Audio Codec Reset Control GPIO | GPIO_AUD_RSTn | DETECTION | IO EXPANDER – P2 | | INPUT | HIGH | LOW | VDDSHV0 | SoC_DVDD3V3 |
| 4 | eMMC Reset control GPIO | GPIO_eMMC_RSTn | RESET | IO EXPANDER – P3 | | OUTPUT | HIGH | LOW | VDDSHV0 | SoC_DVDD3V3 |
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Title GPIO MAPPING TABLE

Size

PROC162E1

Rev

E1

Date:

Tuesday, June 25, 2024

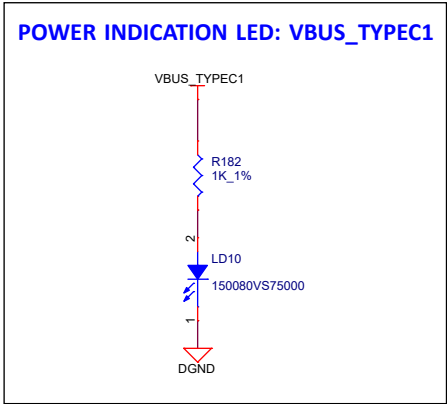
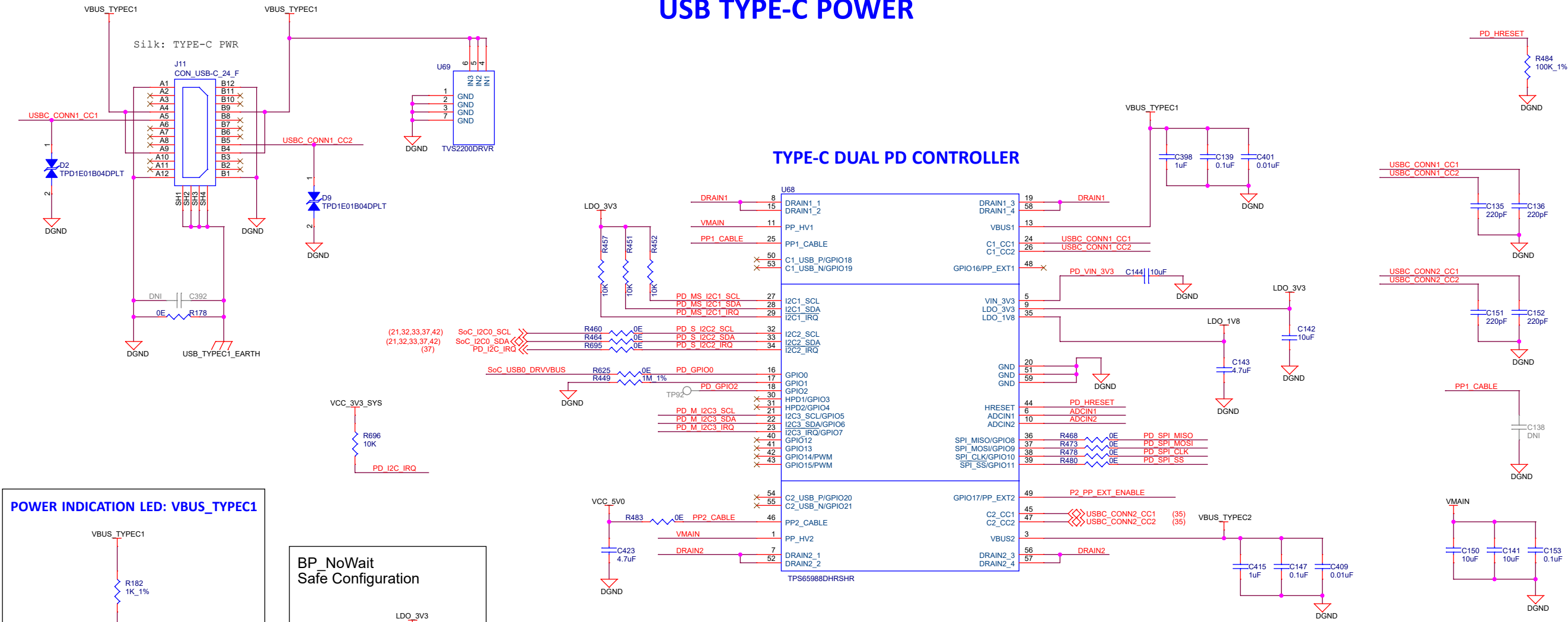
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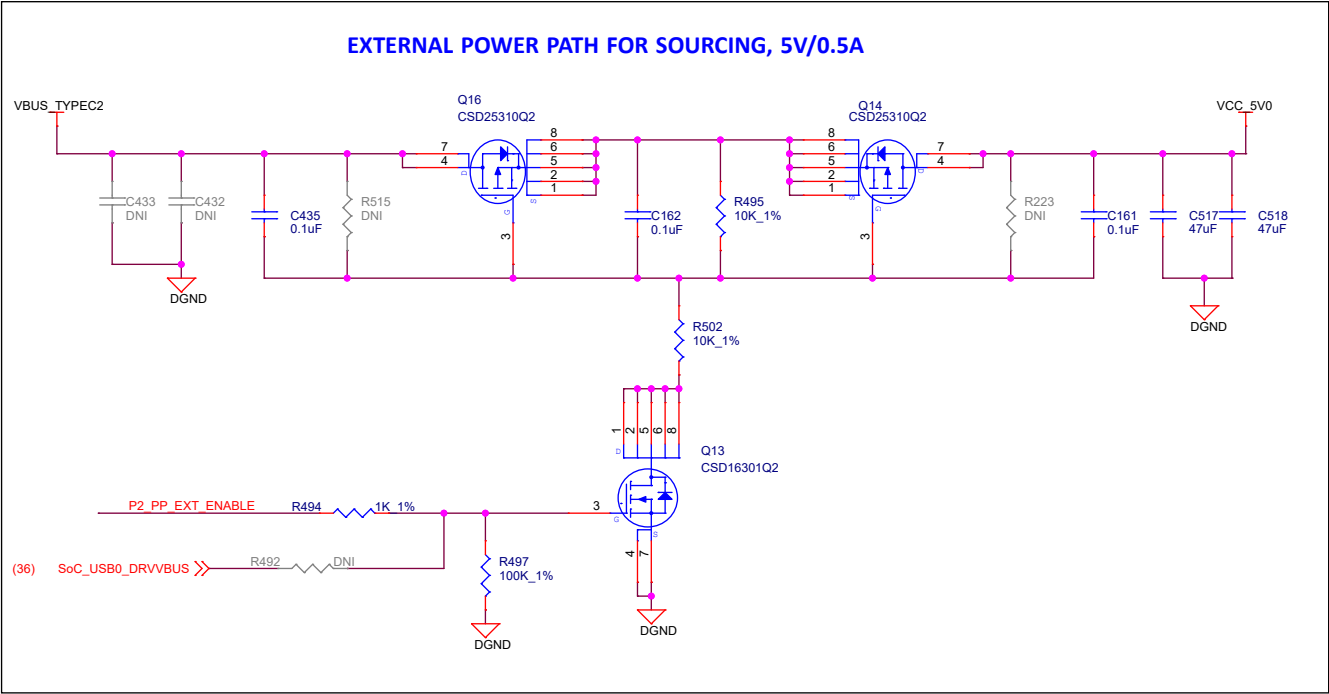
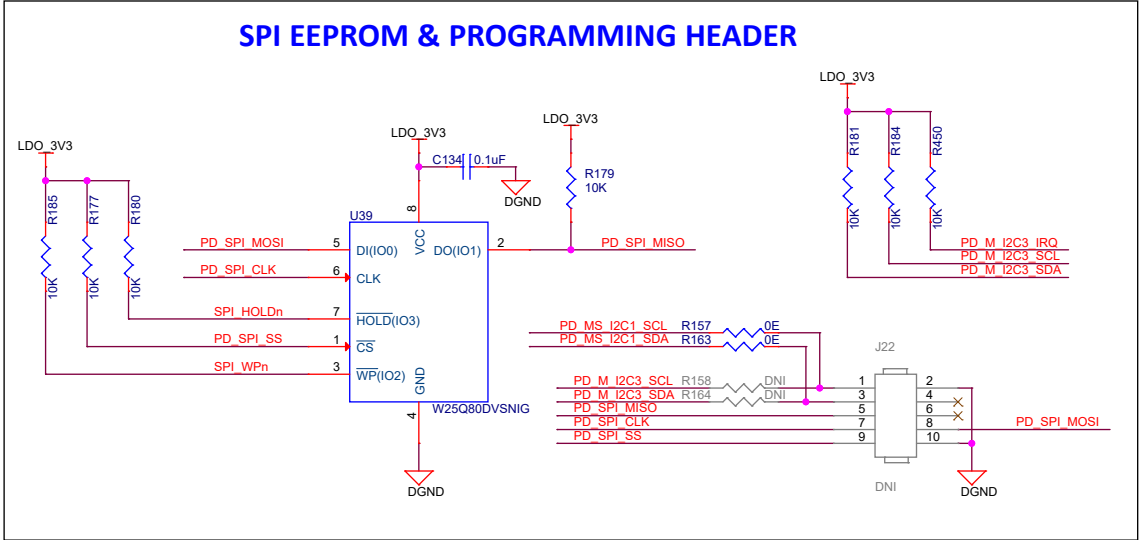
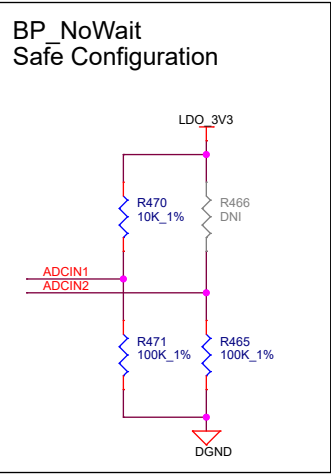
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USB TYPE-C POWER



| I2C Slave Address | Port1 | Port2 |
|-------------------|-------|-------|
| I2C2 (Default) | 0x38 | 0x3F |
| I2C1 | 0x20 | 0x24 |

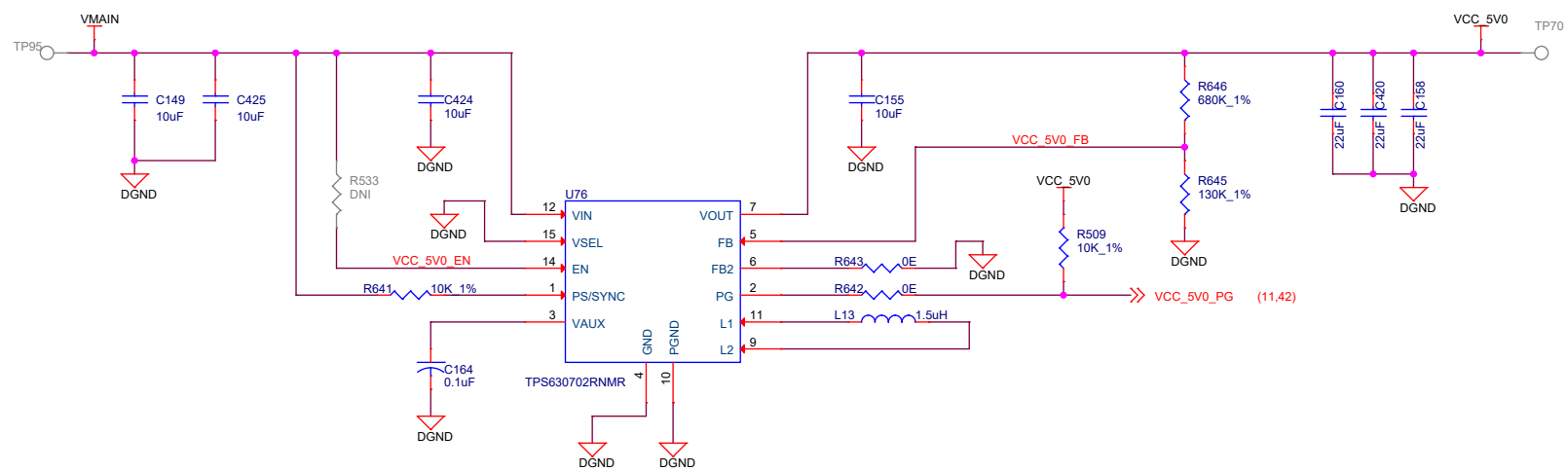


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| Title USB TYPE-C POWER | | |
| Size | PROC162E1 | Rev |
| C | | E1 |
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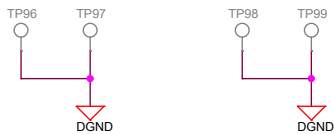
PERIPHERAL POWER SUPPLY-1



Power Cycle control from Test Automation



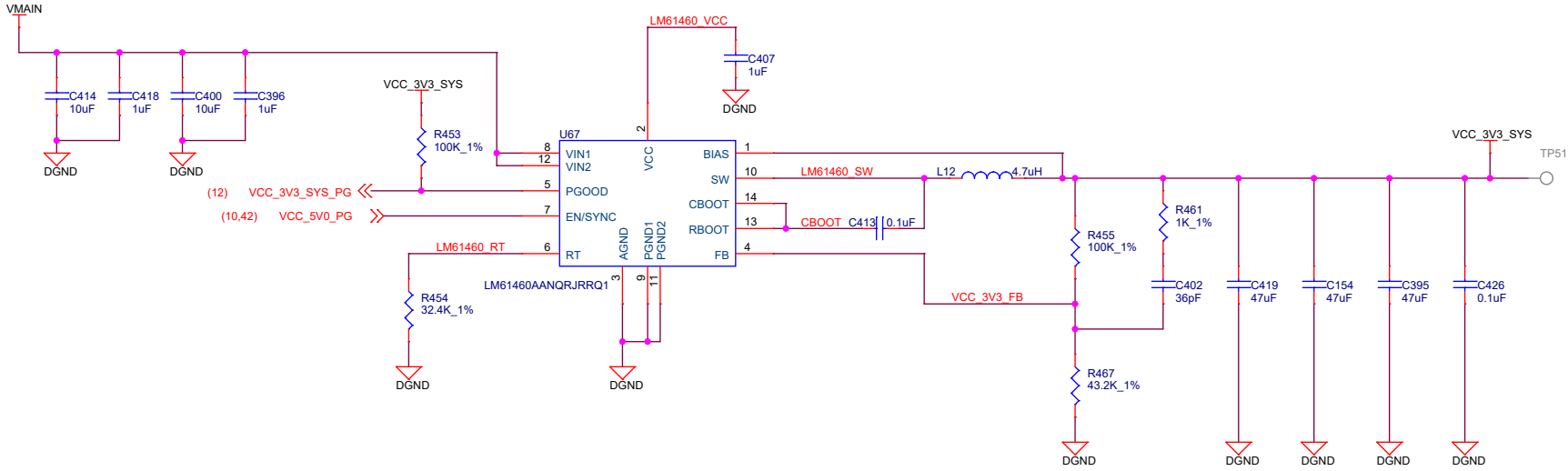
GROUND TEST POINTS



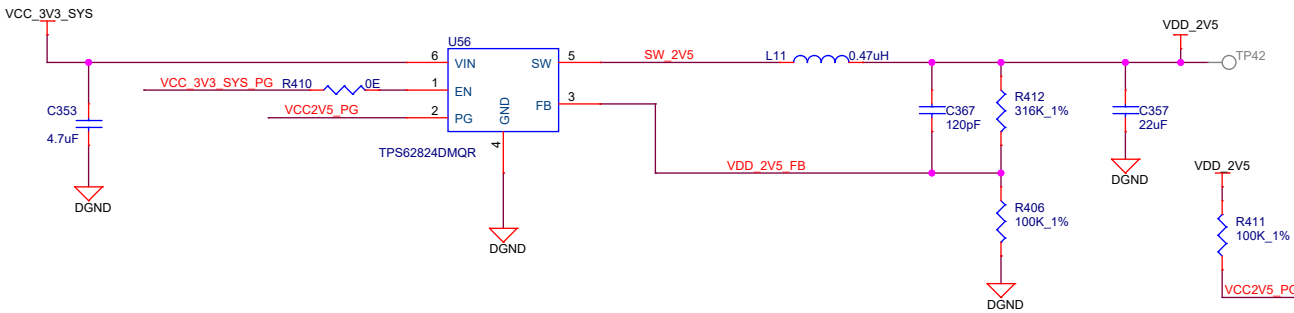
PERIPHERAL POWER SUPPLY-2

VinMin = 4.5V
VinMax = 24V
Vout = 3.3V @ 6A

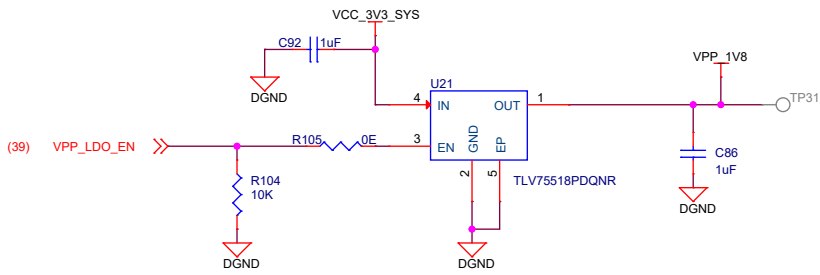
3.3V, 6.0AMPS SUPPLY



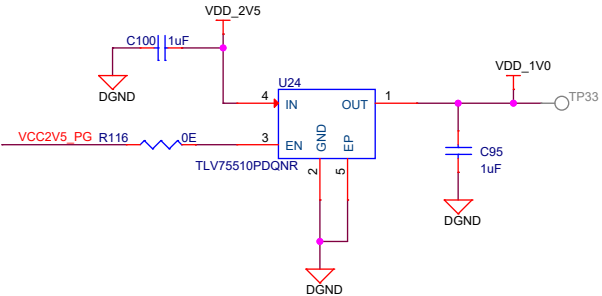
2.5V, 1.0AMPS SUPPLY



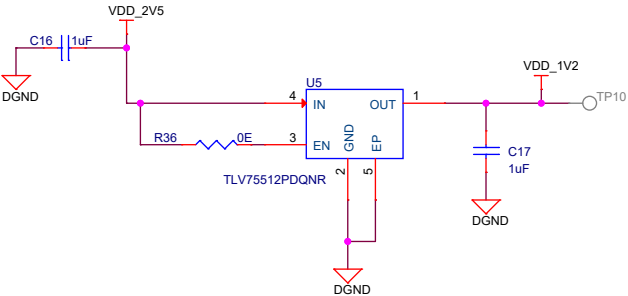
1.8V VPP, 0.5AMPS SUPPLY



1.0V, 0.5AMPS SUPPLY



1.2V, 0.5AMPS SUPPLY



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Title PERIPHERAL POWER SUPPLY-2

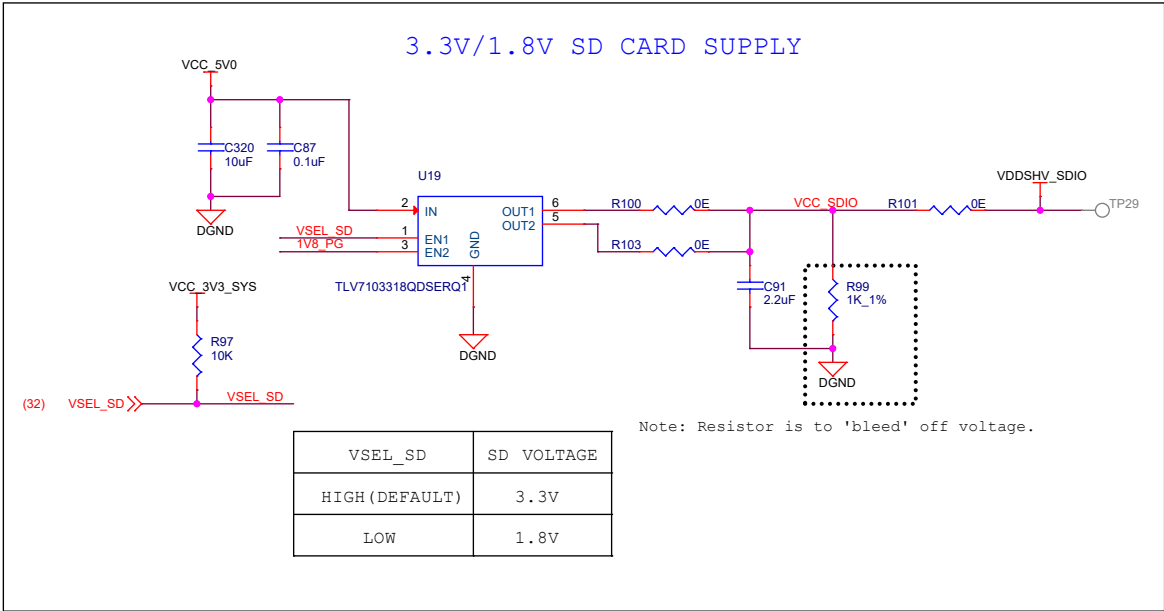
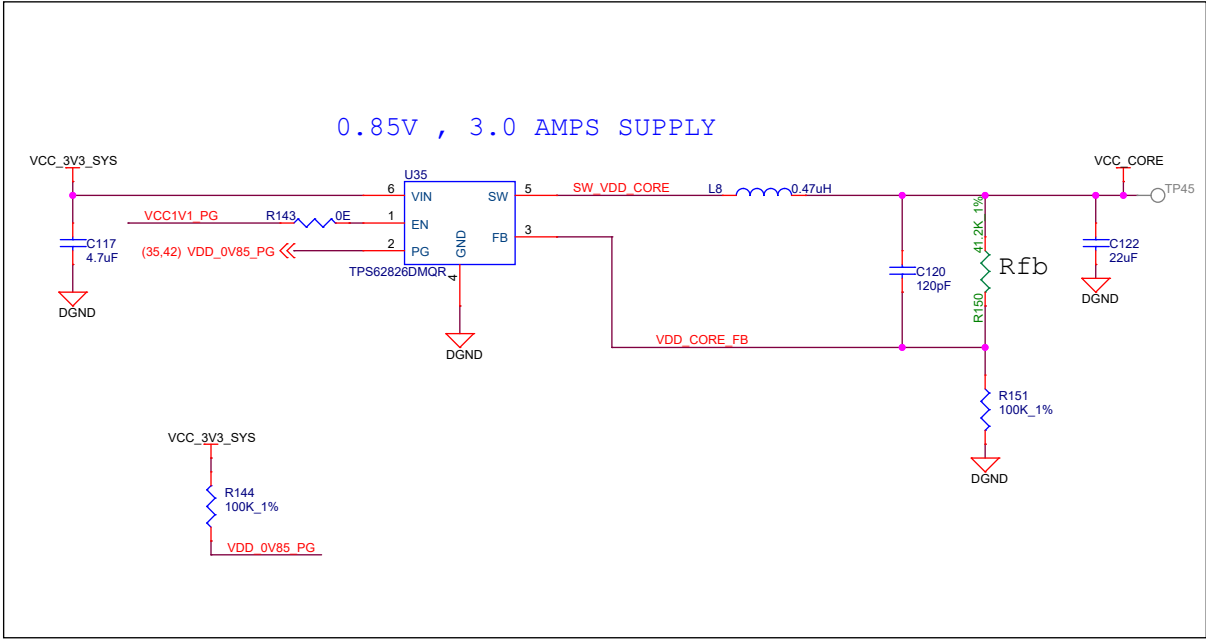
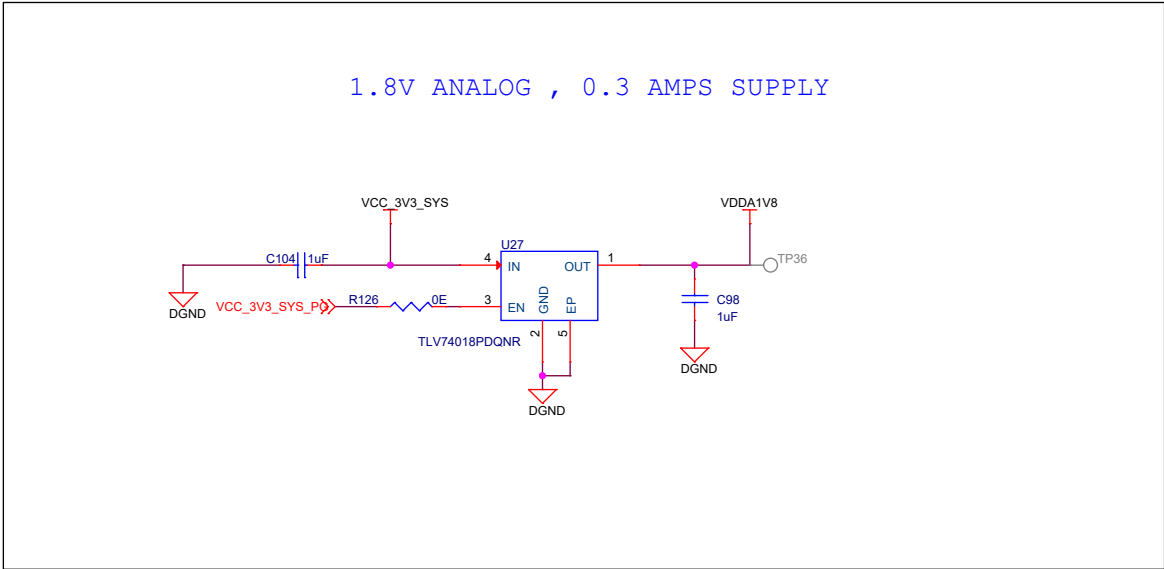
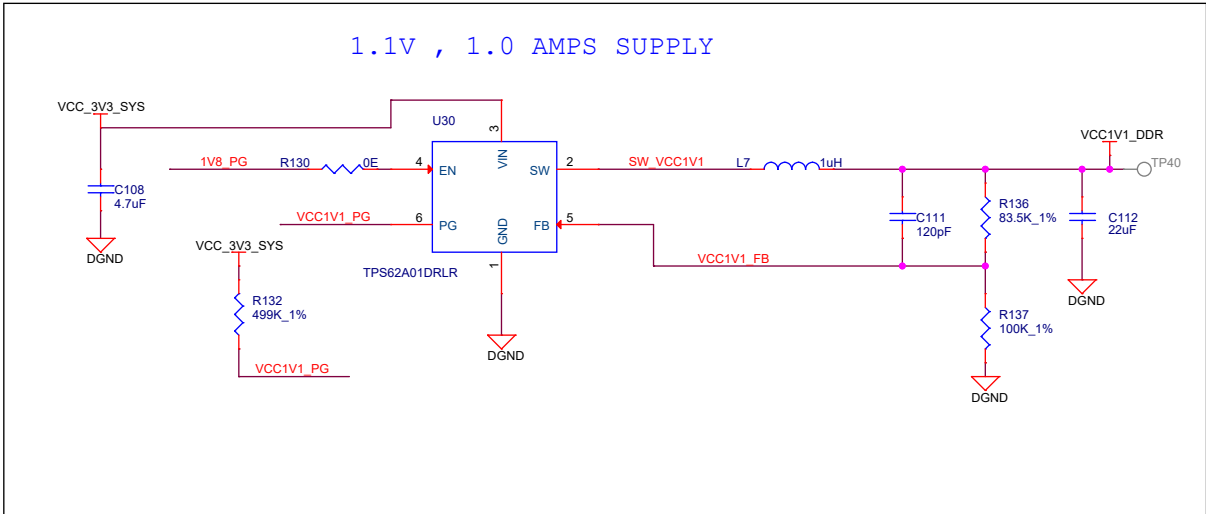
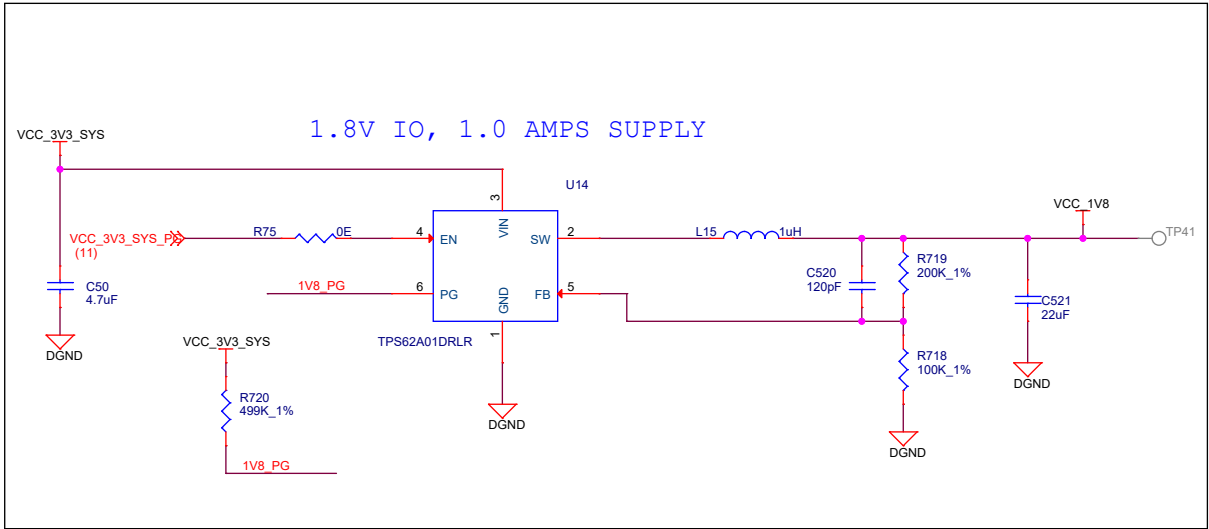
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SOC POWER SUPPLY



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Title SOC POWER SUPPLY

Size PROC162E1

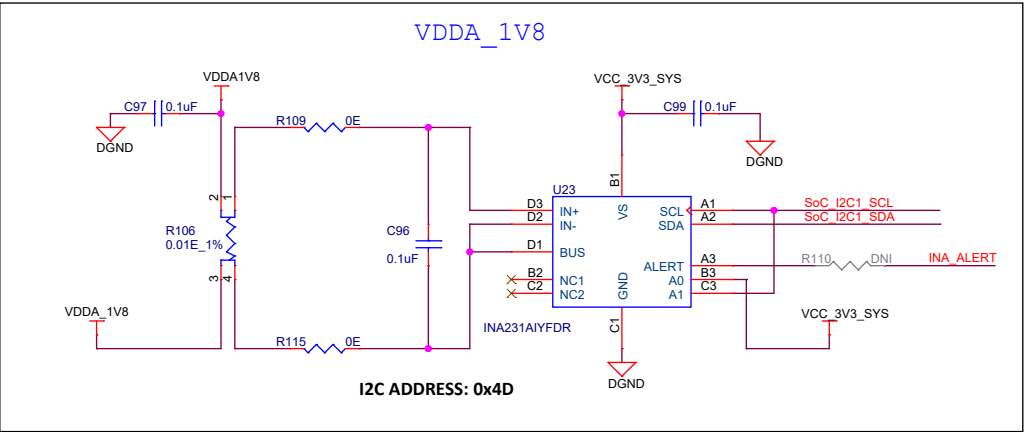
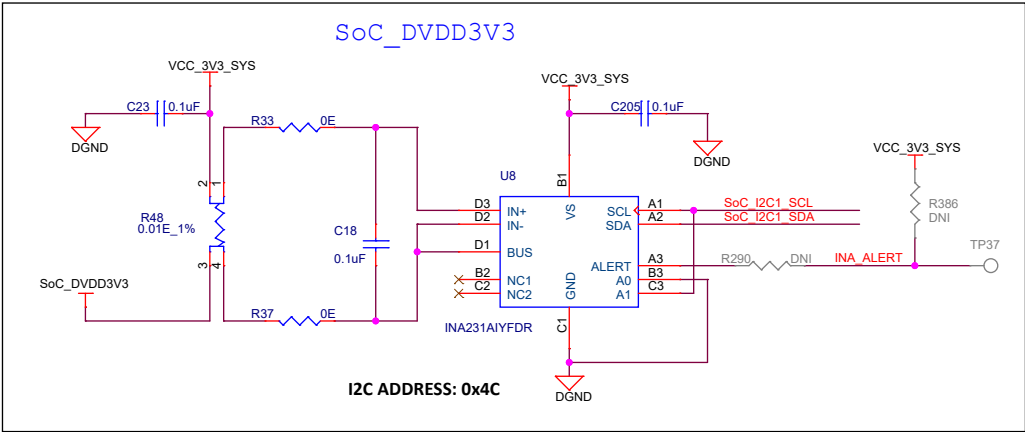
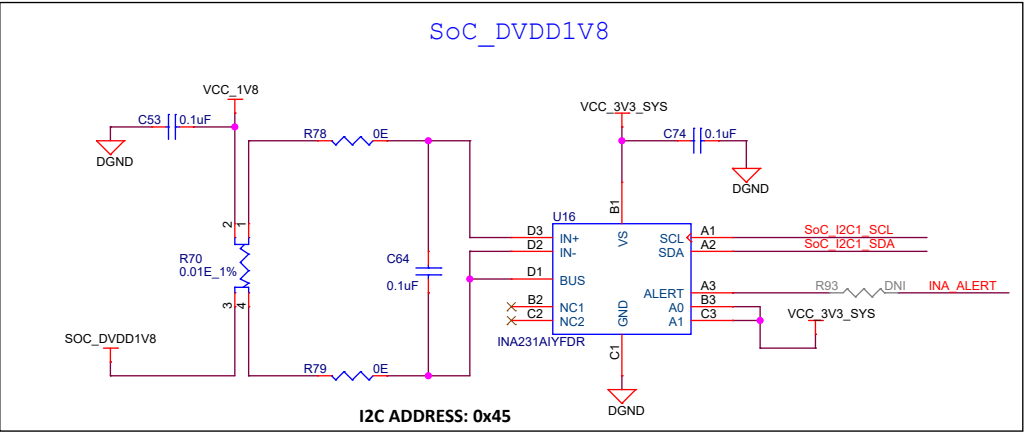
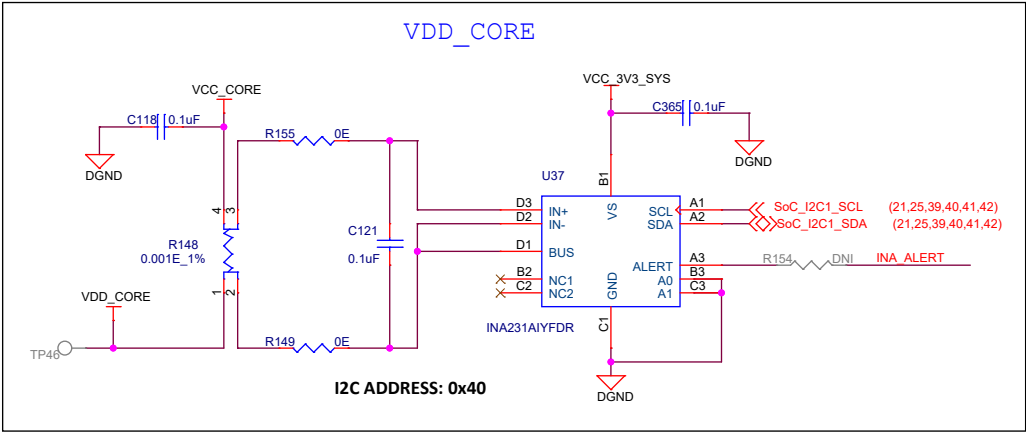
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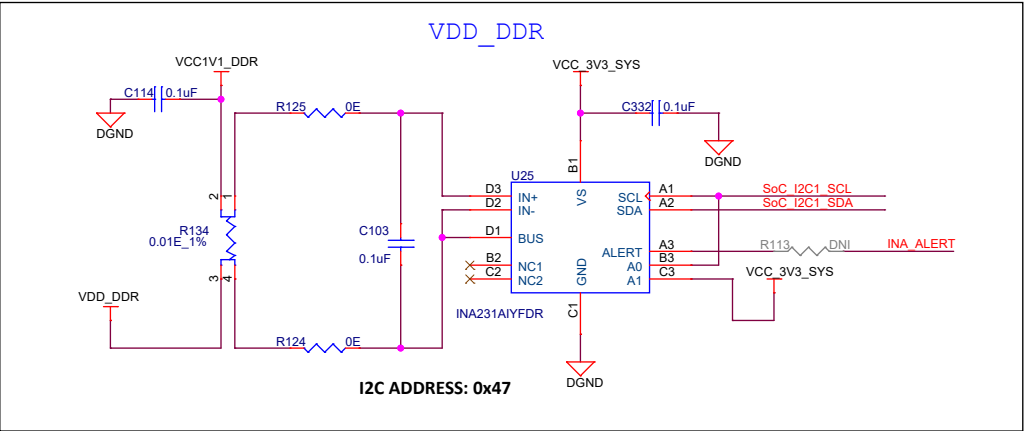
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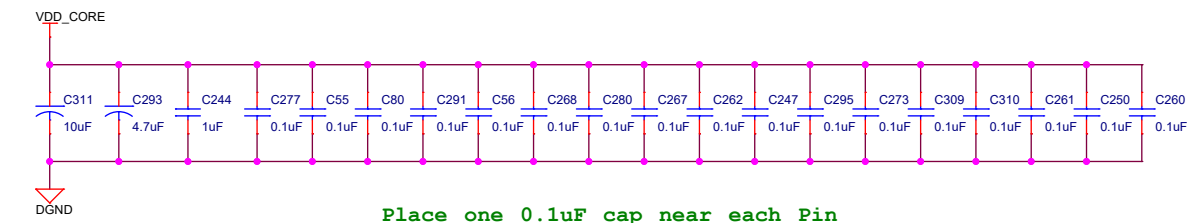
CURRENT MONITORING DEVICES



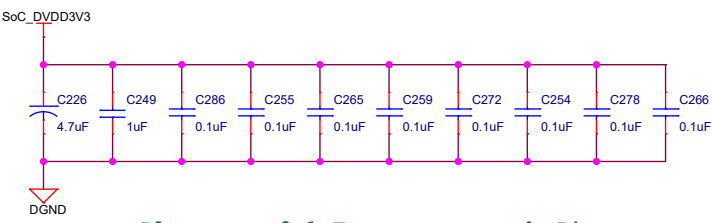
| INA I2C SLAVE ADDRESS | | |
|-----------------------|-------------|------------------------|
| POWER SOURCE | SUPPLY NET | SLAVE ADDRESS (IN HEX) |
| VCC_CORE | VDD_CORE | 40 |
| VCC_3V3_SYS | SoC_DVDD3V3 | 4C |
| VCC_1V8 | SoC_DVDD1V8 | 45 |
| VDDA1V8 | VDDA_1V8 | 4D |
| VCC1V1_DDR | VDD_DDR | 47 |



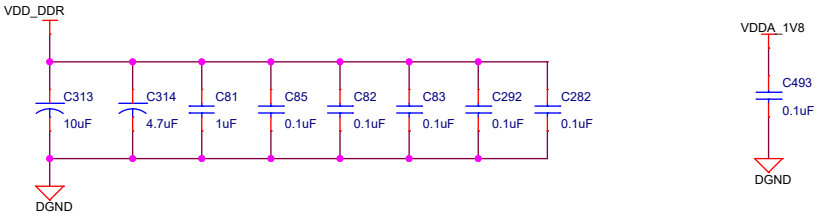
SOC POWER DECAPS



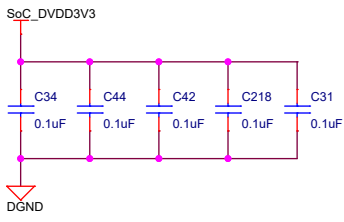
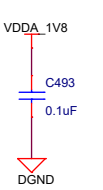
Place one 0.1uF cap near each Pin



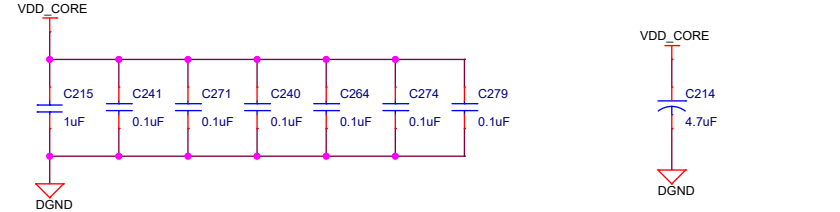
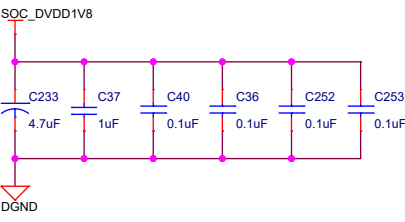
Place one 0.1uF cap near each Pin



Place one 0.1uF cap near each Pin



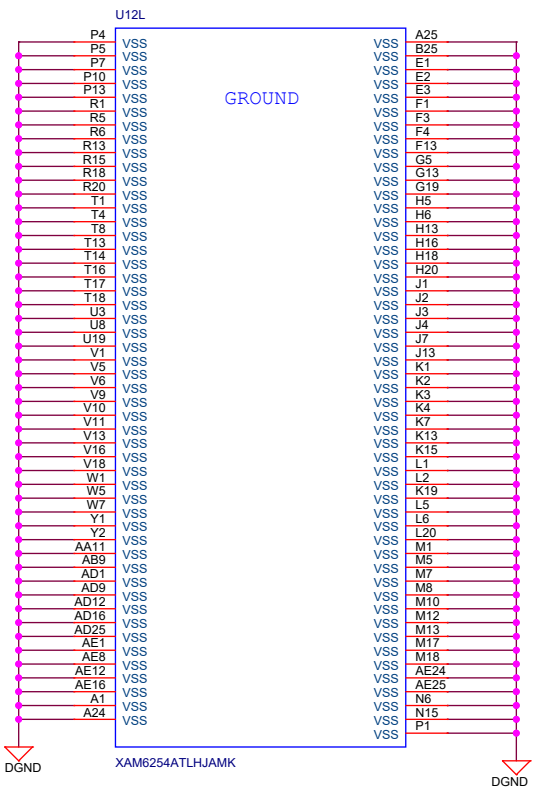
Place one 0.1uF cap near each Pin



Place one 0.1uF cap near each Pin



SOC VSS



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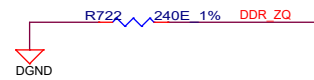
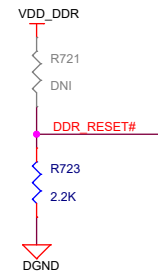
Title SOC POWER CAPS & SOC VSS

Size C
PROC162E1

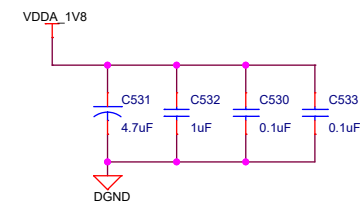
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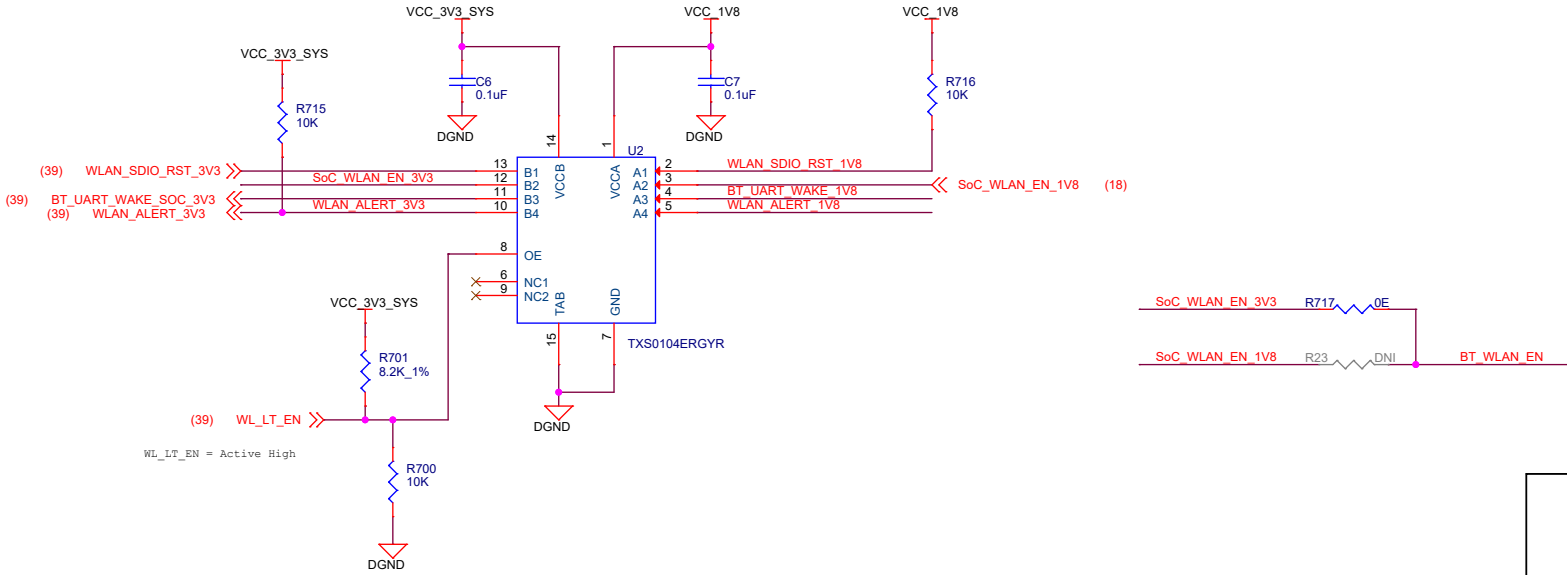
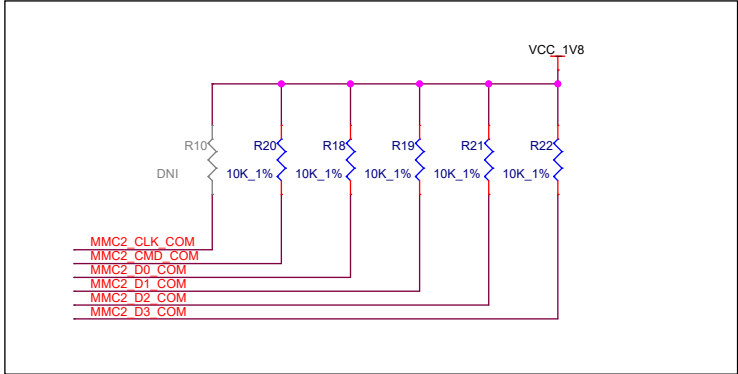
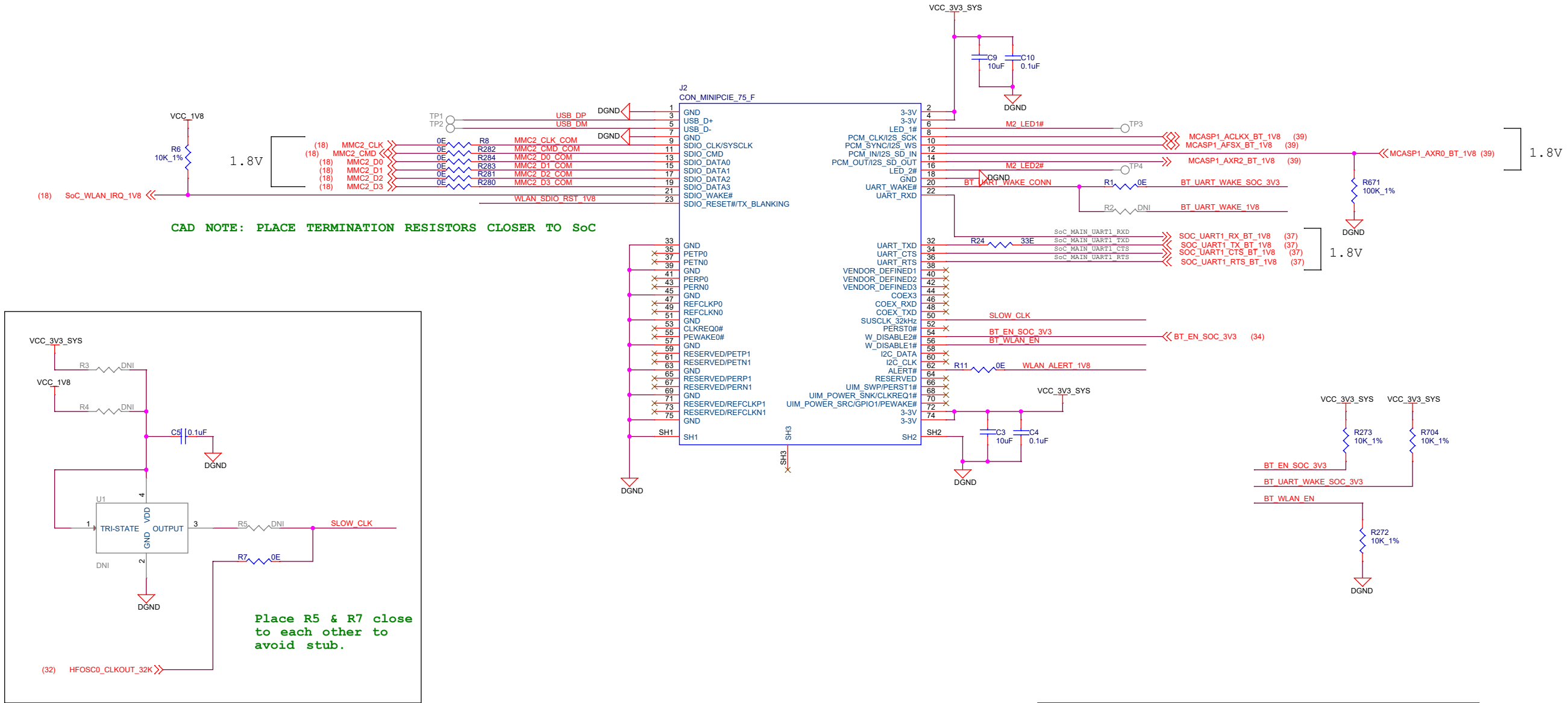
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Place one 0.1uF cap near each Pin



Place one 0.1uF cap near each Pin

M.2 INTERFACE

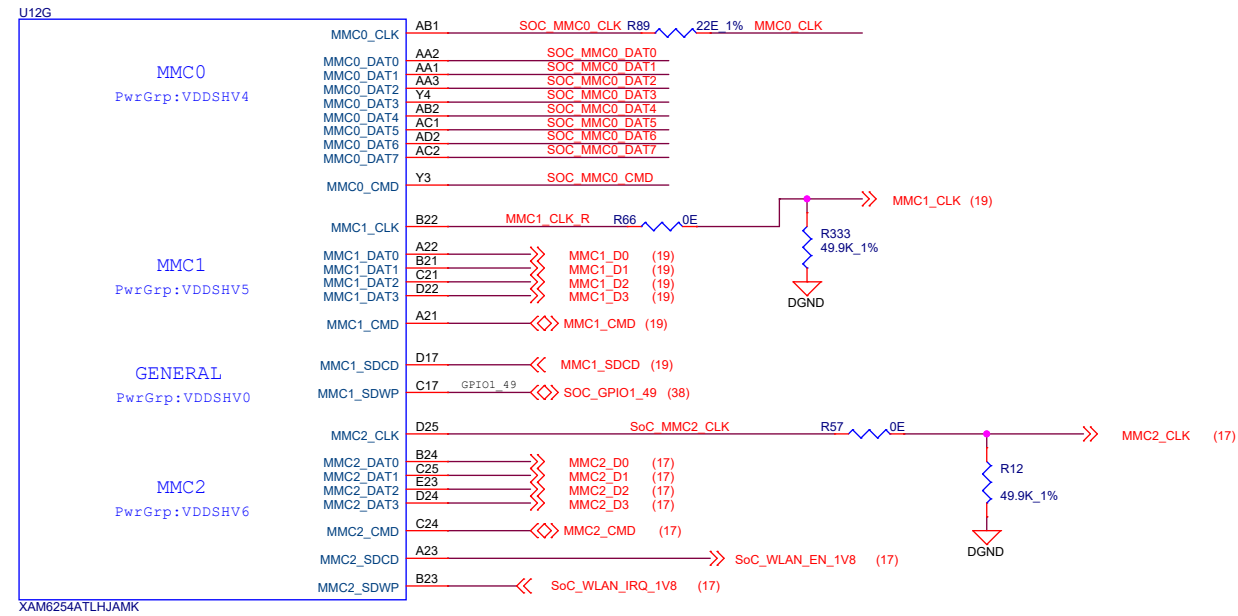


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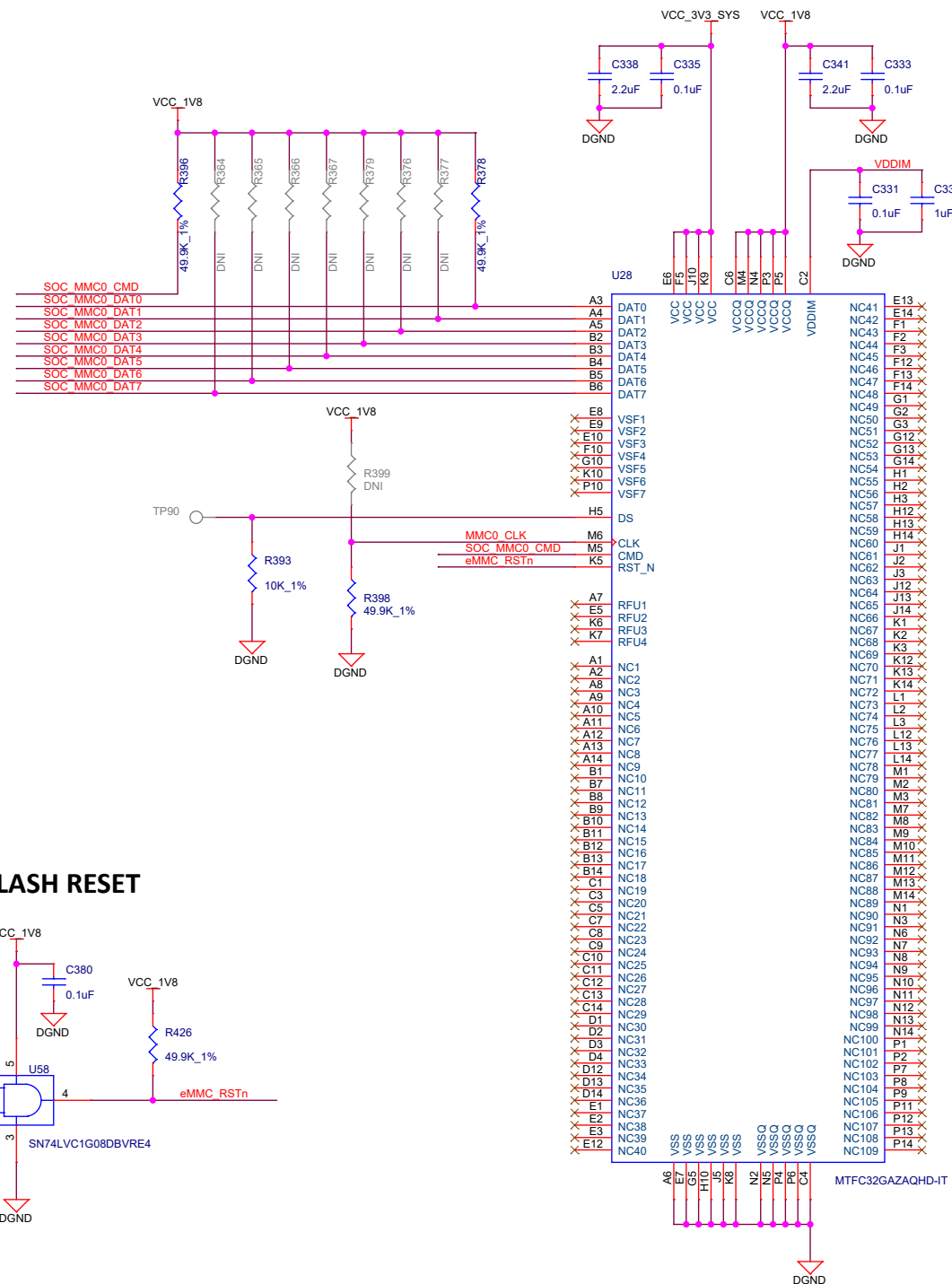


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|-------|------------------------|-------|---------------|-------|
| Title | | | WL1837 MODULE | |
| Size | PROC162E1 | | Rev | |
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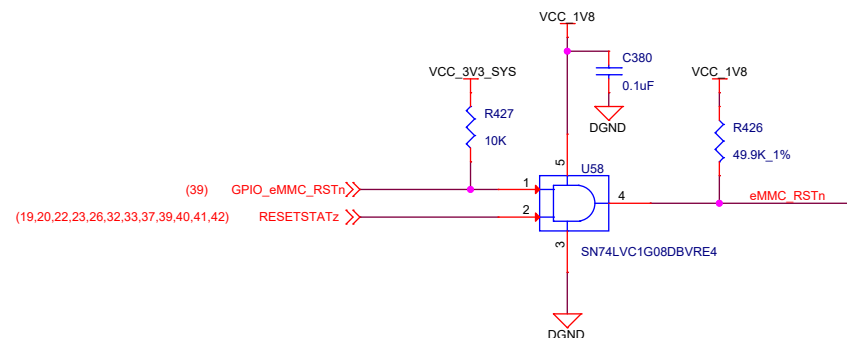
SOC - MMC Interface



eMMC FLASH



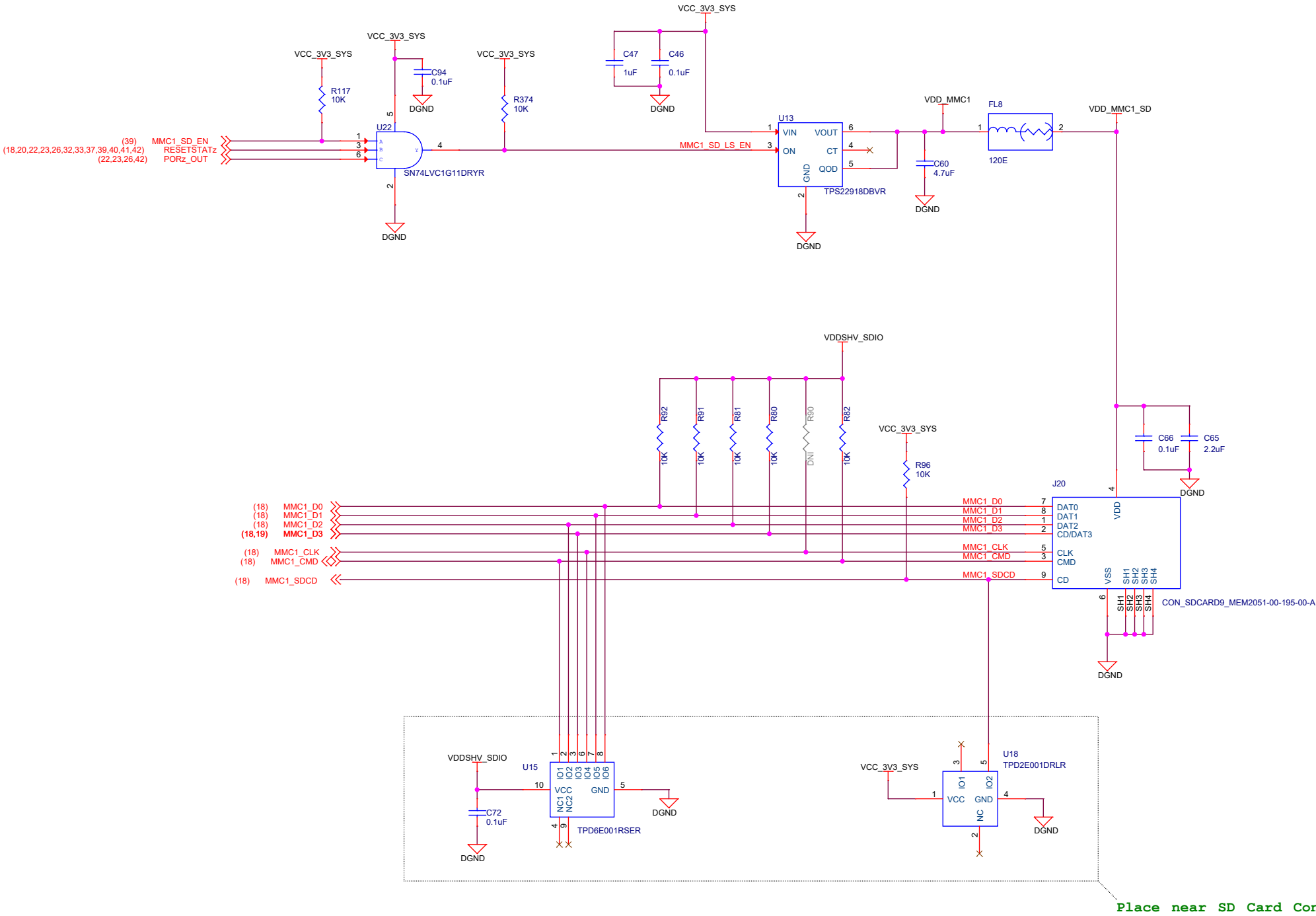
eMMC FLASH RESET



SD CARD INTERFACE

SD CARD RESET

LOAD SWITCH



Designed for T1 by Mistral Solutions Pvt Ltd



Title SD CARD INTERFACE

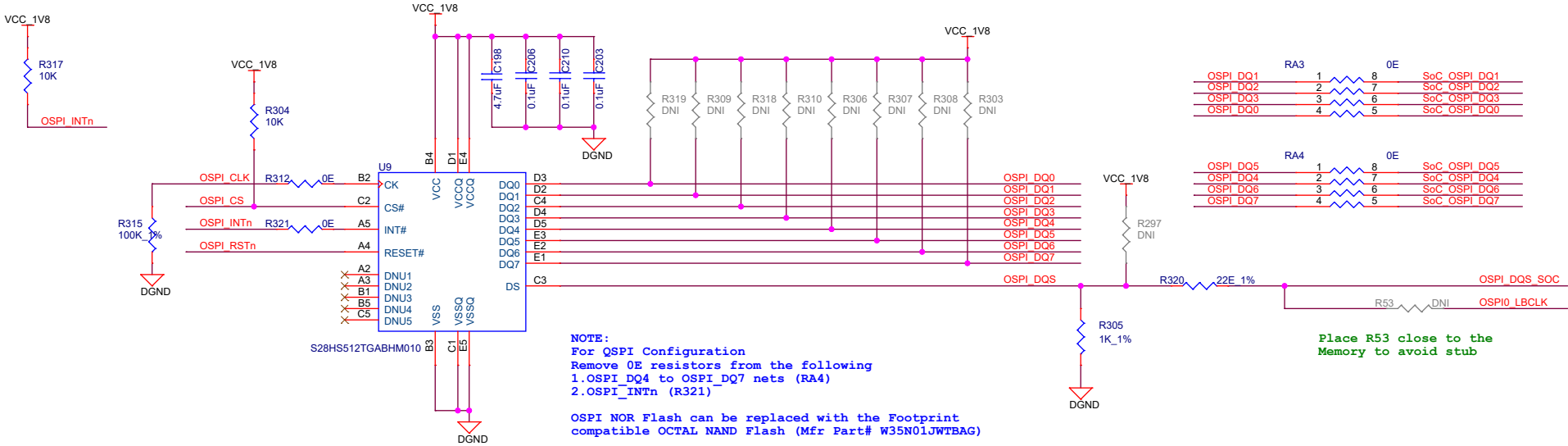
Size PROC162E1

Rev

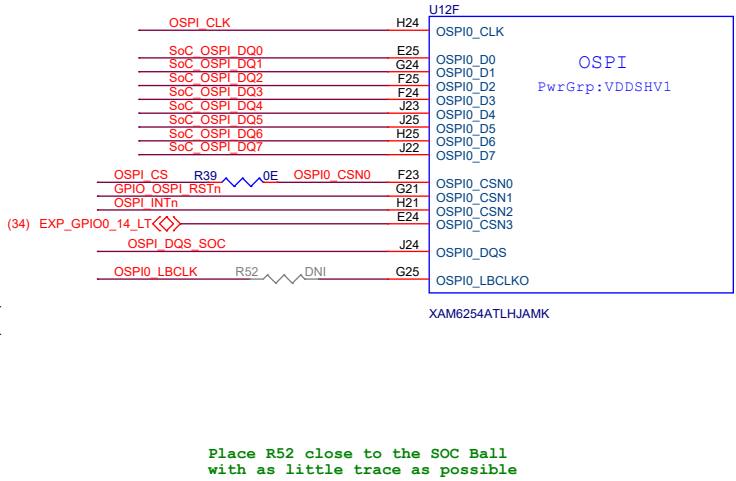
Date: Tuesday, June 25, 2024

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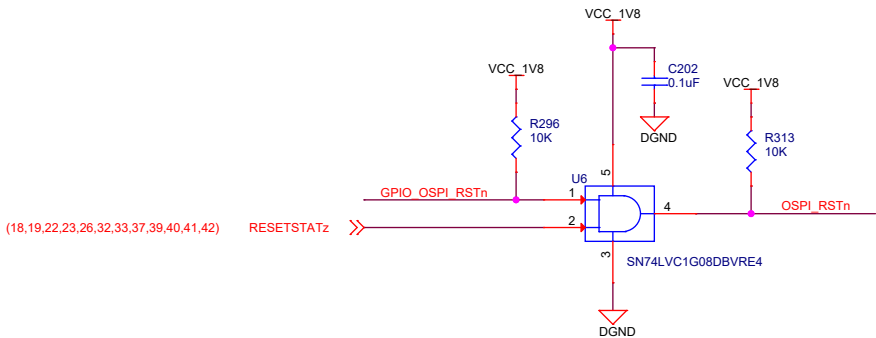
OSPI FLASH



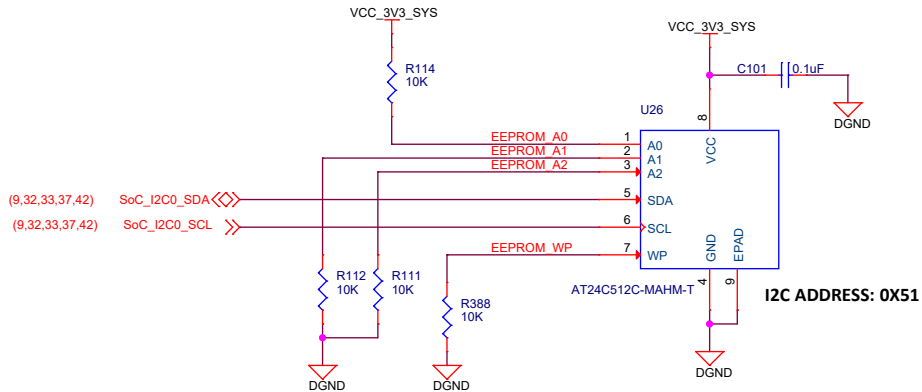
SOC OSPI INTERFACE



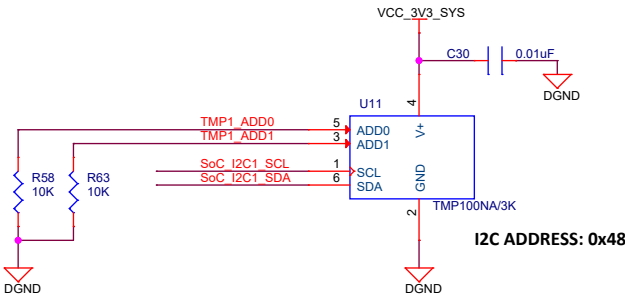
OSPI FLASH RESET



BOARD ID EEPROM



TEMPERATURE SENSOR



CAD NOTE: PLACE TEMP SENSOR U11 CLOSE TO SoC



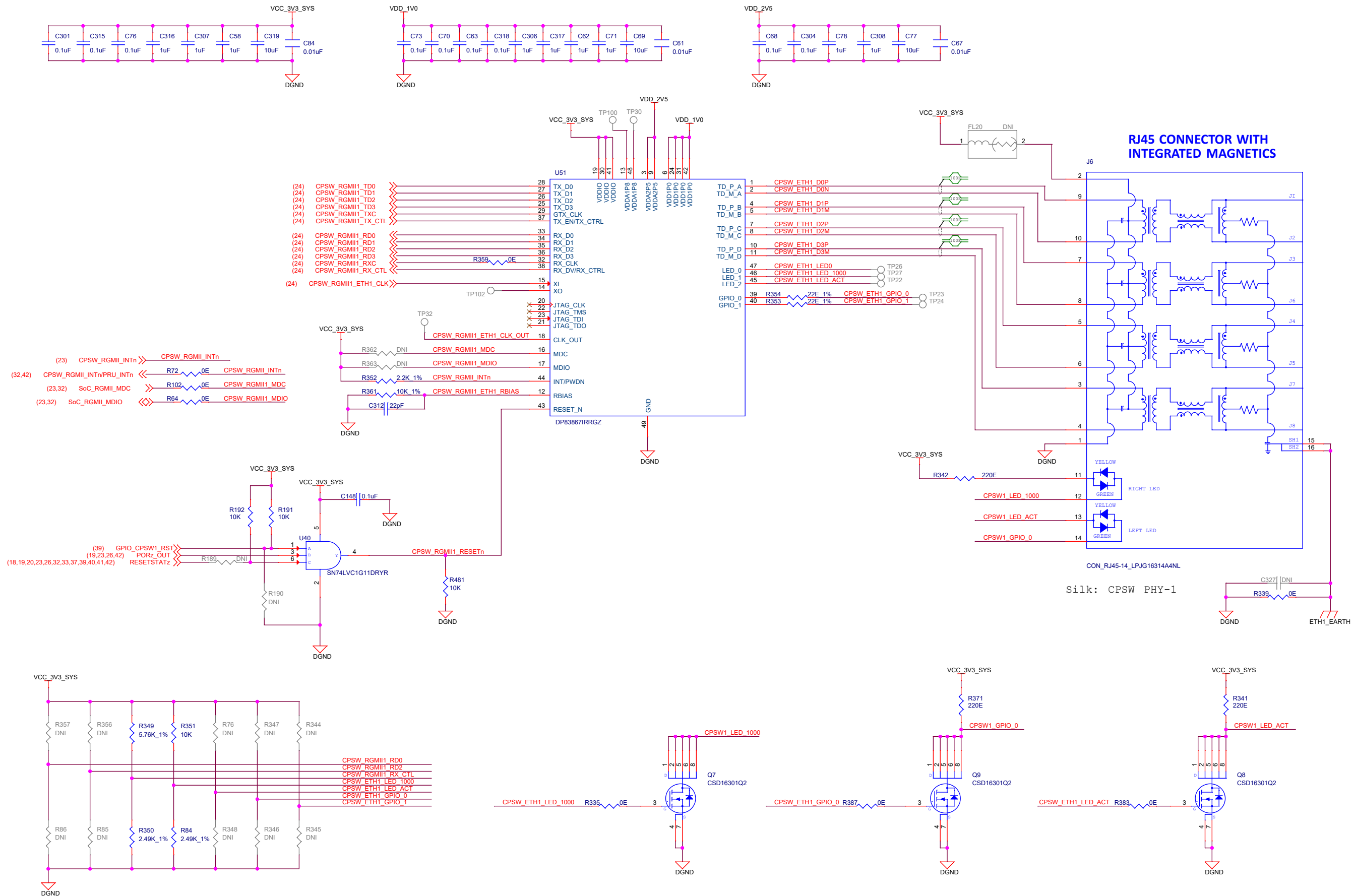
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Title BOARD ID EEPROM & TEMPERATURE SENSORS

| Size | PROC162E1 | Rev |
|-------|------------------------|----------------|
| C | | E1 |
| Date: | Tuesday, June 25, 2024 | Sheet 21 of 44 |

CPSW RGMII 1 - PHY



```
PHY ADDRESS = 00000
Auto-negotiation Enabled
10/100/1000 advertised, Auto-MDI-X
Tx Clock Skew = 2ns
Rx Clock Skew = 2ns
```

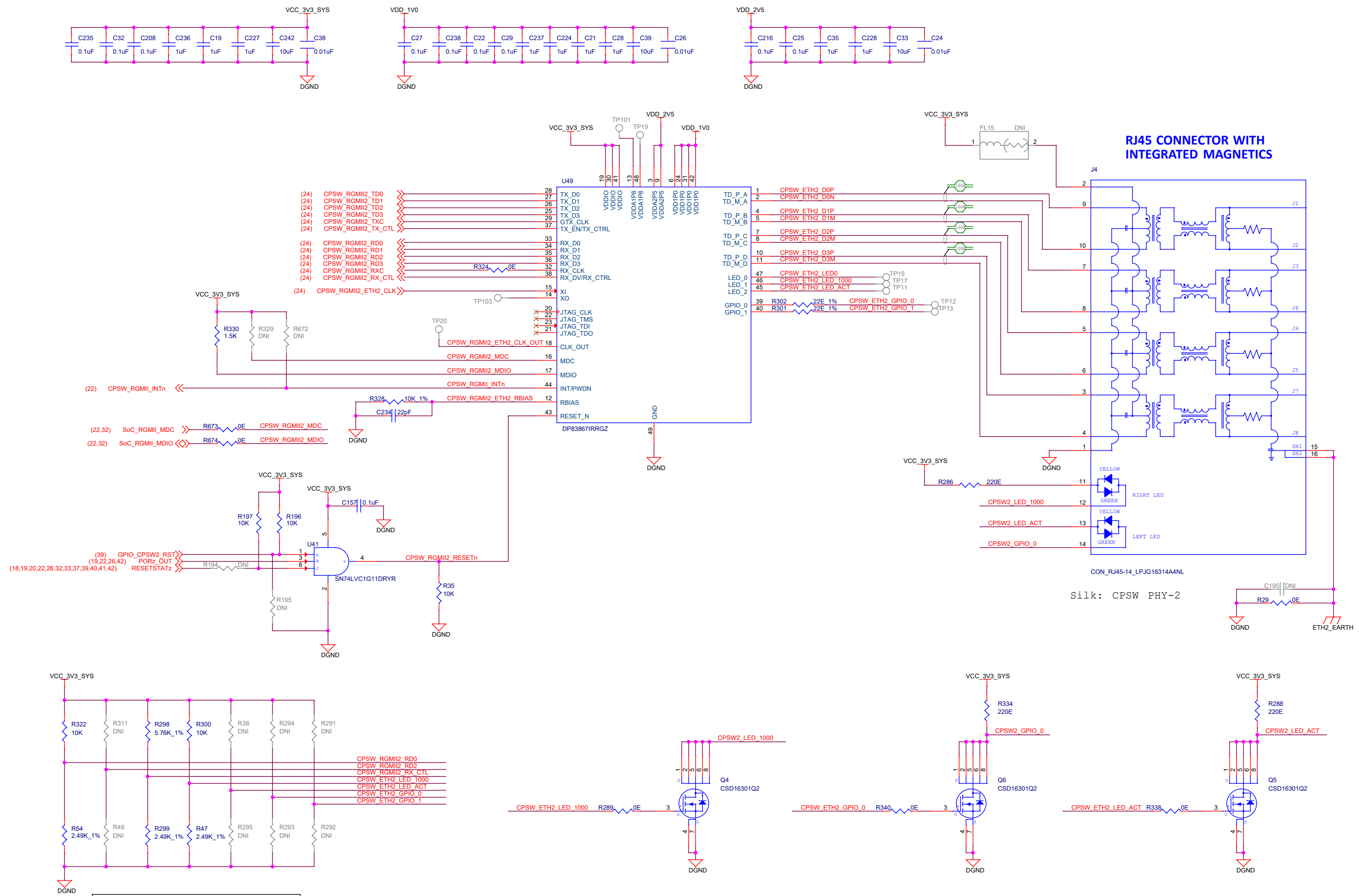
Designed for TI by Mistral Solutions Pvt Ltd



| | |
|-------|---------------------------|
| Title | CPSW RGMII_1 ETHERNET PHY |
|-------|---------------------------|

| | | |
|-------|------------------------|----------------|
| Size | PROC162E1 | Rev |
| C | | E1 |
| Date: | Tuesday, June 25, 2024 | Sheet 22 of 44 |

CPSW RGMII 2 - PHY



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Title CPSW RGMII_2 ETHERNET PHY

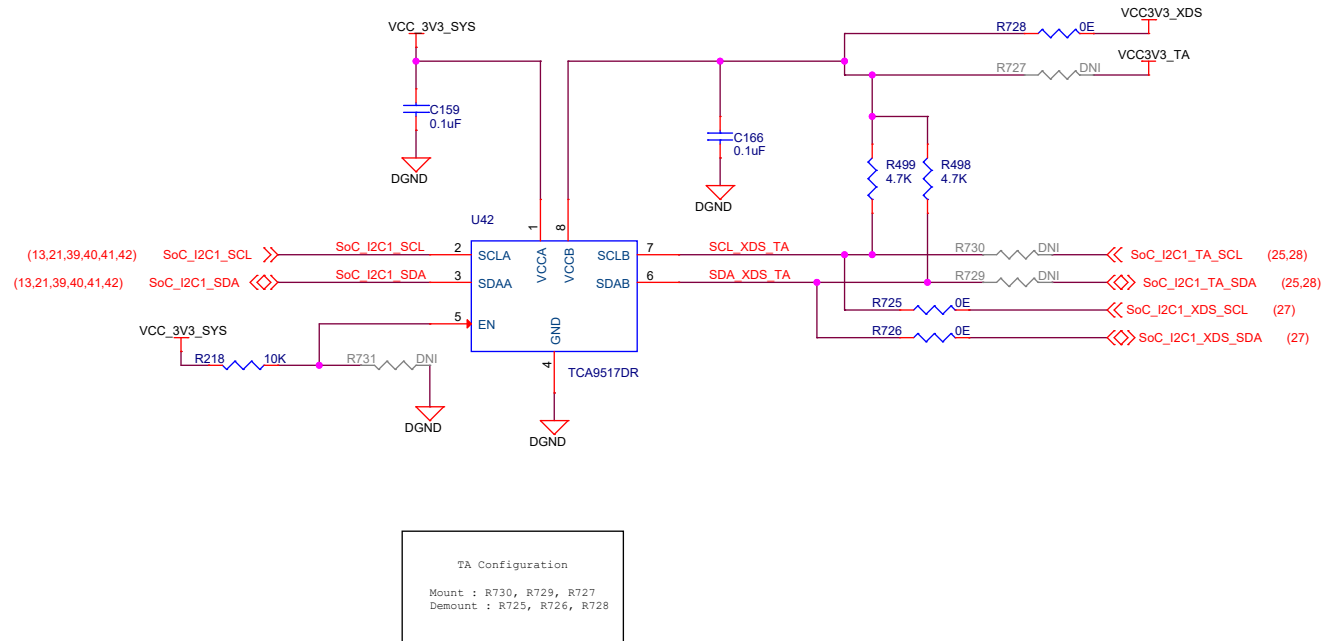
Size PROC162E1

Rev

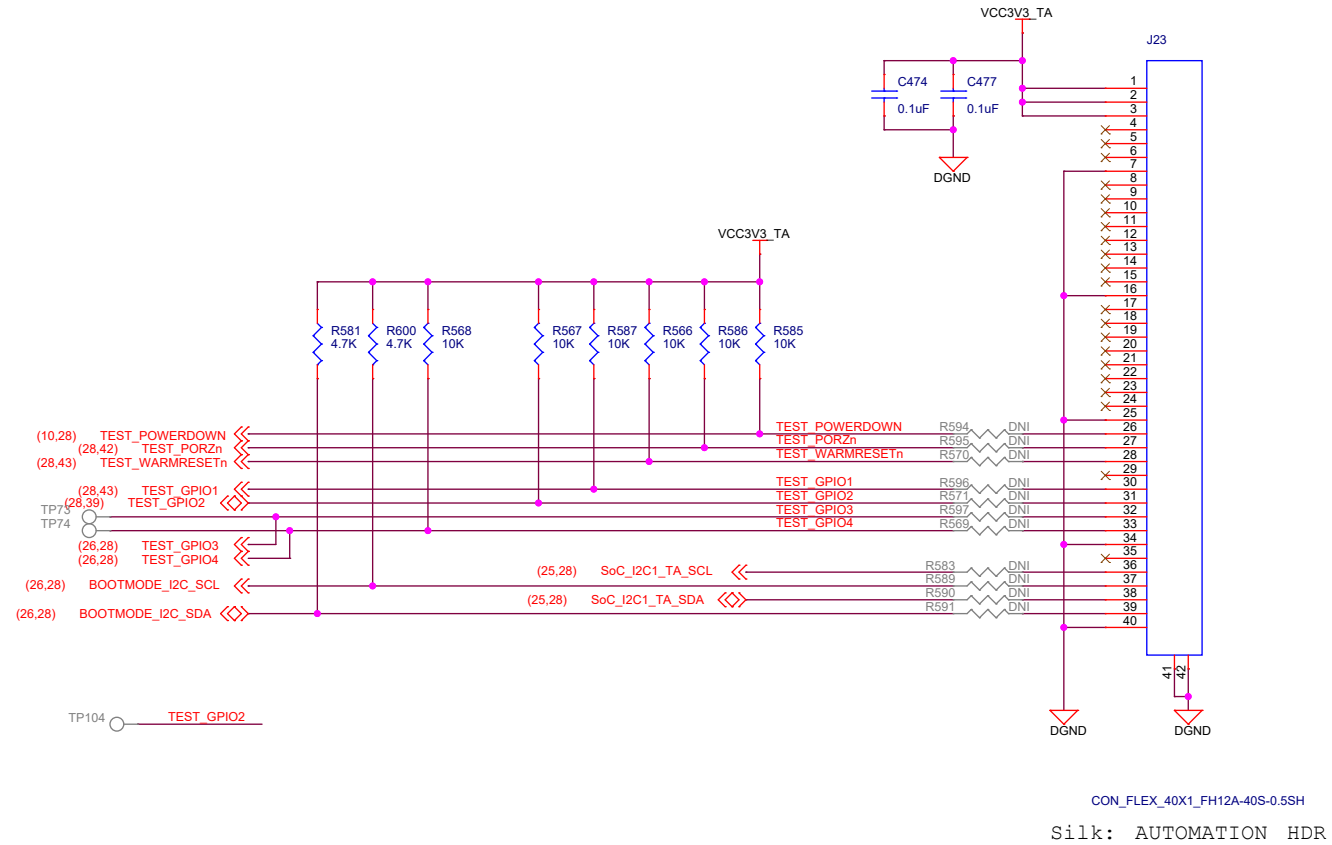
Date: Tuesday, June 25, 2024

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I2C BUS BUFFER

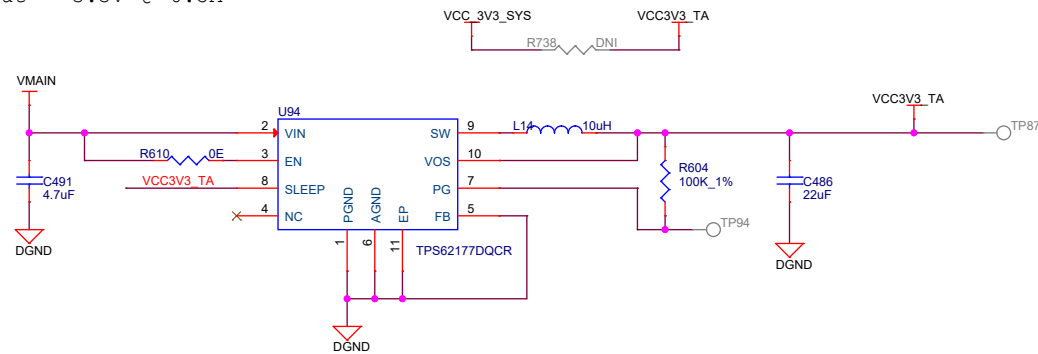


40-PIN TEST AUTOMATION HEADER



TEST AUTOMATION BOARD POWER

```
VinMin = 4.75V
VinMax = 24V
Vout = 3.3V @ 0.5A
```



TEST AUTOMATION GPIO MAPPING

| SIGNAL NAME | DESCRIPTION | Direction WRT CTRL | Internal/ External PU/PD states |
|-----------------|--|--------------------|---------------------------------------|
| TEST_POWERDOWN | Used to Power down the EVM | OUTPUT | External Pullup |
| TEST_PORZn | Used to Reset the SoC PORz | OUTPUT | External Pullup |
| TEST_WARMRESETn | Used to Reset the SoC Warmreset | OUTPUT | External Pullup |
| TEST_GPIO1 | Used to Generate the interrupt on SoC_GPIO1_23 Pin | OUTPUT | External Pullup |
| TEST_GPIO2 | Connected to IO Expander to Communicate with SOC | OUTPUT | External Pullup |
| TEST_GPIO3 | Used to Enable the BOOTMODE Buffer | OUTPUT | External Pullup |
| TEST_GPIO4 | Used to Reset the Bootmode I2C IO Expander | OUTPUT | External Pullup |

Designed for TI by Mistral Solutions Pvt Ltd



| | |
|-------|-----------------|
| Title | TEST AUTOMATION |
|-------|-----------------|

| | |
|------|-----------|
| Size | 330018854 |
|------|-----------|

| | |
|--|---|
| | C |
|--|---|

PROC162E1

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Rev

E1

44

BOOTMODE IO EXPANDER

Diagram illustrating the connection of the SN74AVC8T245RHL buffer chip to the system power and ground, and the connection of the input and output signals.

Power and Ground Connections:

- VCC1 (pin 23) and VCC2 (pin 24) are connected to VCC3V3_TL and VCC3V3_SYS respectively.
- GND1 (pin 11), GND2 (pin 12), GND3 (pin 13), and EP (pin 25) are connected to DGND.

Input and Output Connections:

- Inputs: A1 (pin 3), A2 (pin 4), A3 (pin 5), A4 (pin 6), A5 (pin 7), A6 (pin 8), A7 (pin 9), A8 (pin 10), DIR (pin 2), and BOOTMODEON (pin 22).
- Outputs: B1 (pin 21), B2 (pin 20), B3 (pin 19), B4 (pin 18), B5 (pin 17), B6 (pin 16), B7 (pin 15), and B8 (pin 14).

Signal Connections:

- Inputs: SYS_BOOTMODE7 (pin 3), SYS_BOOTMODE8 (pin 4), SYS_BOOTMODE5 (pin 5), SYS_BOOTMODE4 (pin 6), SYS_BOOTMODE3 (pin 7), SYS_BOOTMODE2 (pin 8), SYS_BOOTMODE1 (pin 9), and SYS_BOOTMODE0 (pin 10).
- Outputs: BOOTMODE7 (pin 21), BOOTMODE6 (pin 20), BOOTMODE5 (pin 19), BOOTMODE4 (pin 18), BOOTMODE3 (pin 17), BOOTMODE2 (pin 16), BOOTMODE1 (pin 15), and BOOTMODE0 (pin 14).

Logic Levels:

- DIR = H: A → B
- DIR = L: B → A
- OE = H: output = Hi-Z

Resistor Connections:

- R221 (DNI) connects PORz_OUT (pin 19, 22, 23, 42) to SYSBOOT_BUF_ENz.
- R222 (OE) connects RESETSTATz (pin 18, 19, 20, 22, 23, 32, 33, 37, 39, 40, 41, 42) to the OE pin (pin 25).
- TEST_GPIO3 (pin 25, 28) connects to TEST_GPIO3.

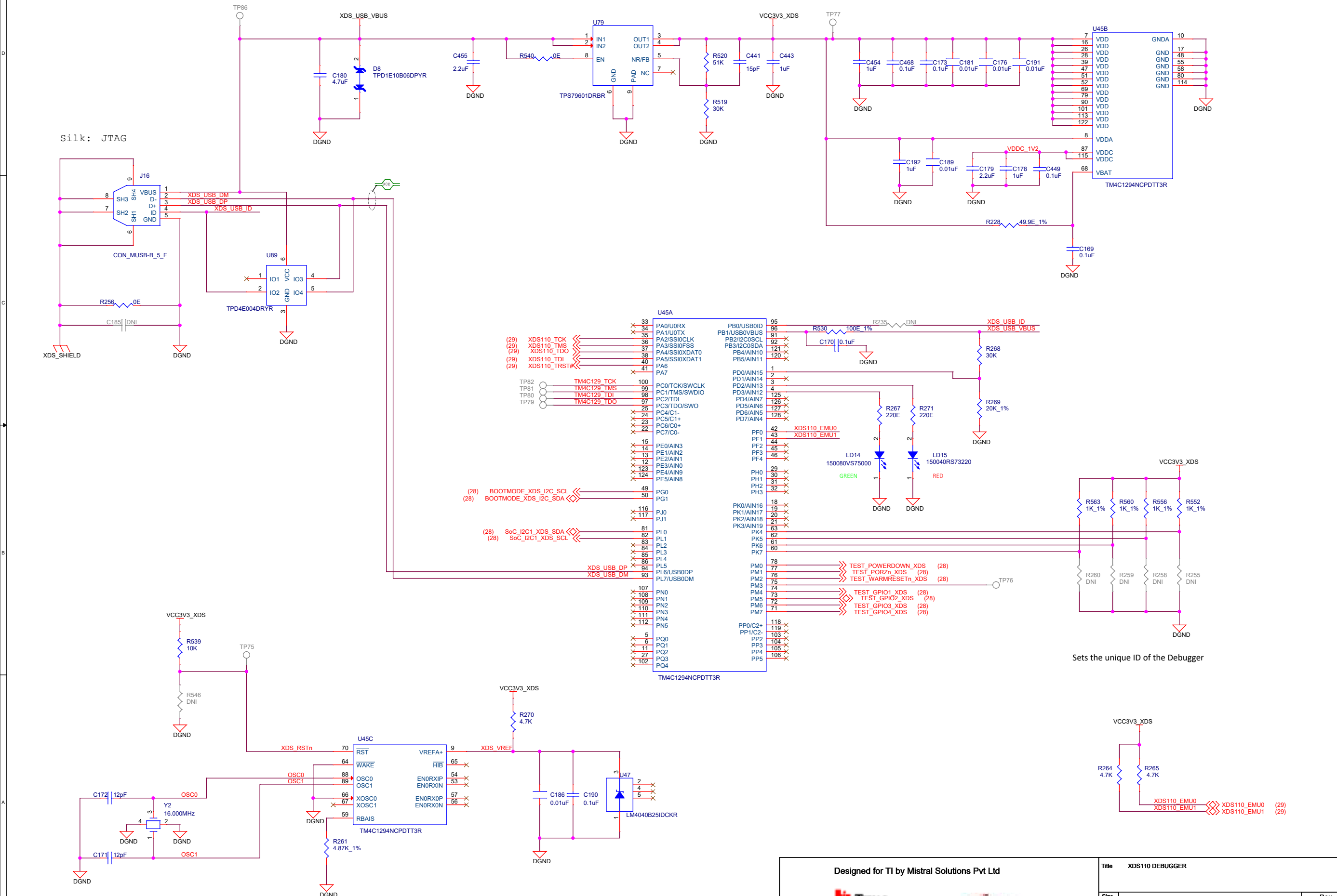
[illegible]

Diagram 1: SW1 (416131160808) is an 8-position DIP switch. It is connected to the BMODE pins 0-7 of the ATmega328P. The switch is labeled "SW1" and "416131160808". The pins are labeled "1" through "8". The switch is connected to VCC3V3 TA and GND. The switch is labeled "SW1" and "416131160808". The pins are labeled "1" through "8". The switch is connected to VCC3V3 TA and GND.

Diagram 2: SW2 (416131160808) is an 8-position DIP switch. It is connected to the BMODE pins 8-15 of the ATmega328P. The switch is labeled "SW2" and "416131160808". The pins are labeled "1" through "8". The switch is connected to VCC3V3 TA and GND. The switch is labeled "SW2" and "416131160808". The pins are labeled "1" through "8". The switch is connected to VCC3V3 TA and GND.

1. OSPI
2. MMC1 - SD CARD
3. UART
4. eMMC
5. Ethernet
6. BACKUP BOOT OPTION

XDS110 DEBUGGER

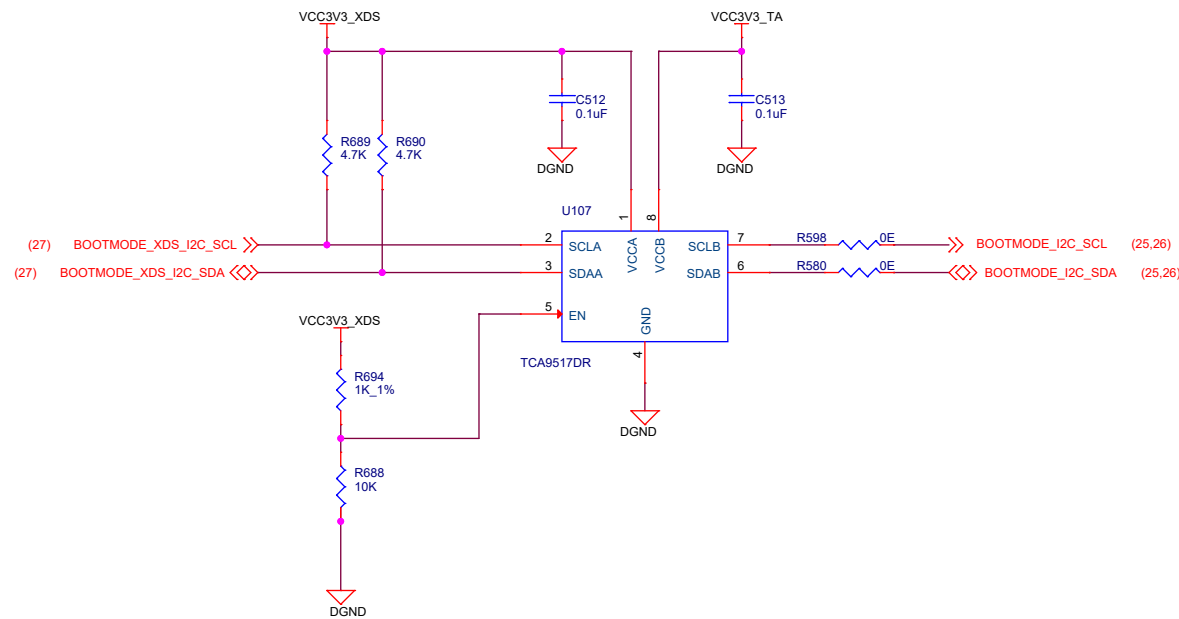


Designed for T1 by Mistral Solutions Pvt Ltd

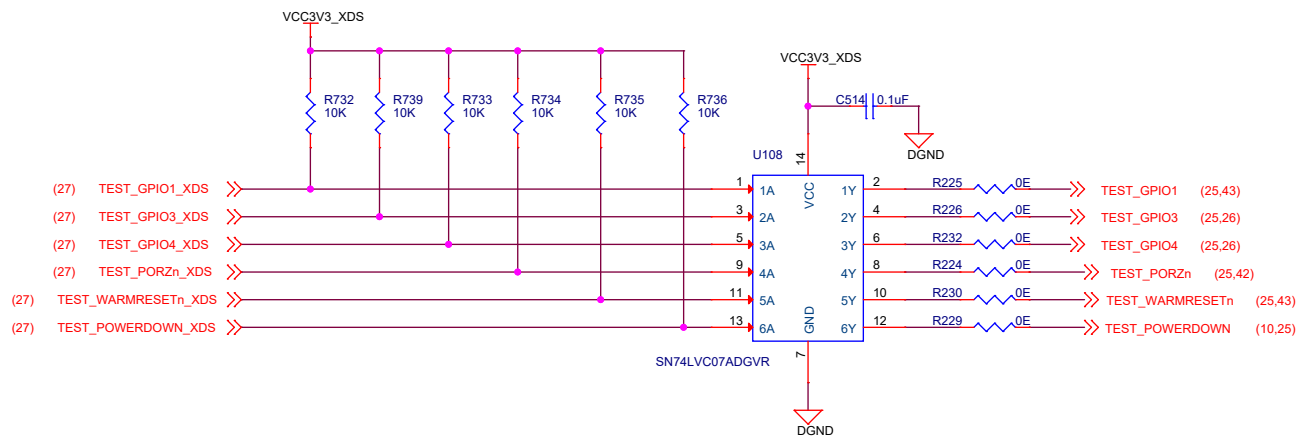


| | | |
|------------------------------|----------------|-----|
| Title XDS110 DEBUGGER | | |
| Size | PROC162E1 | Rev |
| C | | E1 |
| Date: Tuesday, June 25, 2024 | Sheet 27 of 44 | |

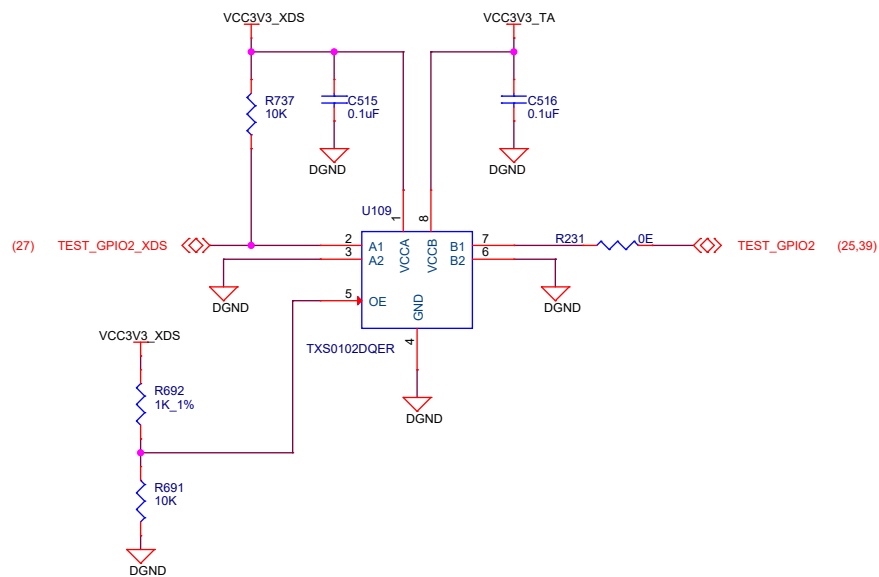
BOOTMODE_I2C_TA BUFFER



ISOLATION BUFFERS FOR TA SIGNALS



Pull ups(R567, R587, R517, R568, R585, R586 & R566) to VCC3V3_TA are present

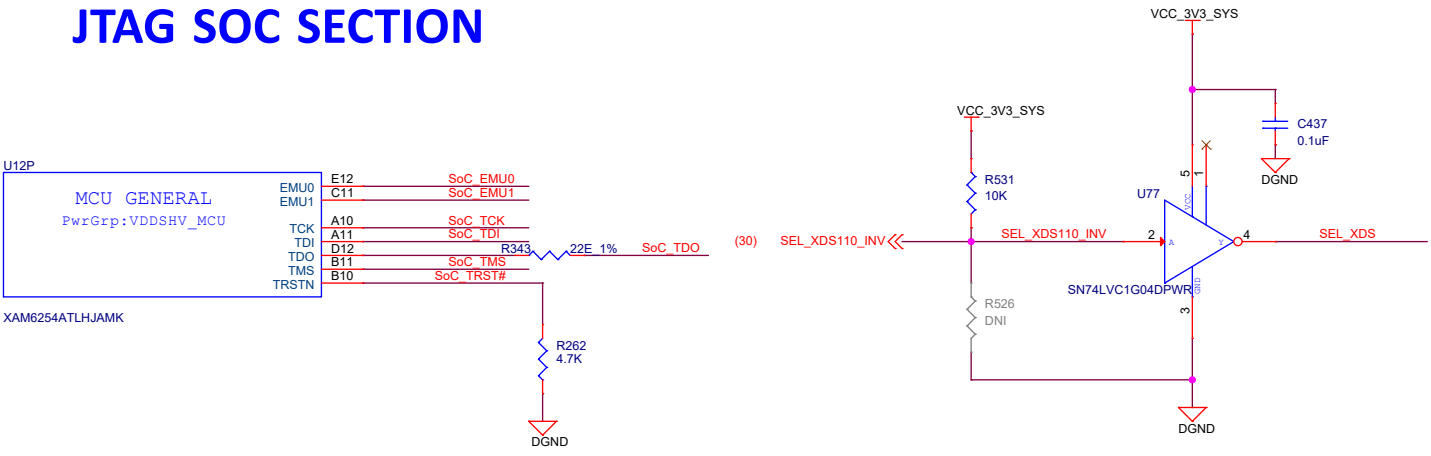


Designed for T1 by Mistral Solutions Pvt Ltd

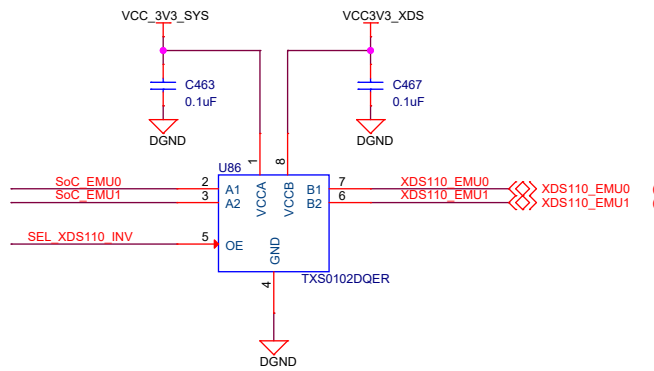
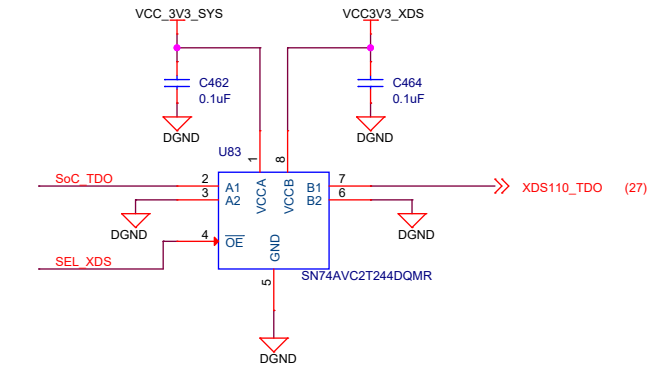
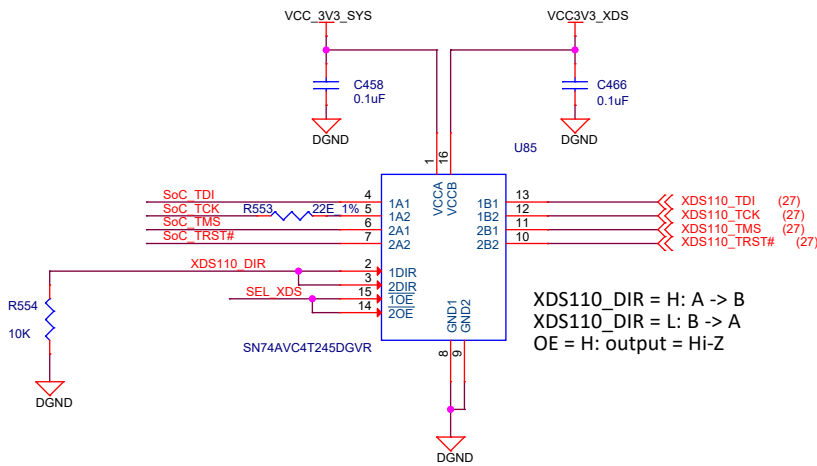


| | | |
|---------------------------------|----------------|--------|
| Title AUTOMATION SIGNALS BUFFER | | |
| Size C | PROC162E1 | Rev E1 |
| Date: Tuesday, June 25, 2024 | Sheet 28 of 44 | |

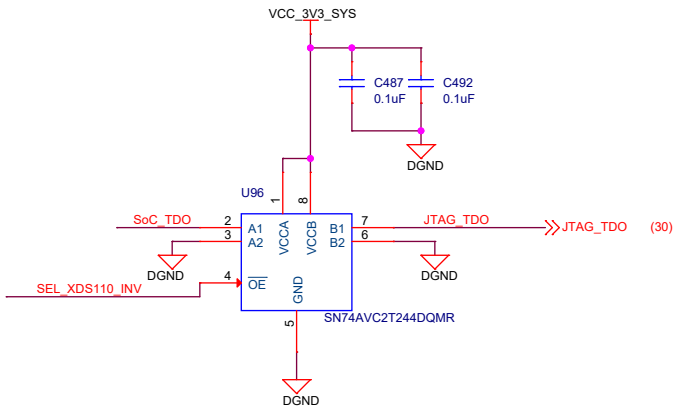
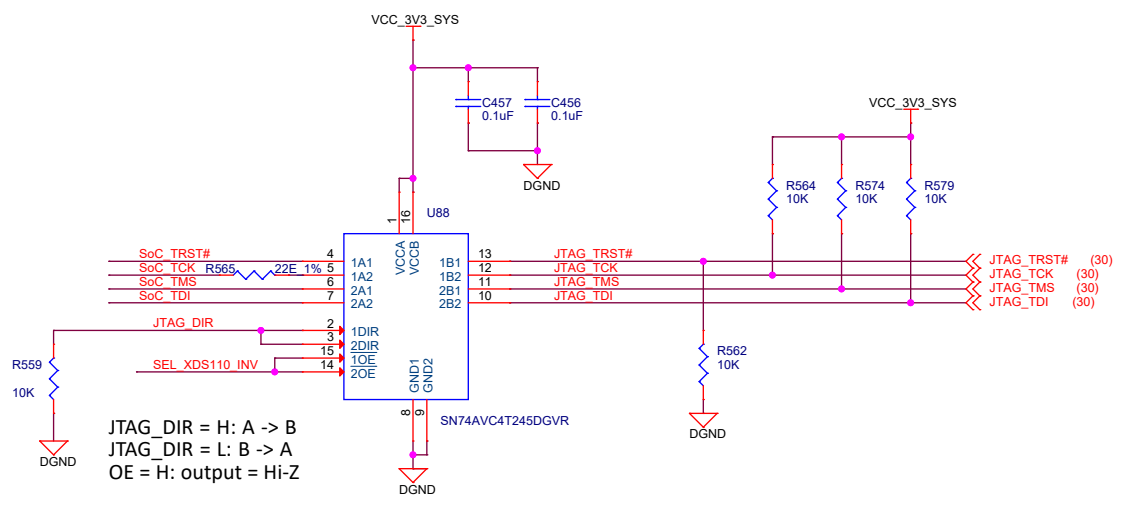
JTAG SOC SECTION



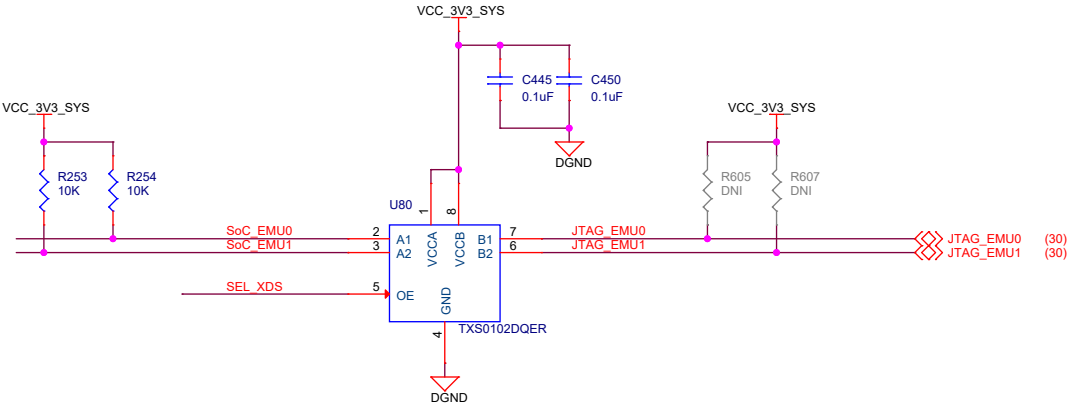
BUFFER XDS110



cTI20 JTAG BUFFERS



CAD NOTE: Buffers U88 and U96 need to be placed closer to the cTI-20pin connector J17 to reduce Stub length of the JTAG signals.

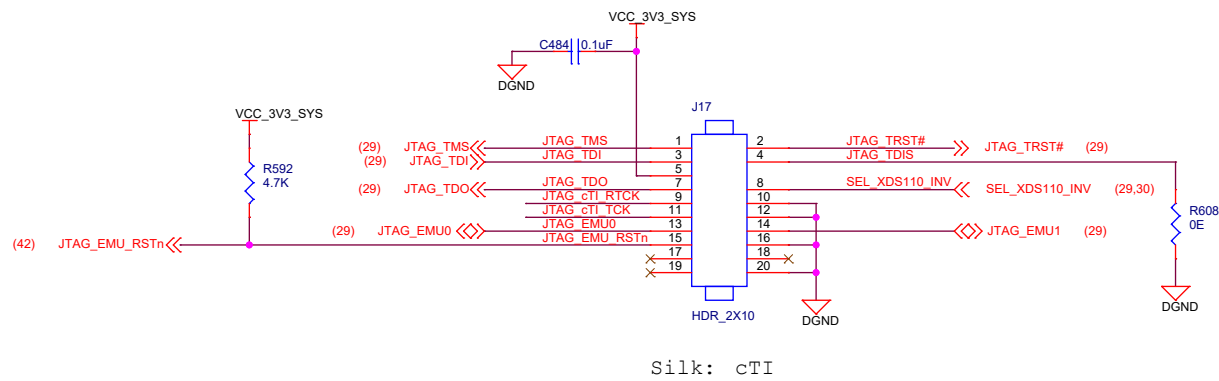


Designed for T1 by Mistral Solutions Pvt Ltd

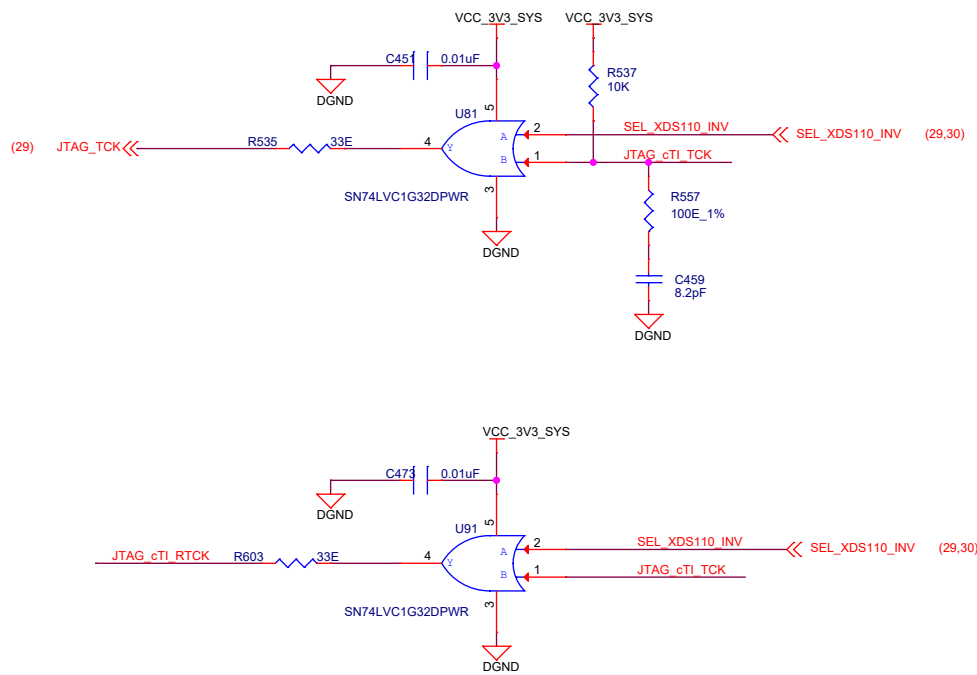


| | | |
|-------------------|------------------------|----------------|
| Title JTAG BUFFER | | |
| Size | PROC162E1 | Rev |
| C | | E1 |
| Date: | Tuesday, June 25, 2024 | Sheet 29 of 44 |

JTAG 20 PIN cTI CONNECTOR



JTAG CLOCK BUFFER

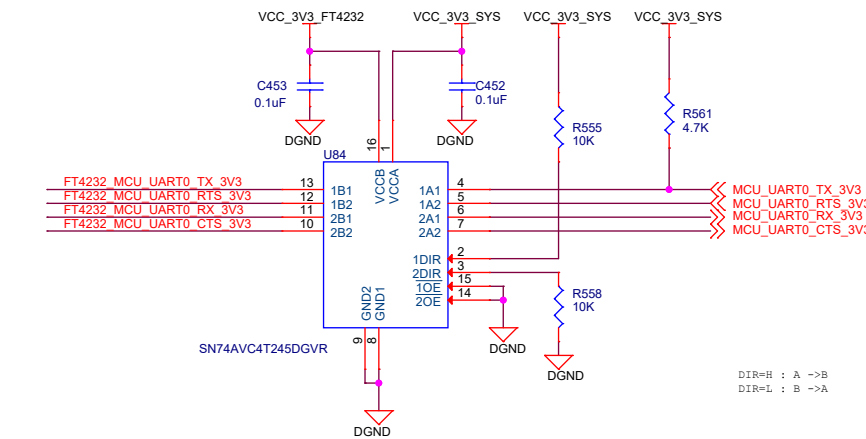
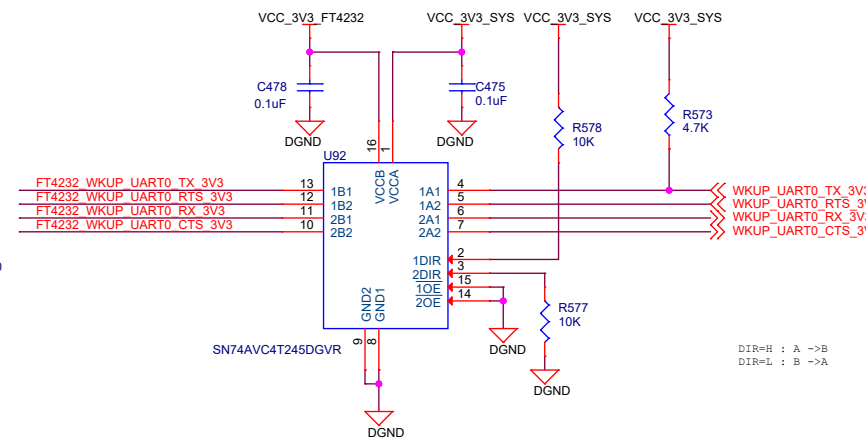
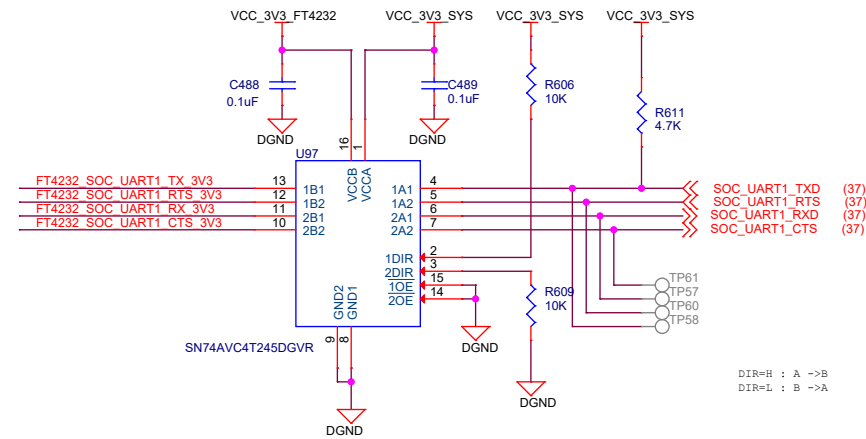
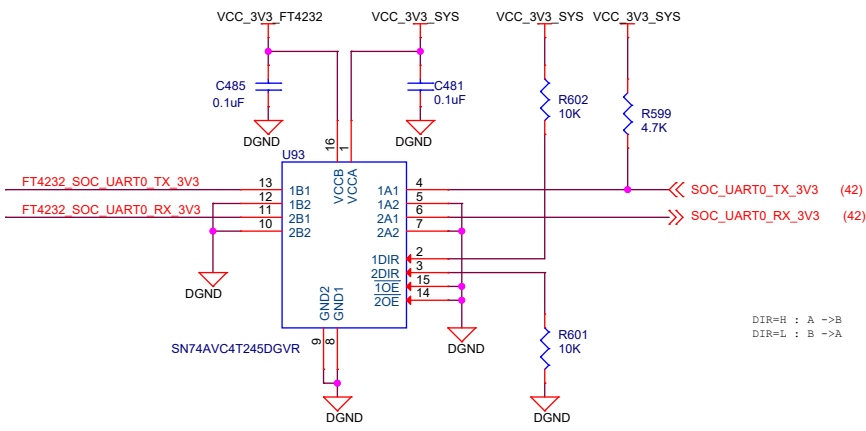
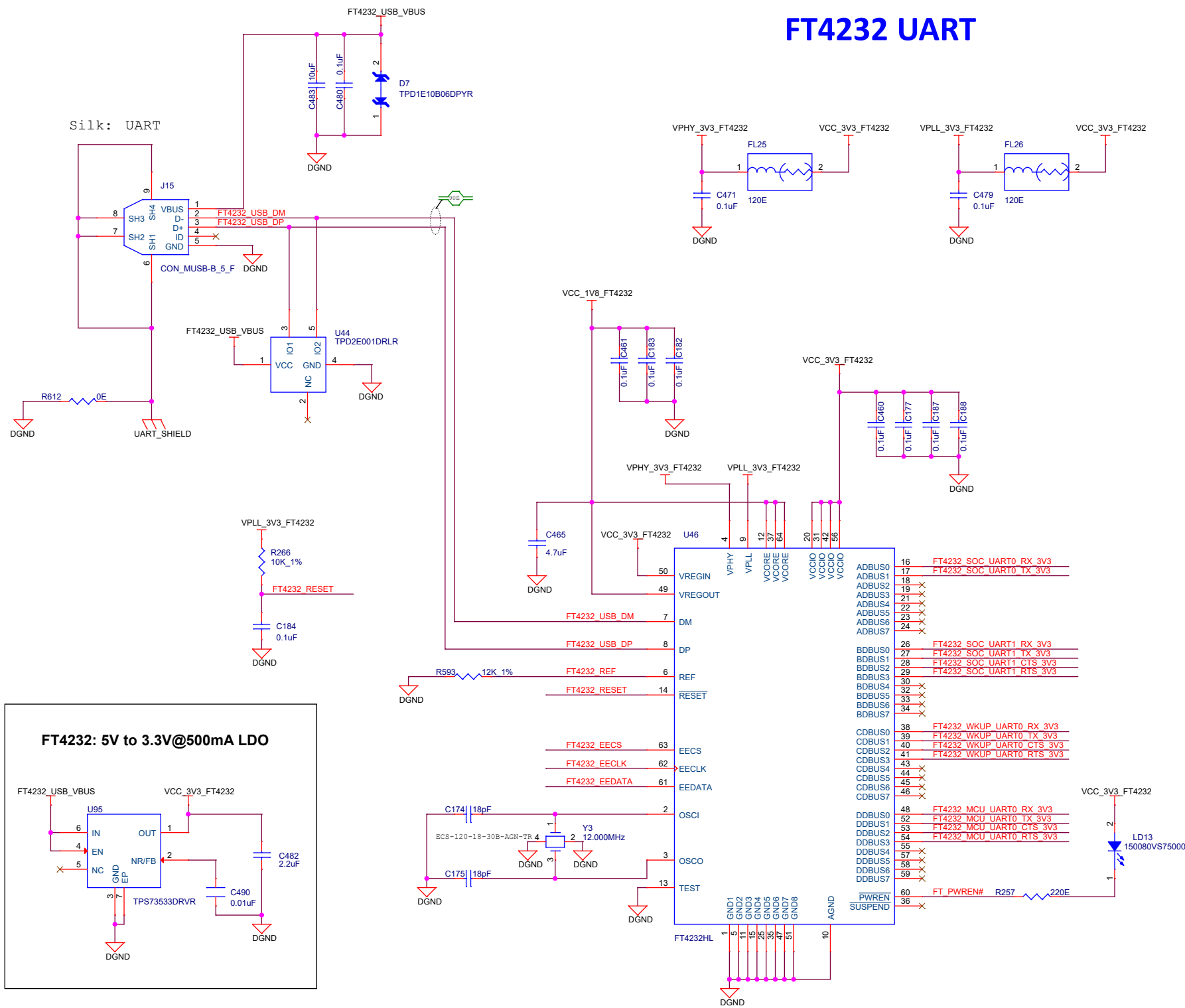


Designed for TI by Mistral Solutions Pvt Ltd



| | | |
|---------------------------------|------------------------|----------------|
| Title JTAG 20 PIN cTI CONNECTOR | | |
| Size | PROC162E1 | Rev |
| C | | E1 |
| Date: | Tuesday, June 25, 2024 | Sheet 30 of 44 |

FT4232 UART



Designed for T1 by Mistral Solutions Pvt Ltd



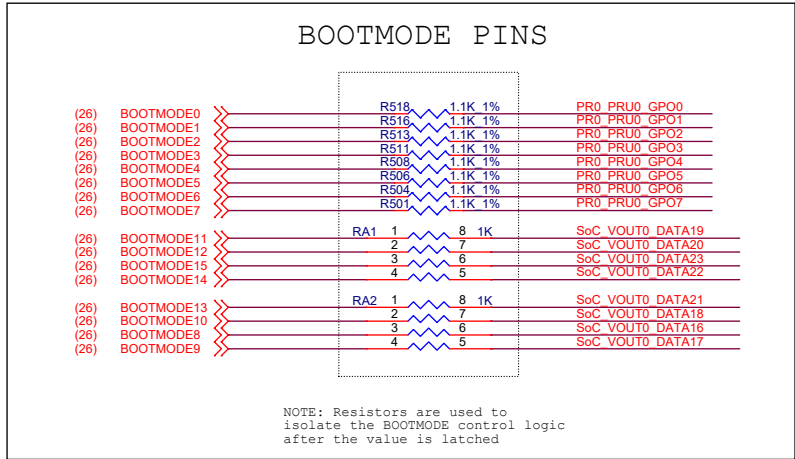
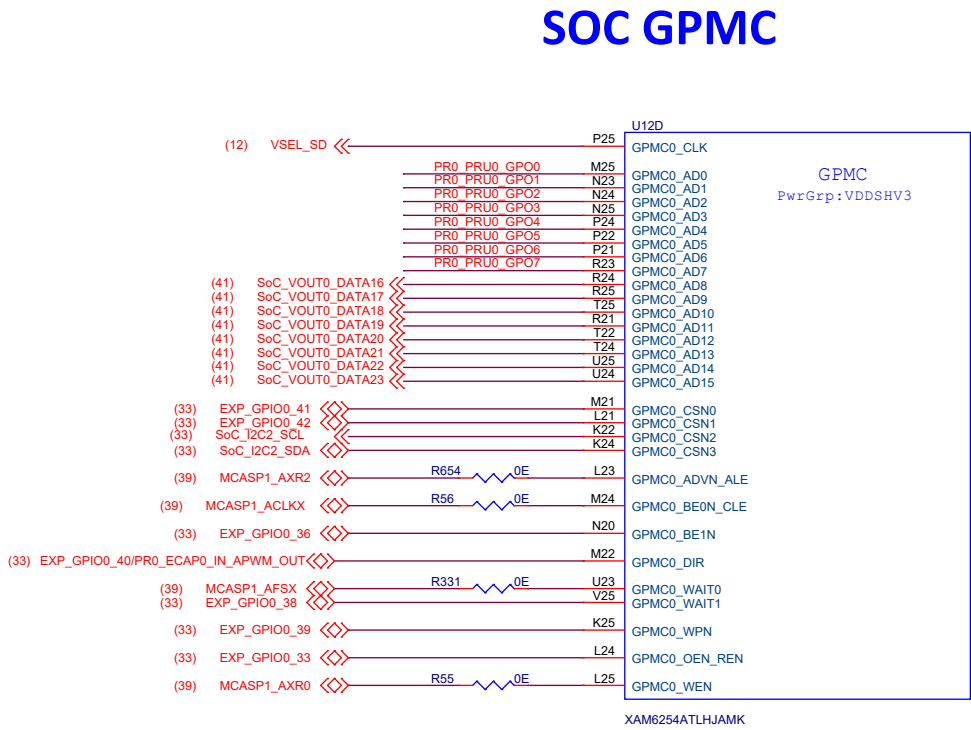
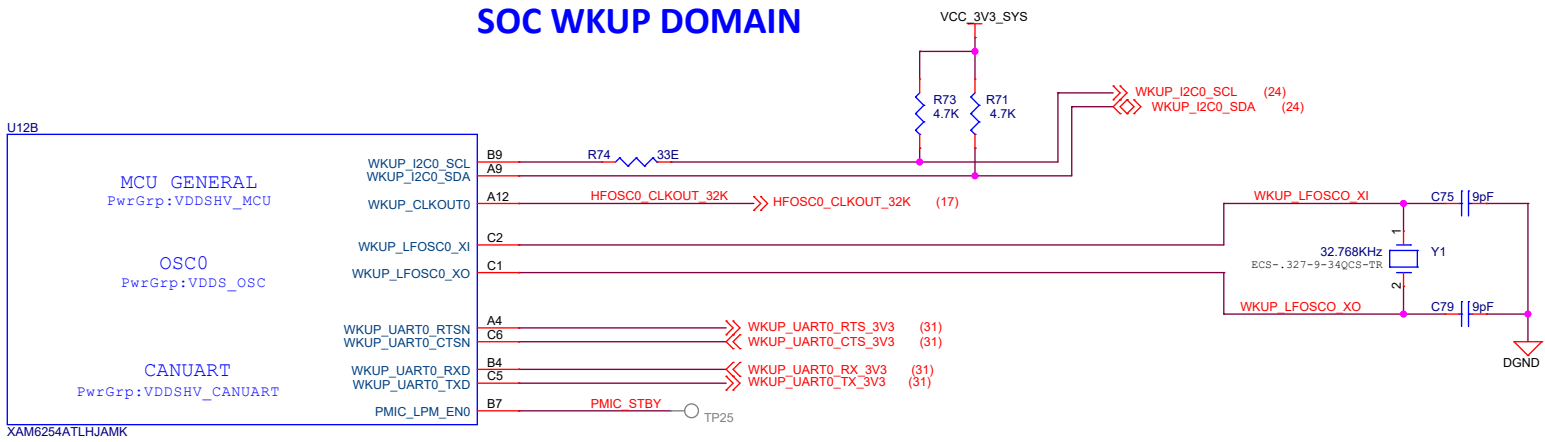
Title FT4232 UART TO USB BRIDGE

Size PROC162E1

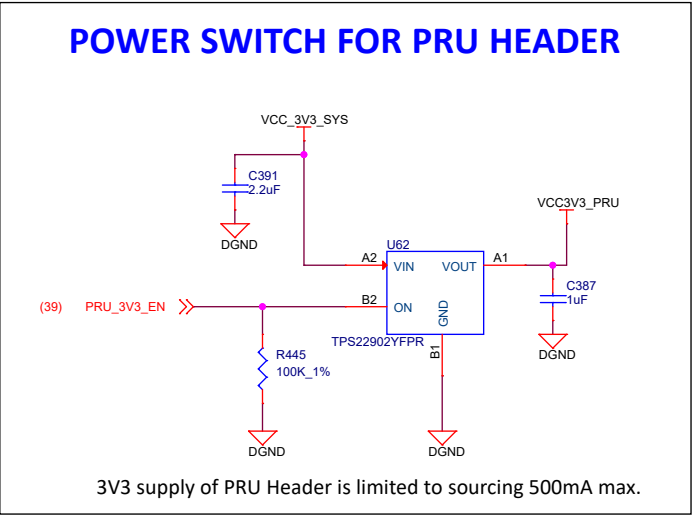
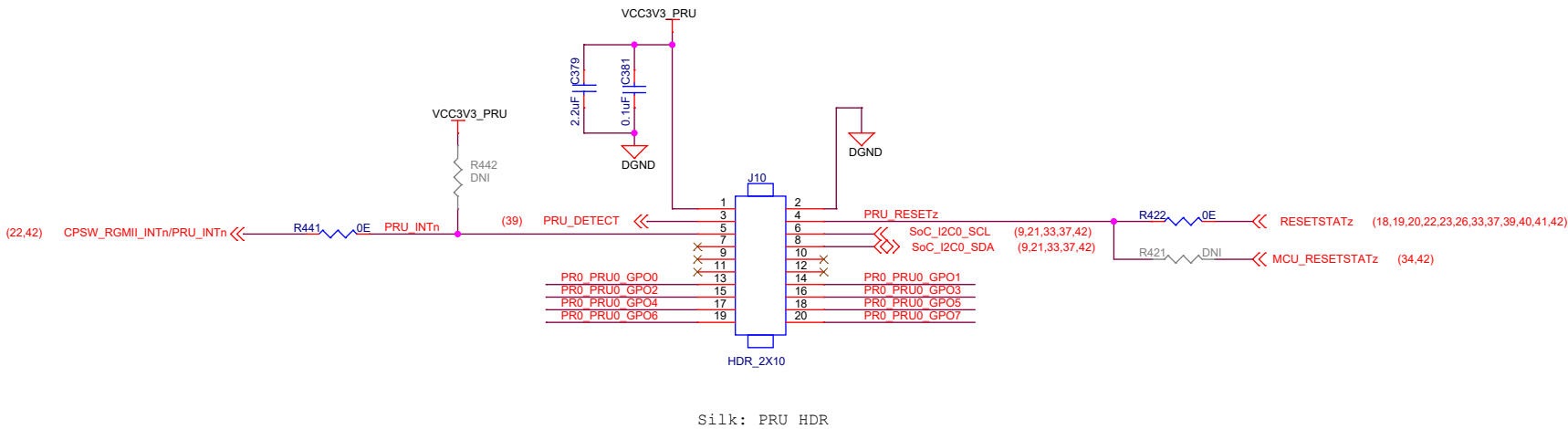
Rev E1

Date: Tuesday, June 25, 2024

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PRU HEADER



Designed for T1 by Mistral Solutions Pvt Ltd



Title PRU HEADER

Size PROC162E1

C

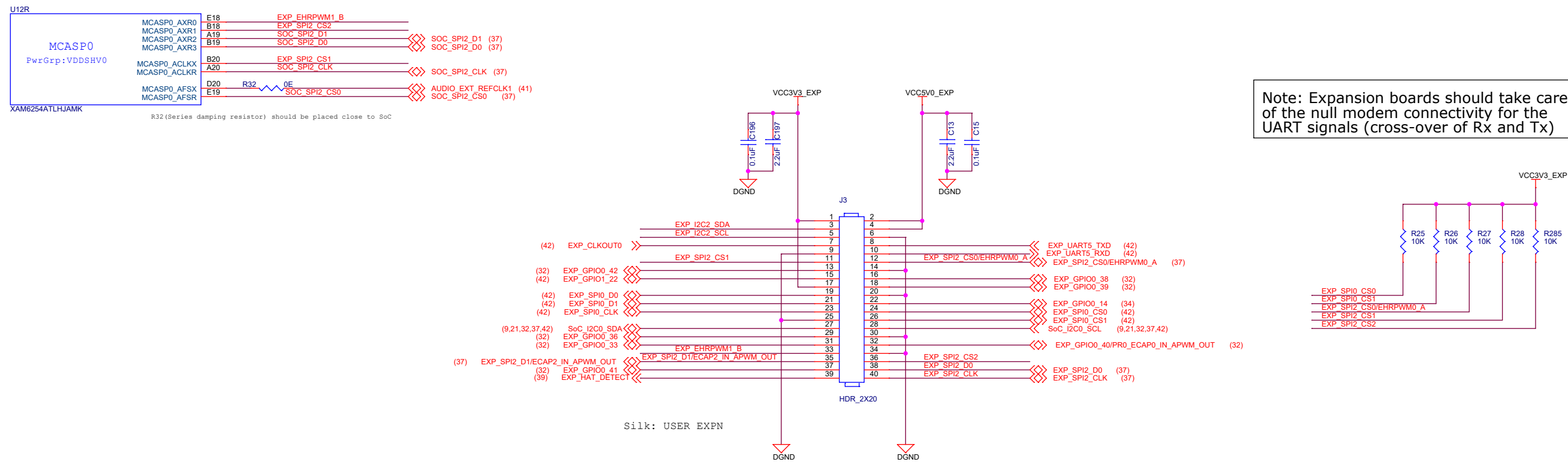
Date: Tuesday, June 25, 2024

Sheet 32 of 44

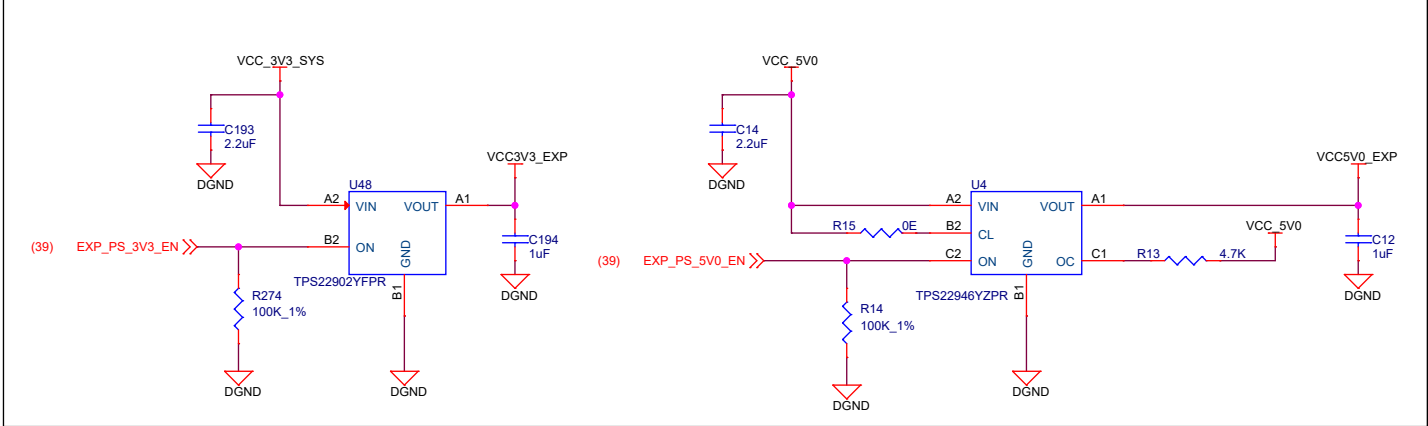
Rev

E1

USER EXPANSION CONNECTOR



POWER SWITCHES FOR USER EXPANSION CONNECTOR



NOTE:

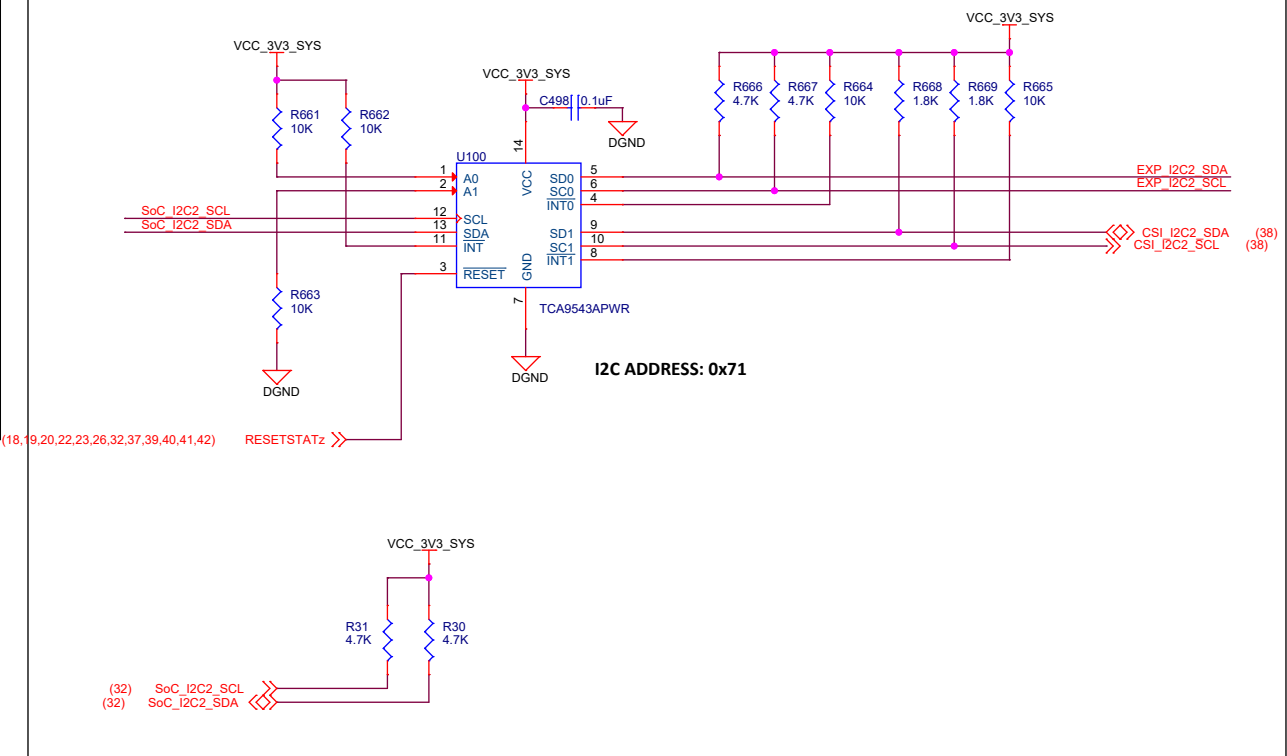
AM62x Starter Kit shall not be powered through the 5V0 or 3V3 pins on the 40-pin User Expansion Connector.

User Expansion Connector I/O are not fail-safe and shall not be driven when AM62x Starter Kit is not powered.

5V supply of User Expansion Connector is limited to sourcing 155mA max.

3V3 supply of User Expansion Connector is limited to sourcing 500mA max.

I2C SWITCH FOR SoC_I2C2

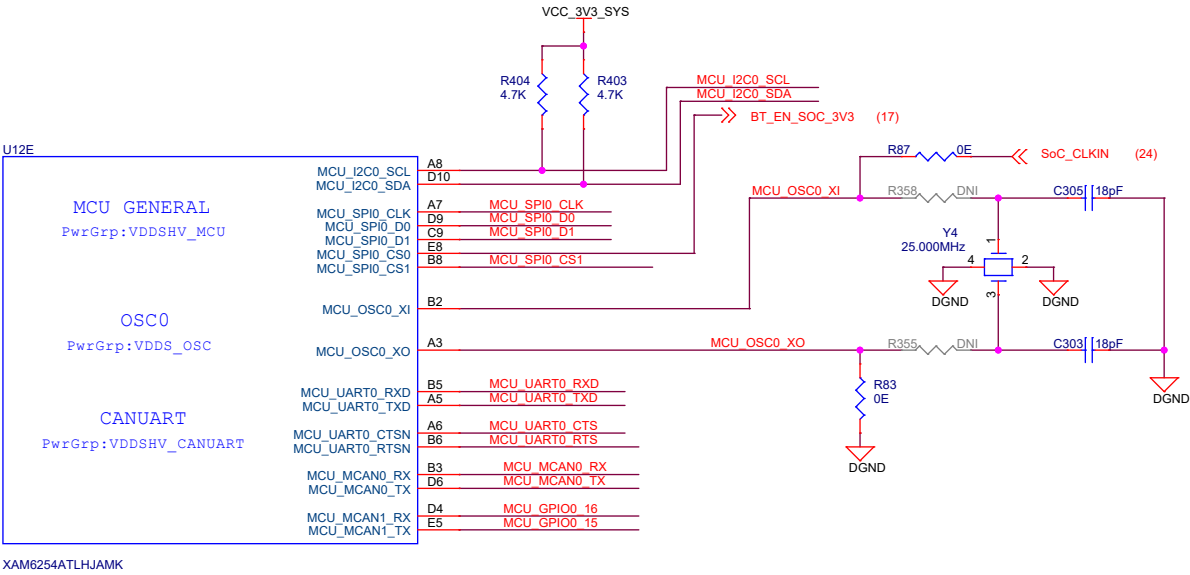


Designed for T1 by Mistral Solutions Pvt Ltd

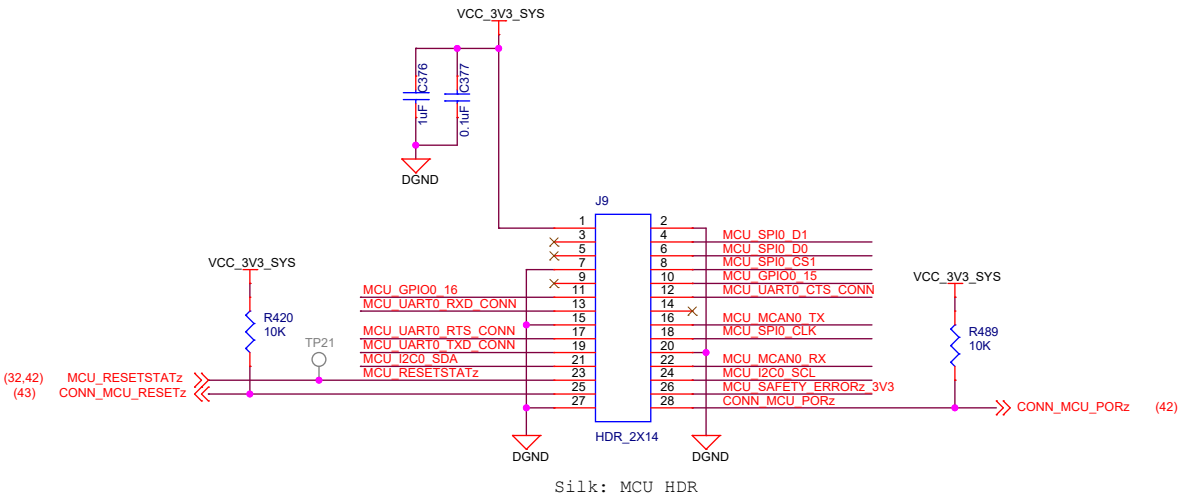


| | | | | |
|-------|------------------------|-------|--------------------------|-------|
| Title | | | USER EXPANSION CONNECTOR | |
| Size | PROC162E1 | | Rev | |
| C | | | E1 | |
| Date: | Tuesday, June 25, 2024 | Sheet | 33 | of 44 |

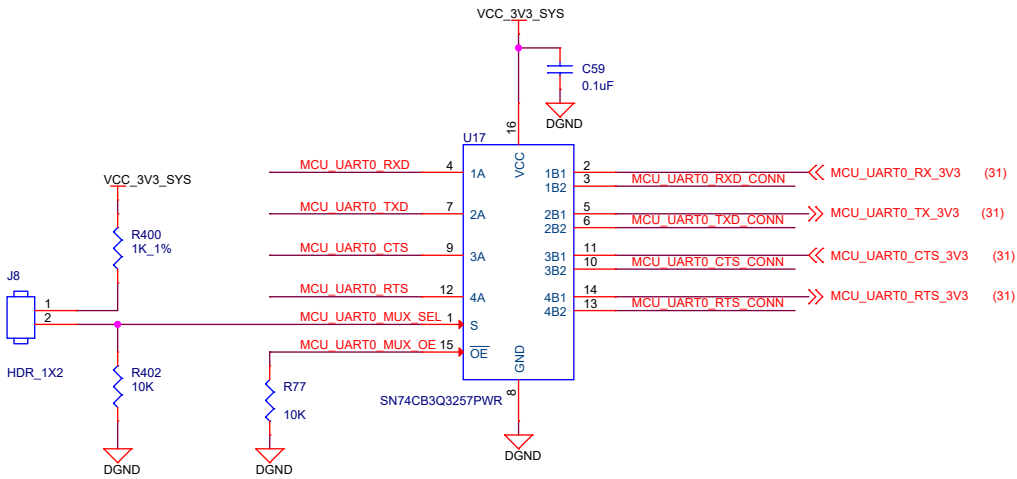
SOC - MCU DOMAIN



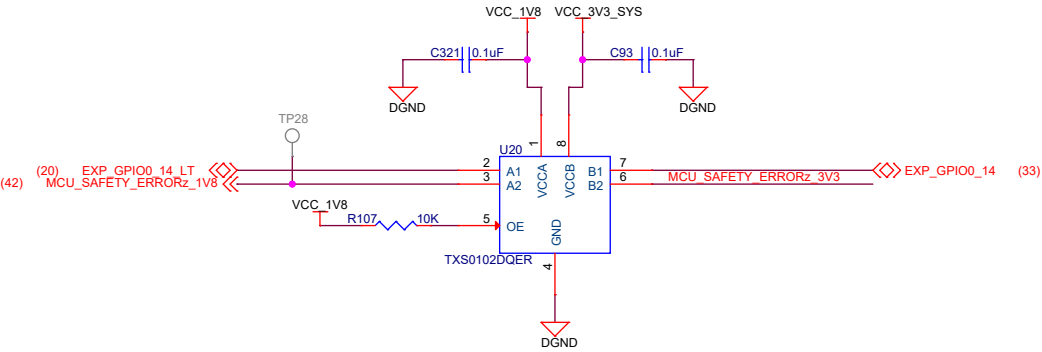
MCU HEADER



MCU_UART0 MUX



| OEn | SEL | INPUT/OUTPUT An | |
|-----|-------------|--------------------|------------------|
| L | L (DEFAULT) | An=nB1 | SOC - FT4232 |
| L | H | An=nB2 | SOC - MCU HEADER |

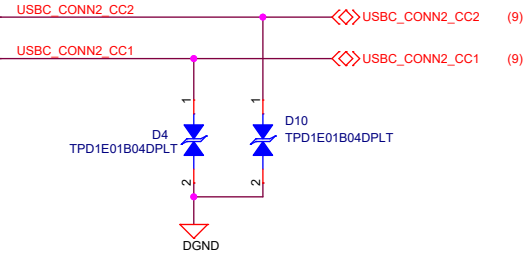
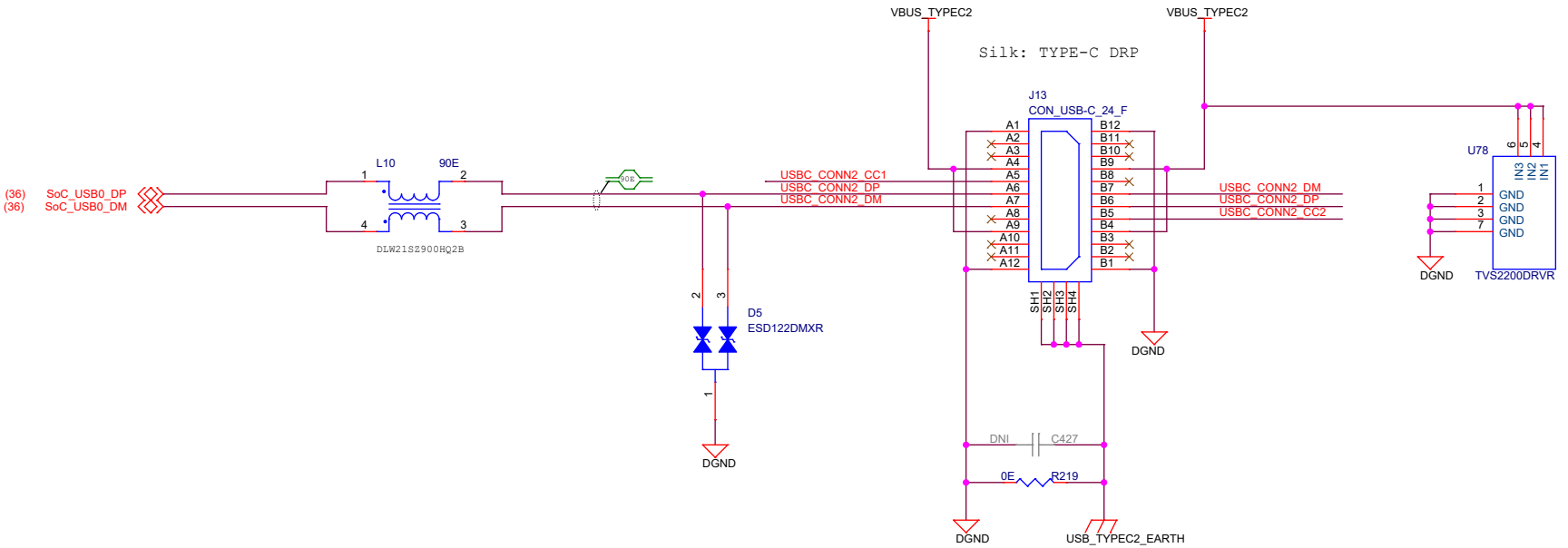


Designed for T1 by Mistral Solutions Pvt Ltd

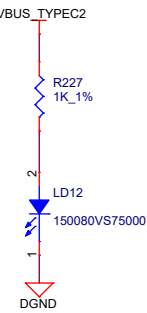


| | | | |
|-------|------------------------|------------|----------|
| Title | | MCU HEADER | |
| Size | PROC162E1 | Rev | |
| C | | E1 | |
| Date: | Tuesday, June 25, 2024 | Sheet | 34 of 44 |

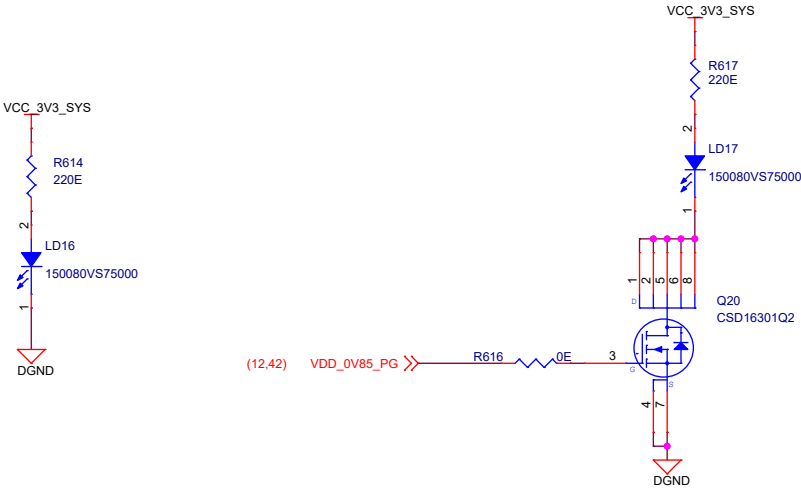
USB0 TYPE-C DRP



POWER INDICATION LED: VBUS_TYPEC2



POWER RAIL LEDS

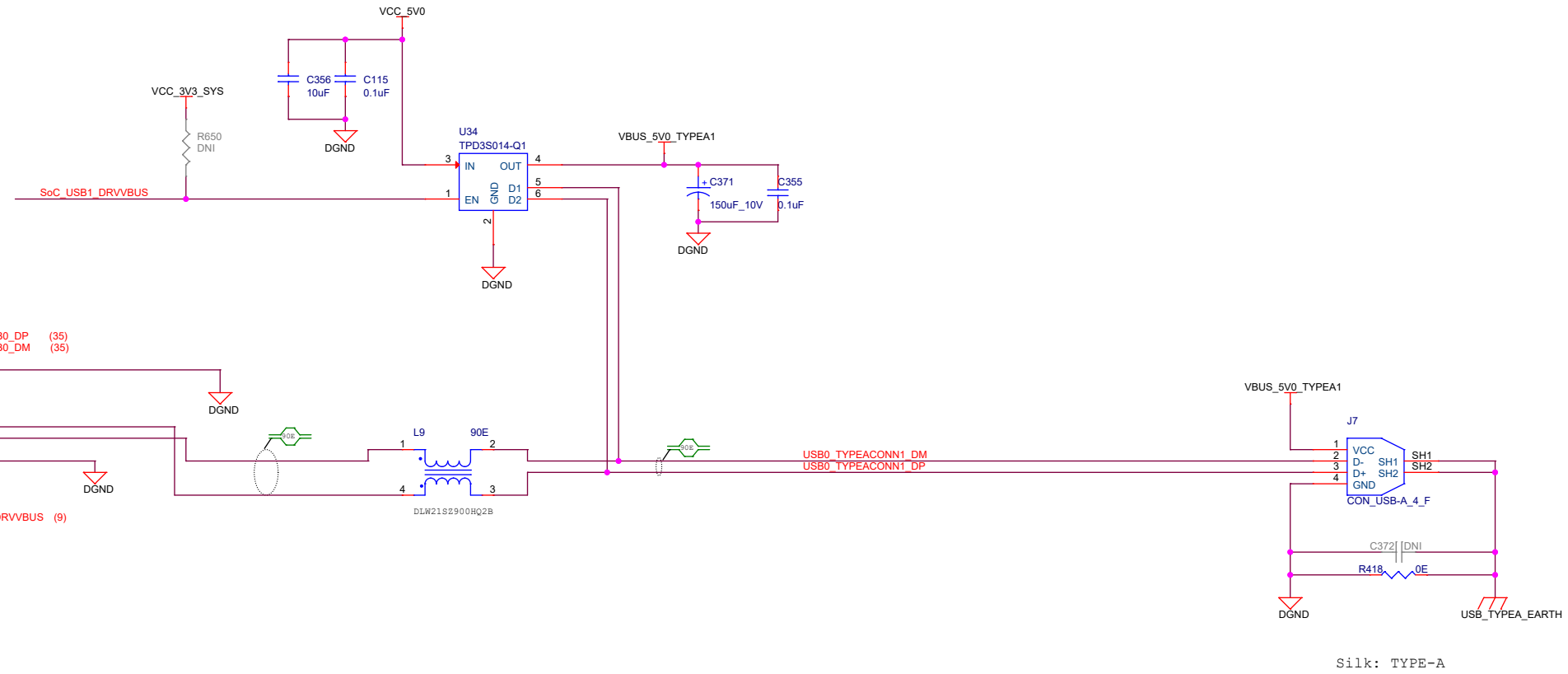


Designed for T1 by Mistral Solutions Pvt Ltd

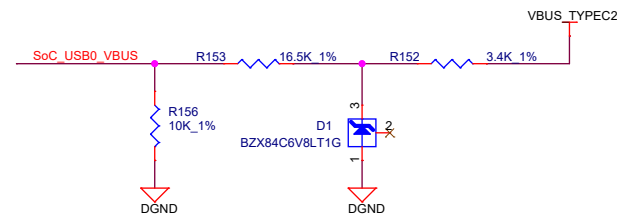


| | | |
|-----------------------|------------------------|----------------|
| Title USB0 TYPE-C DRP | | |
| Size | PROC162E1 | Rev |
| C | | E1 |
| Date: | Tuesday, June 25, 2024 | Sheet 35 of 44 |

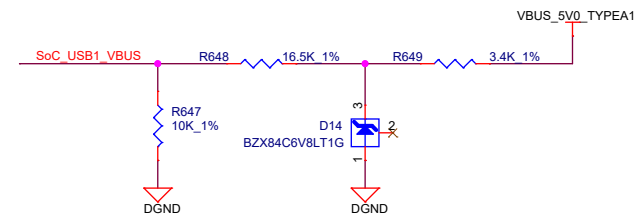
USB1 TYPE-A



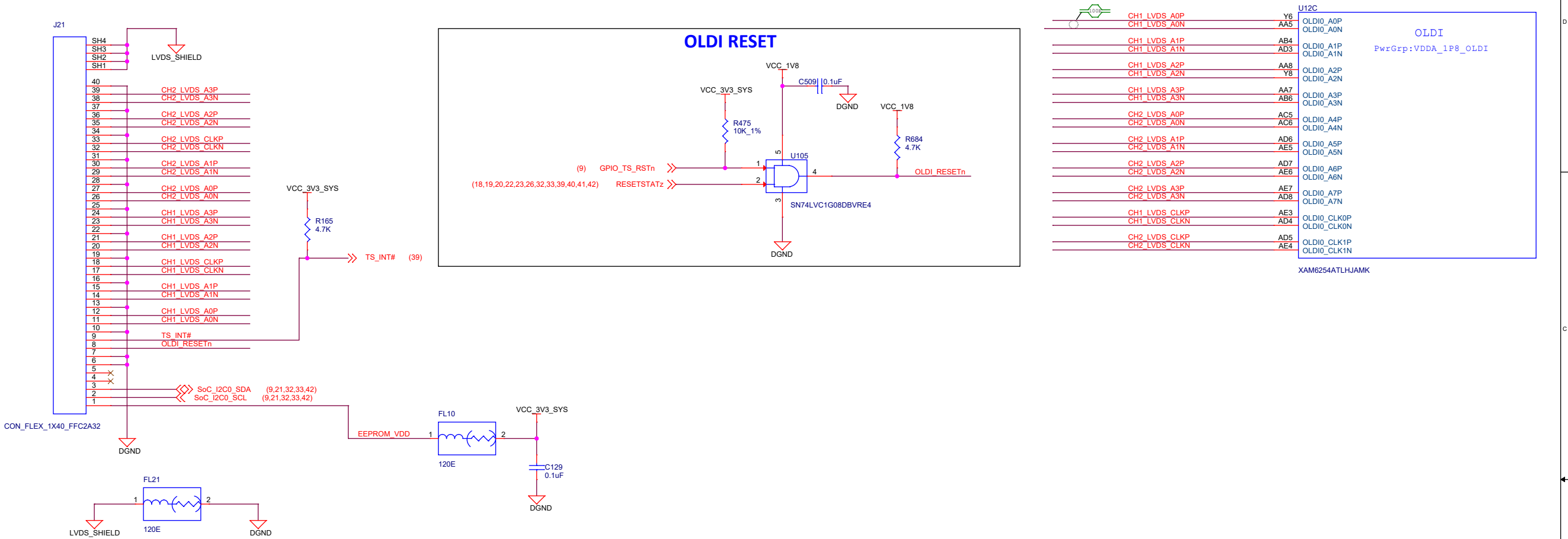
Note: Recommended VBUS circuit for USB connector. Supports 5V-30V VBUS



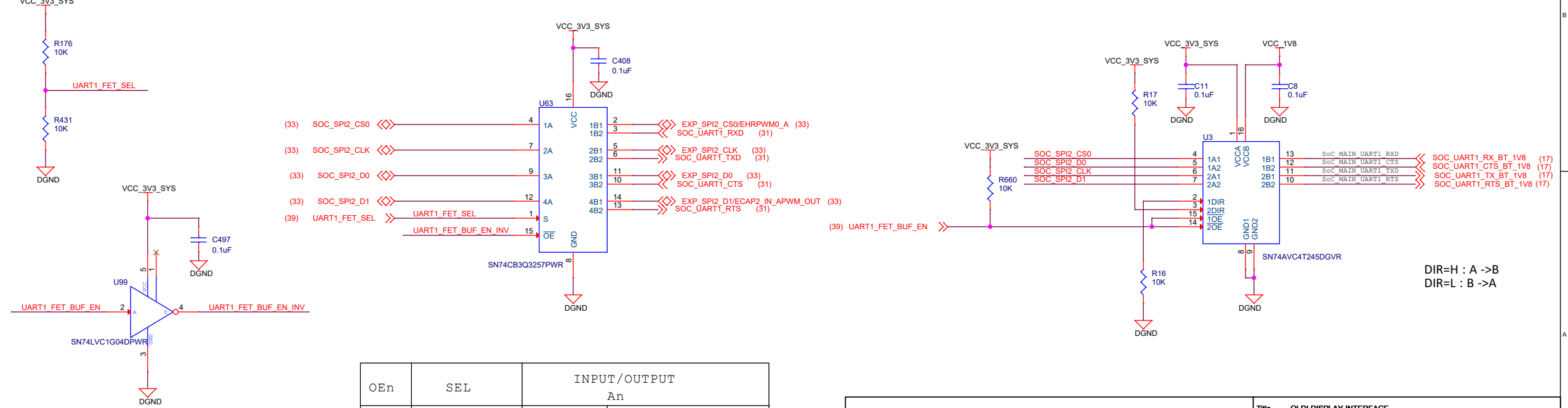
Note: Recommended VBUS circuit for SoC_USB1_VBUS



OLDI DISPLAY INTERFACE



SoC UART1 FET SWITCH & BUFFER



| OEn | SEL | INPUT/OUTPUT | |
|-----|-------------|--------------|----------|
| L | H (DEFAULT) | An=nB2 | FT4232 |
| L | L | An=nB1 | EXP CONN |

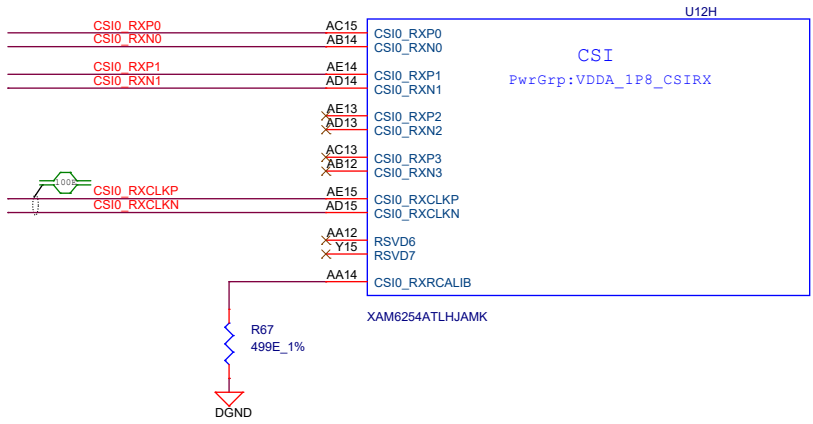
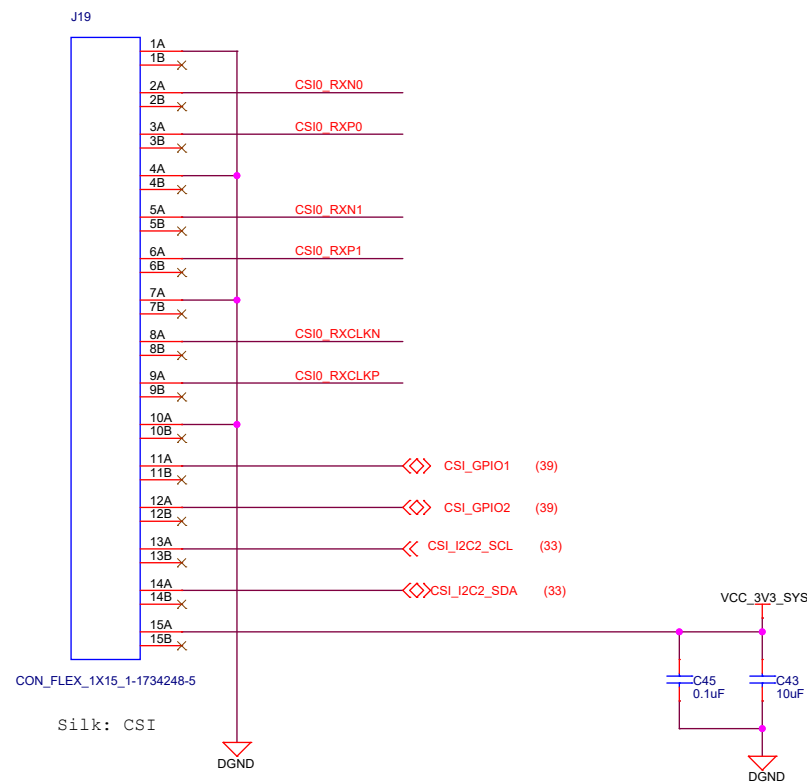
Designed for TI by Mistral Solutions Pvt Ltd



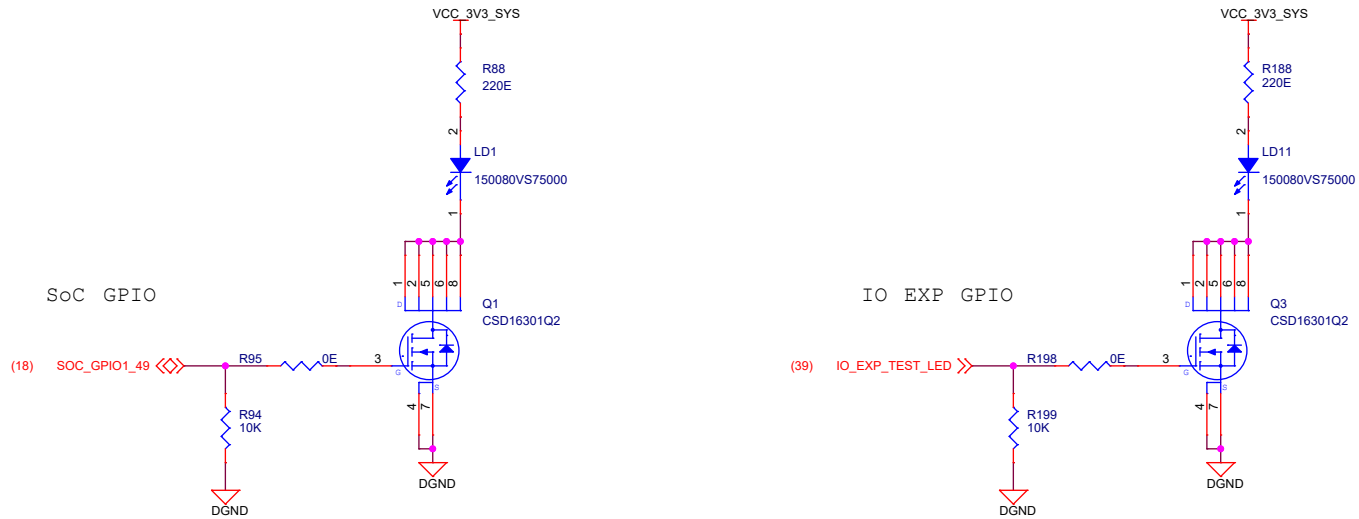
| | | | |
|-------|------------------------|------------------------|----------|
| Title | | OLDI DISPLAY INTERFACE | |
| Size | PROC162E1 | Rev | |
| C | | E1 | |
| Date: | Tuesday, June 25, 2024 | Sheet | 37 of 44 |

CSI INTERFACE

CSI CAMERA HEADER



USER TEST LEDS

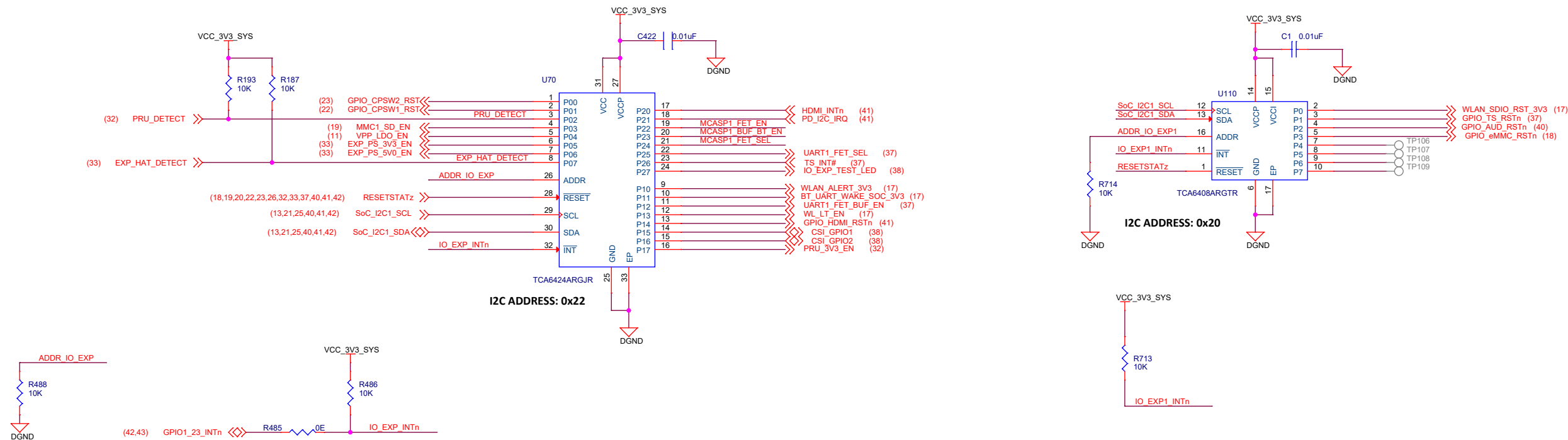


Designed for T1 by Mistral Solutions Pvt Ltd

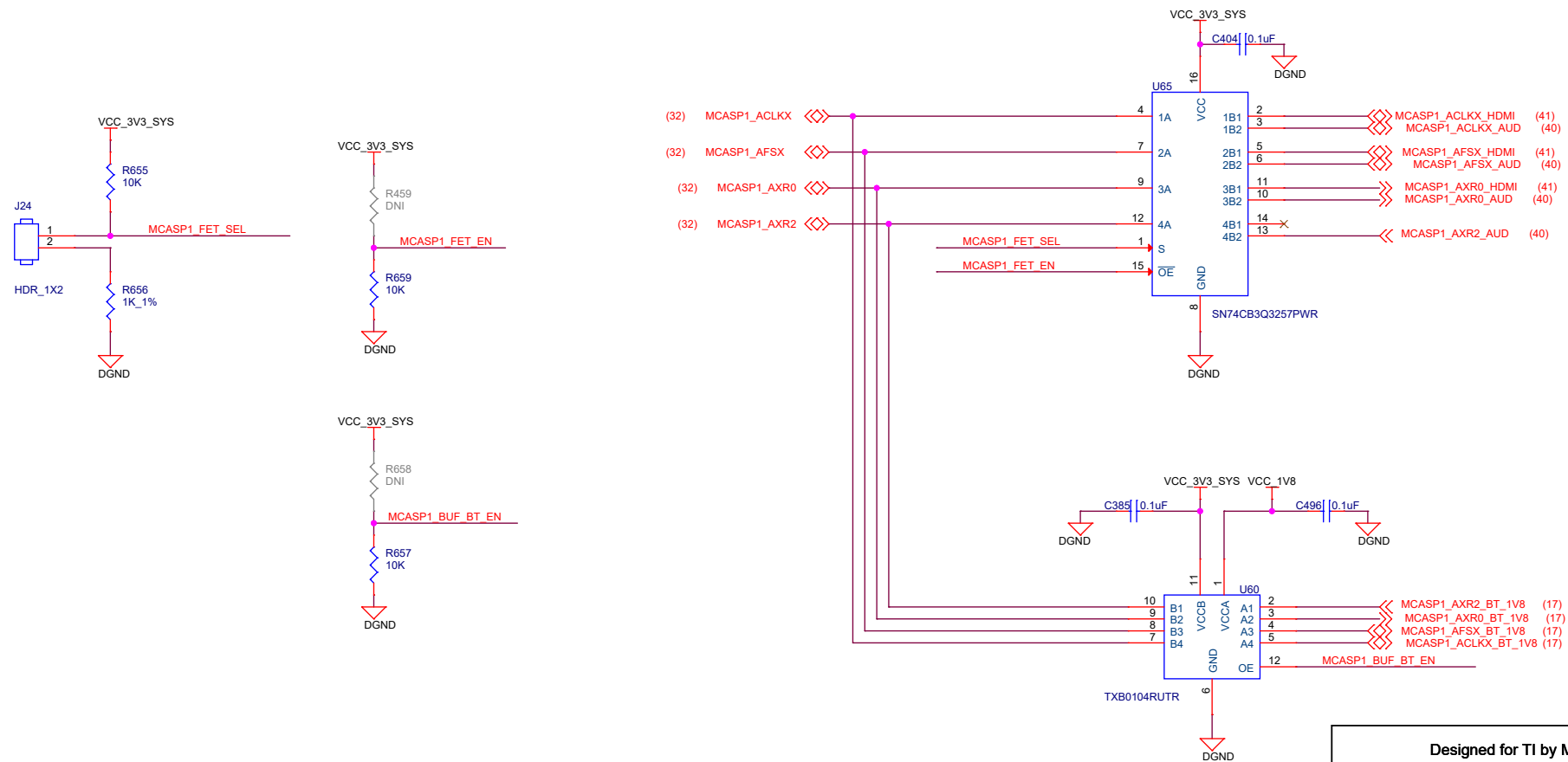


| | | |
|--------------------------------------|------------------------|----------------|
| Title CSI INTERFACE & USER TEST LEDS | | |
| Size | PROC162E1 | Rev |
| C | | E1 |
| Date: | Tuesday, June 25, 2024 | Sheet 38 of 44 |

IO EXPANDER



MCASP1 FET SWITCH & BUFFER



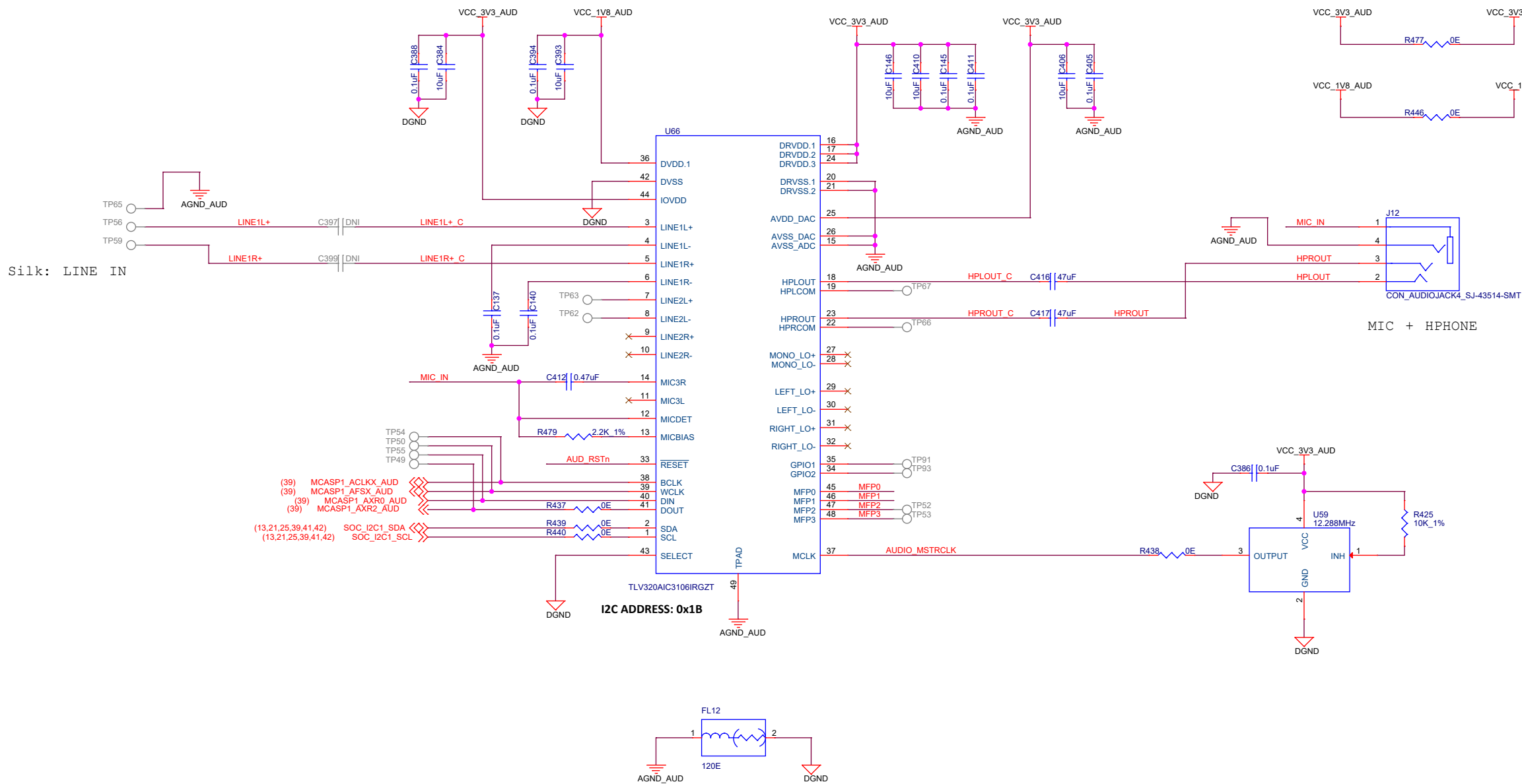
| OEn | SEL | INPUT/OUTPUT An | |
|-----|-------------|--------------------|----------------|
| L | H (DEFAULT) | An=nB2 | MCASP1 - CODEC |
| L | L | An=nB1 | MCASP1 - HDMI |

Designed for T1 by Mistral Solutions Pvt Ltd

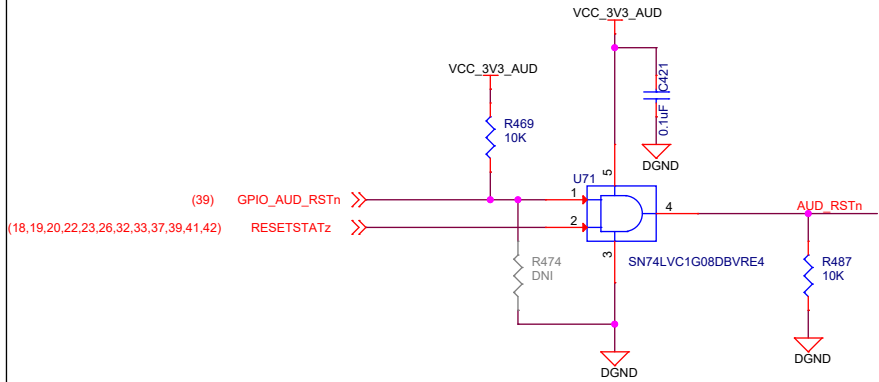


| | | |
|-------------------|------------------------|----------------|
| Title IO EXPANDER | | |
| Size | PROC162E1 | Rev |
| C | | E1 |
| Date: | Tuesday, June 25, 2024 | Sheet 39 of 44 |

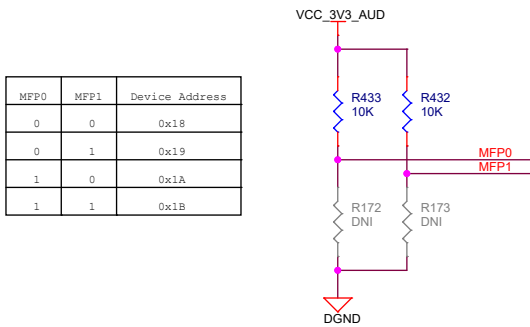
AUDIO CODEC



AUDIO CODEC RESET



CODEC I2C ADDRESS SELECTION



| MFP0 | MFP1 | Device Address |
|------|------|----------------|
| 0 | 0 | 0x18 |
| 0 | 1 | 0x19 |
| 1 | 0 | 0x1A |
| 1 | 1 | 0x1B |

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Title AUDIO CODEC

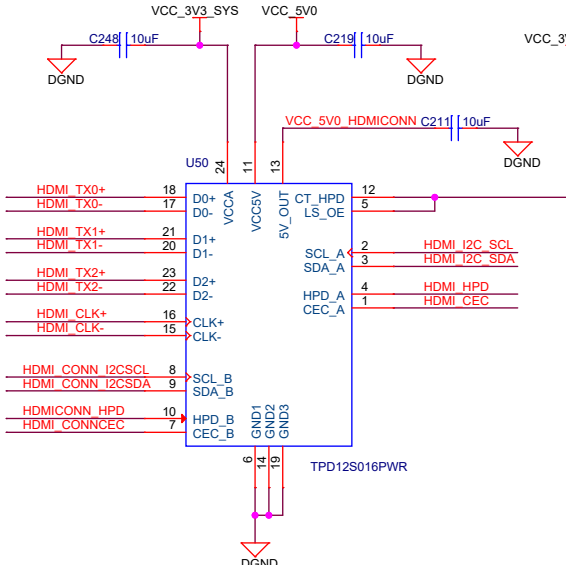
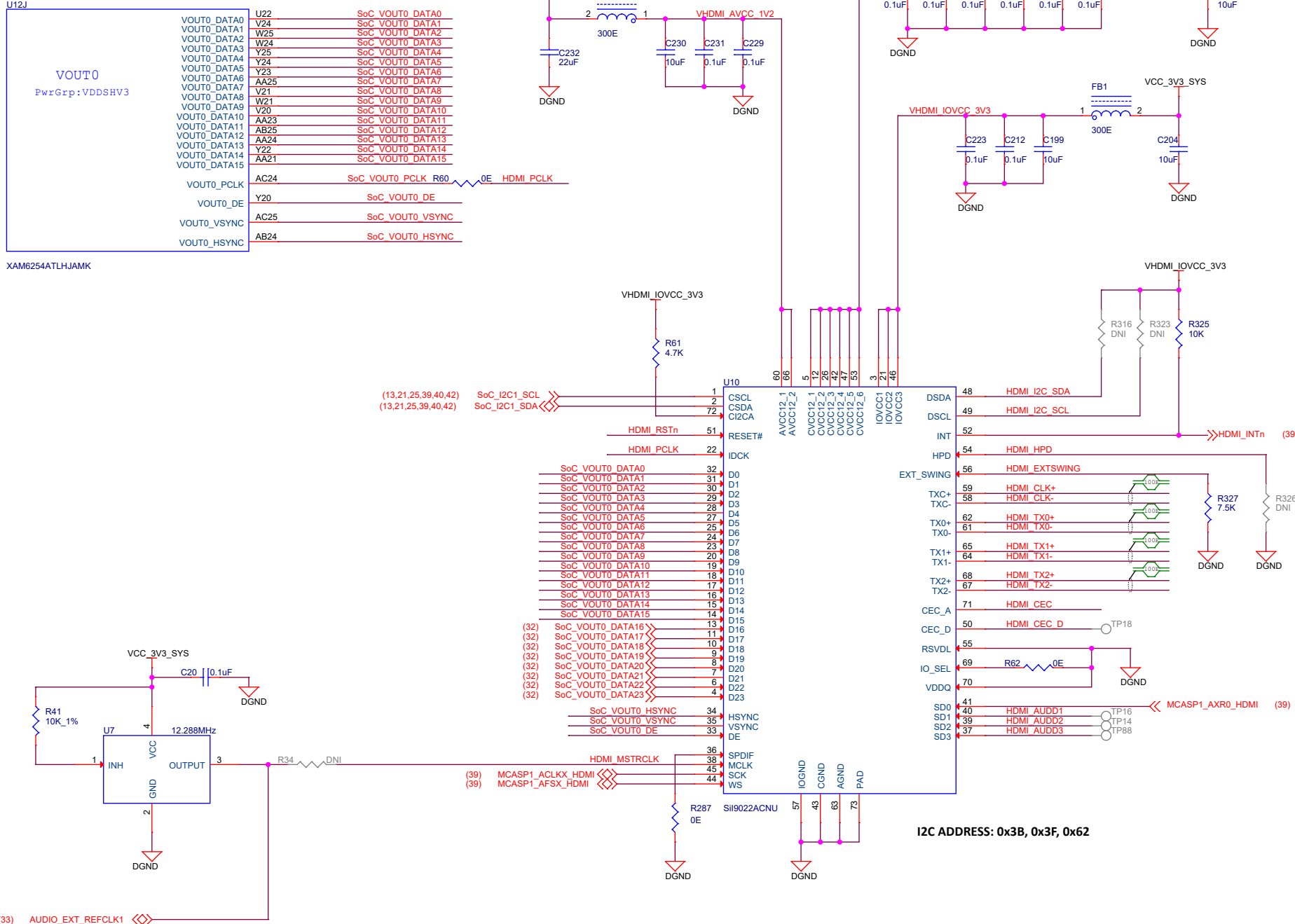
Size PROC162E1

Rev

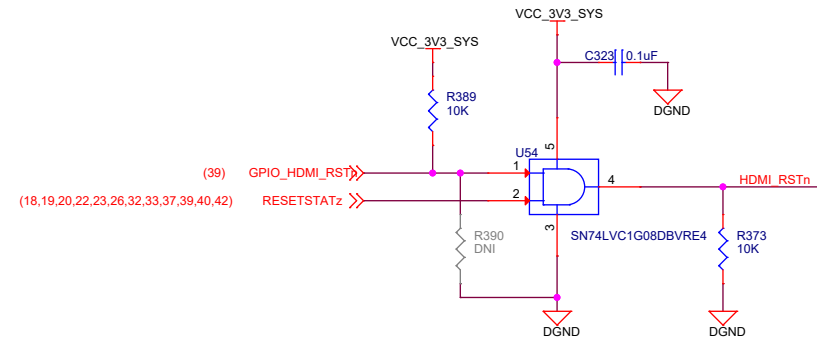
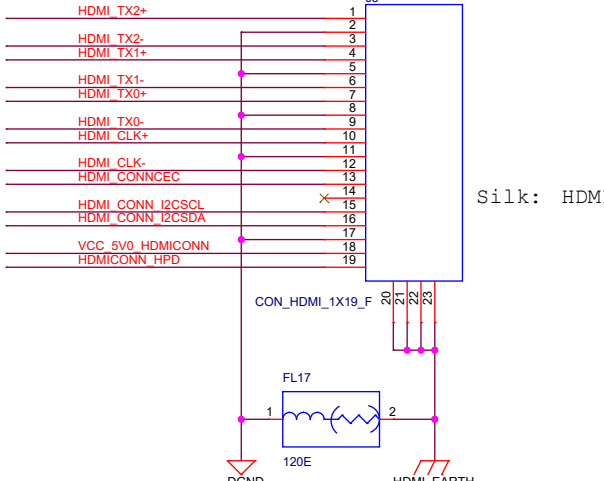
Date: Tuesday, June 25, 2024

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HDMI INTERFACE



NOTE:
TPD12S016PWR has integrated pullup or pulldown resistors on the I2C and HPD lines hence no external pullup or pulldown required

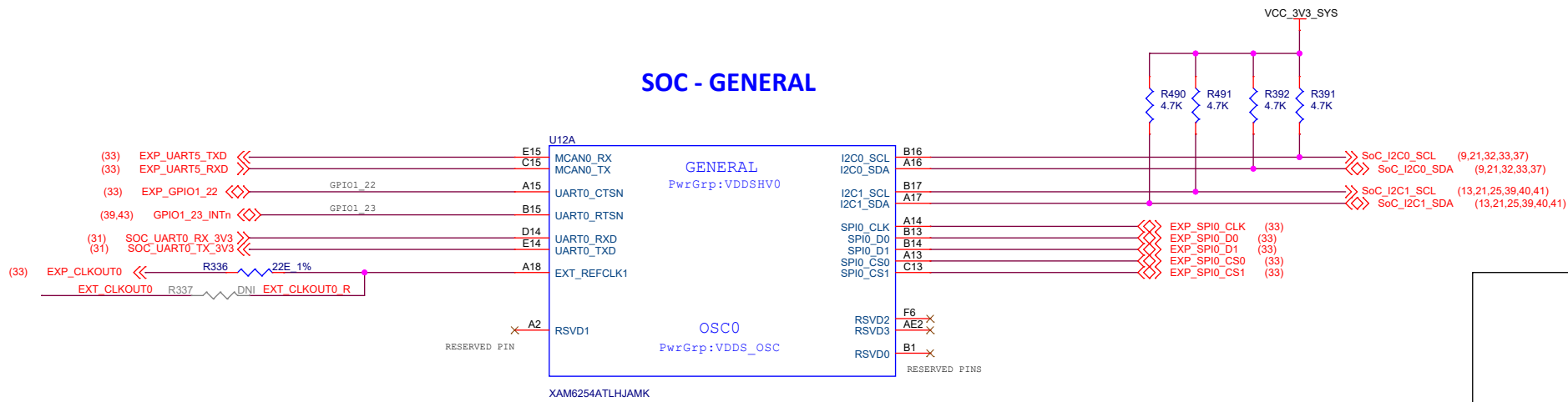


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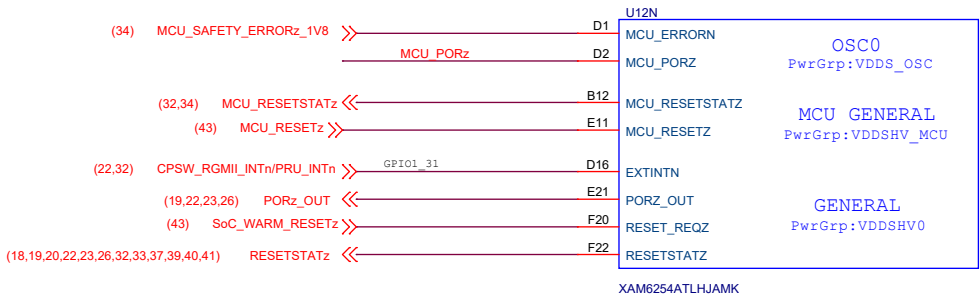


| | | | | | |
|-------|------------------------|-------|----------------|----|----|
| Title | | | HDMI INTERFACE | | |
| Size | PROC162E1 | | | | Re |
| C | | | | | E1 |
| Date: | Tuesday, June 25, 2024 | Sheet | 41 | of | 44 |

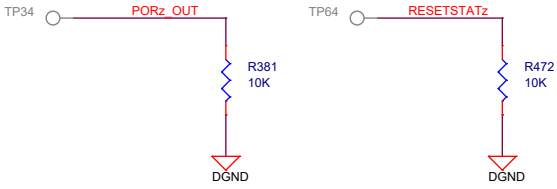
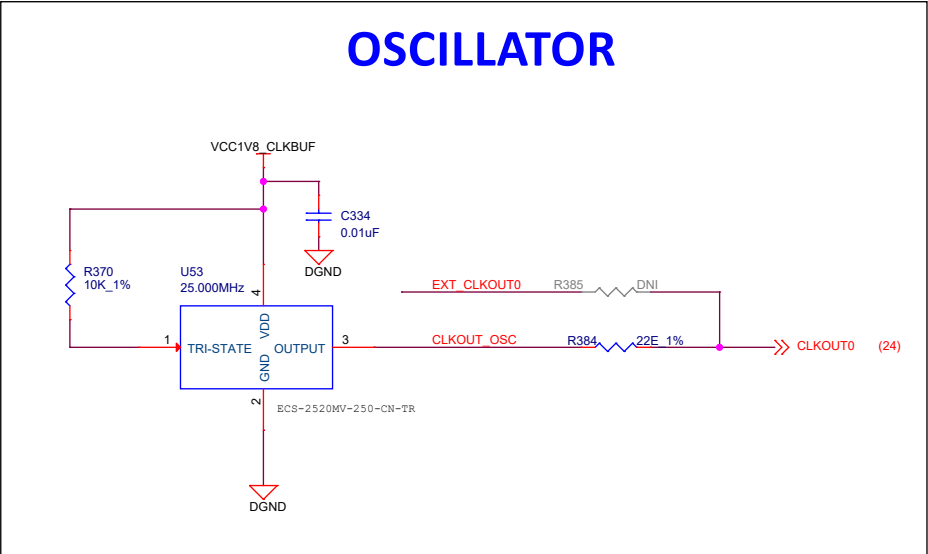
SOC - GENERAL



SOC - RESET

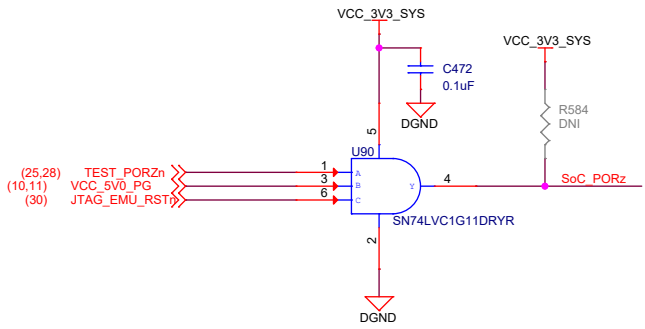
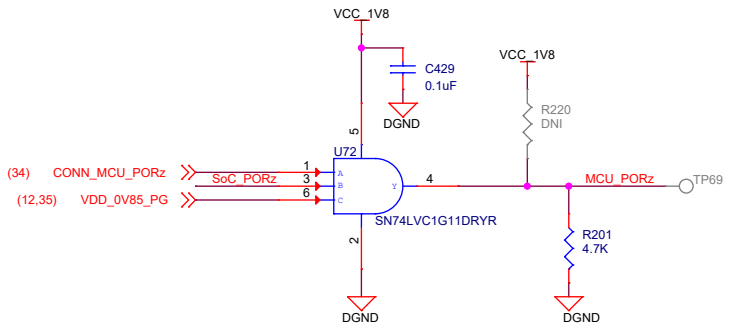


OSCILLATOR



Pull-down resistor on PORz_OUT is provided to keep the signal low until the processor is released from reset during the power-up sequence

MCU POWER ON RESET



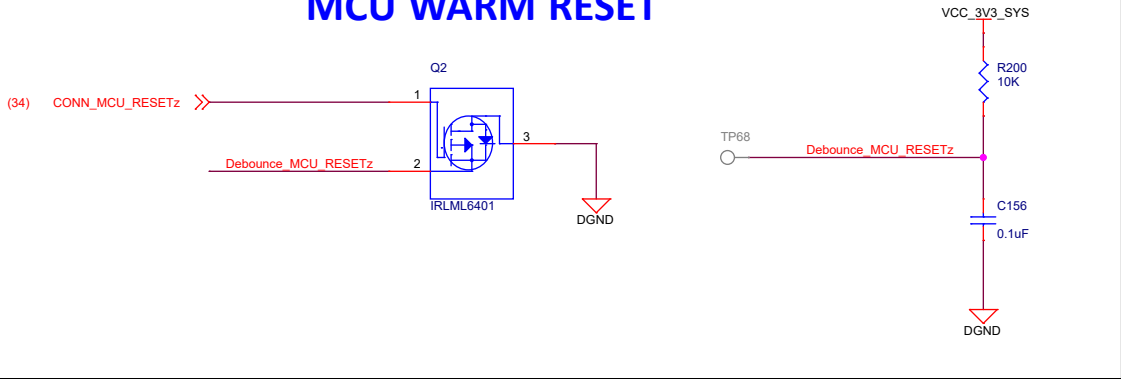
Designed for T1 by Mistral Solutions Pvt Ltd



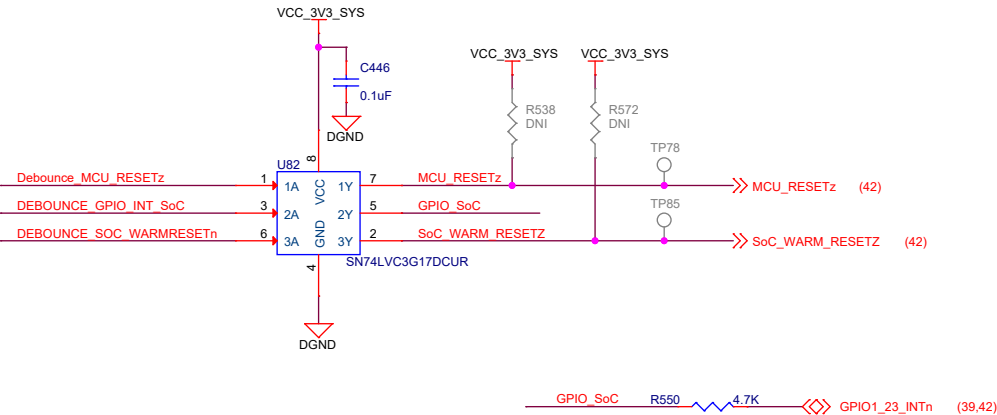
| | | | | |
|-------|------------------------|-------|------------|-------|
| Title | | | OSCILLATOR | |
| Size | PROC162E1 | | Rev | |
| C | | | E1 | |
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RESET

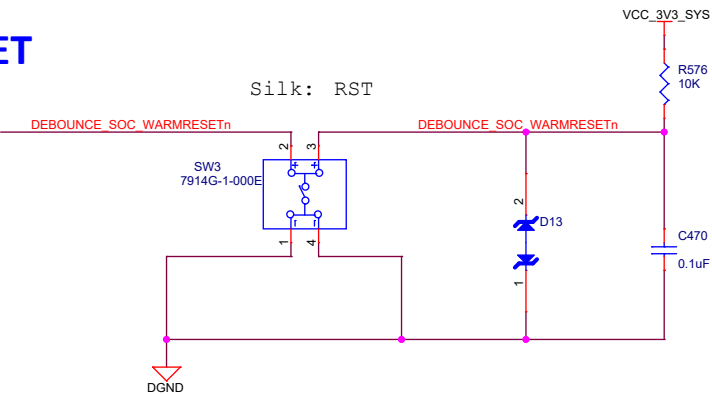
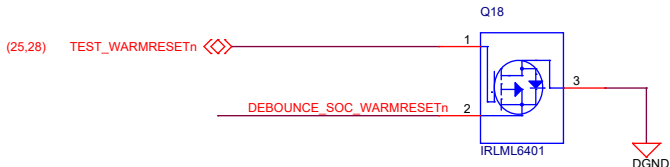
MCU WARM RESET



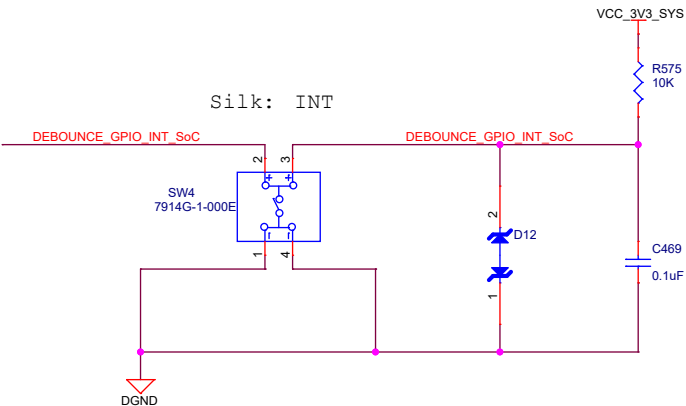
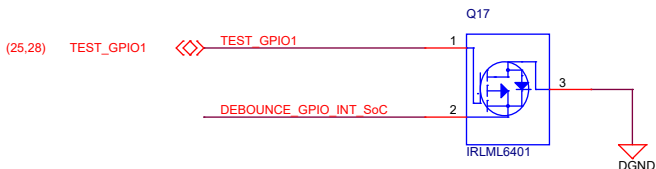
DEBOUNCE CIRCUIT



SOC WARM RESET



USER INTERRUPT



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| | | |
|----------------|------------------------|-------------------------|
| Title RESET | | |
| Size | PROC162E1 | Rev |
| C | | E1 |
| Date: | Tuesday, June 25, 2024 | Sheet 43 of 44 |

HARDWARE SCHEMATICS

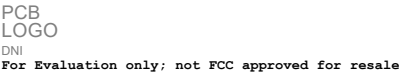
ASSEMBLY NOTES

- 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.

BARE PCB



LOGOs



LABELS

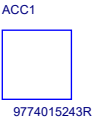
Board Serial No.



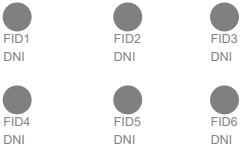
Assembly Revision



STANDOFF,SCREW & WASHER FOR PCIe M.2



FIDUCIALS



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Title HARDWARE SCHEMATICS

Size PROC162E1

Rev

E1

Date: Tuesday, June 25, 2024

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