AM62x SKEVM WITH FULTON PMIC

TABLE OF CONTENTS

REV	E1
VER	0.08

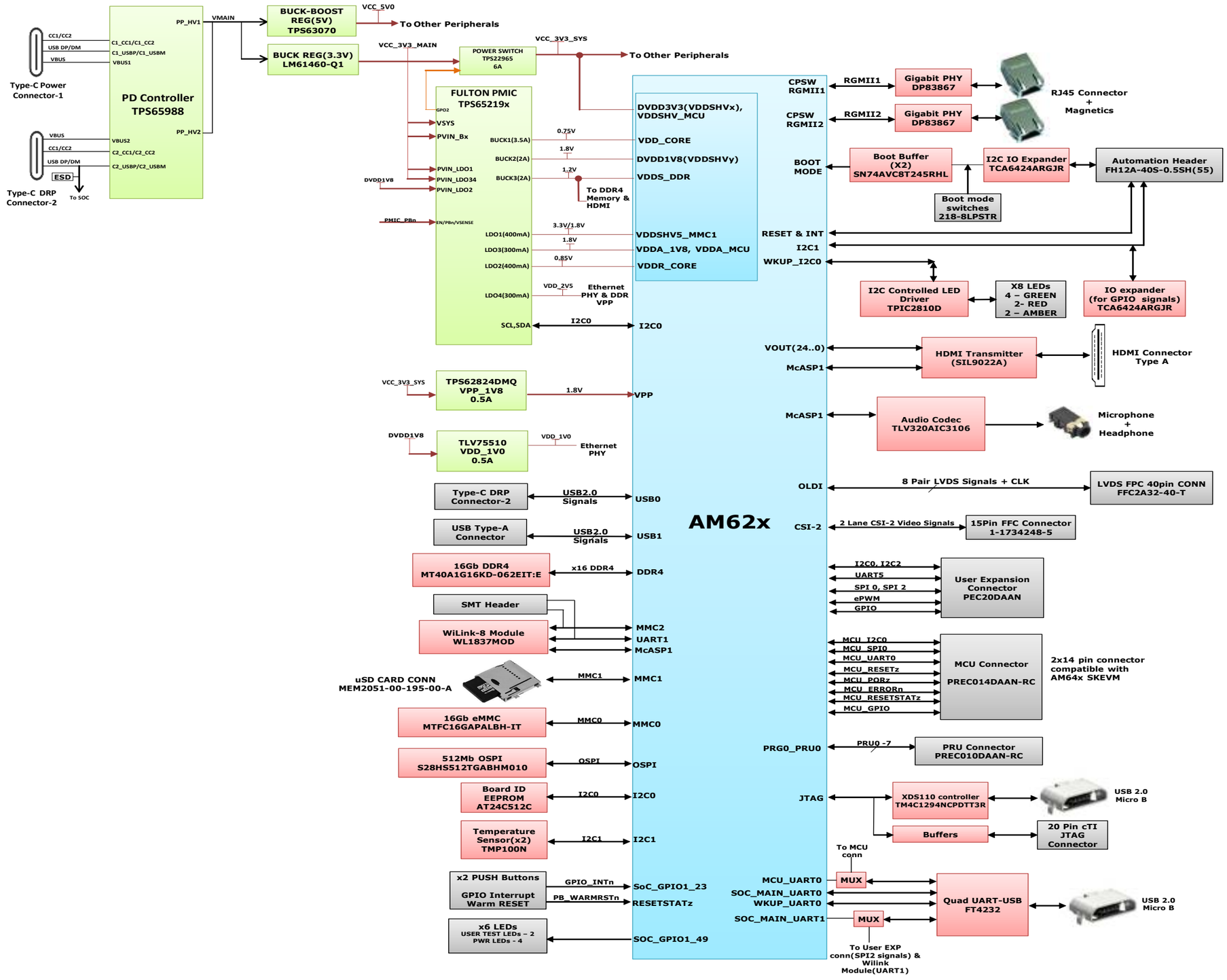
Designed for TI by Mistral Solutions Pvt Ltd

Title	TABLE OF CONTENTS		
Size	PROC142E1		Rev
C			E1
Date:	Friday, May 06, 2022	Sheet 1 of 44	

REVISION HISTORY

VER #	DATE	DESCRIPTION OF CHANGES	AUTHOR	REVIEWED BY	APPROVED BY
0.01	18 NOV 2021	Initial Draft	Mistral Design Team		
0.02	8 DEC 2021	C88 (1uF) is made DNI on VDDA_1V8 rail C48, C49 and C57 decap values changed from 4.7uF to 1uF	Mistral Design Team		
0.03	22 DEC 2021	Power Block Diagram updated	Mistral Design Team		
0.04	21 APRIL 2022	Updated all the changes of PROC114E3	Mistral Design Team		
0.05	22 APRIL 2022	Changed the I2C slave address of U23 and U25	Mistral Design Team		
0.06	2 MAY 2022	Added 0E RES option to short VDD_CORE and VDDR_CORE rails when both are generated from the same source	Mistral Design Team		
0.07	4 MAY 2022	Removed R641(0E) Resistor	Mistral Design Team		
0.08	6 MAY 2022	C502 Decap on VSYS pin of PMIC changed to 2.2uF.	Mistral Design Team		

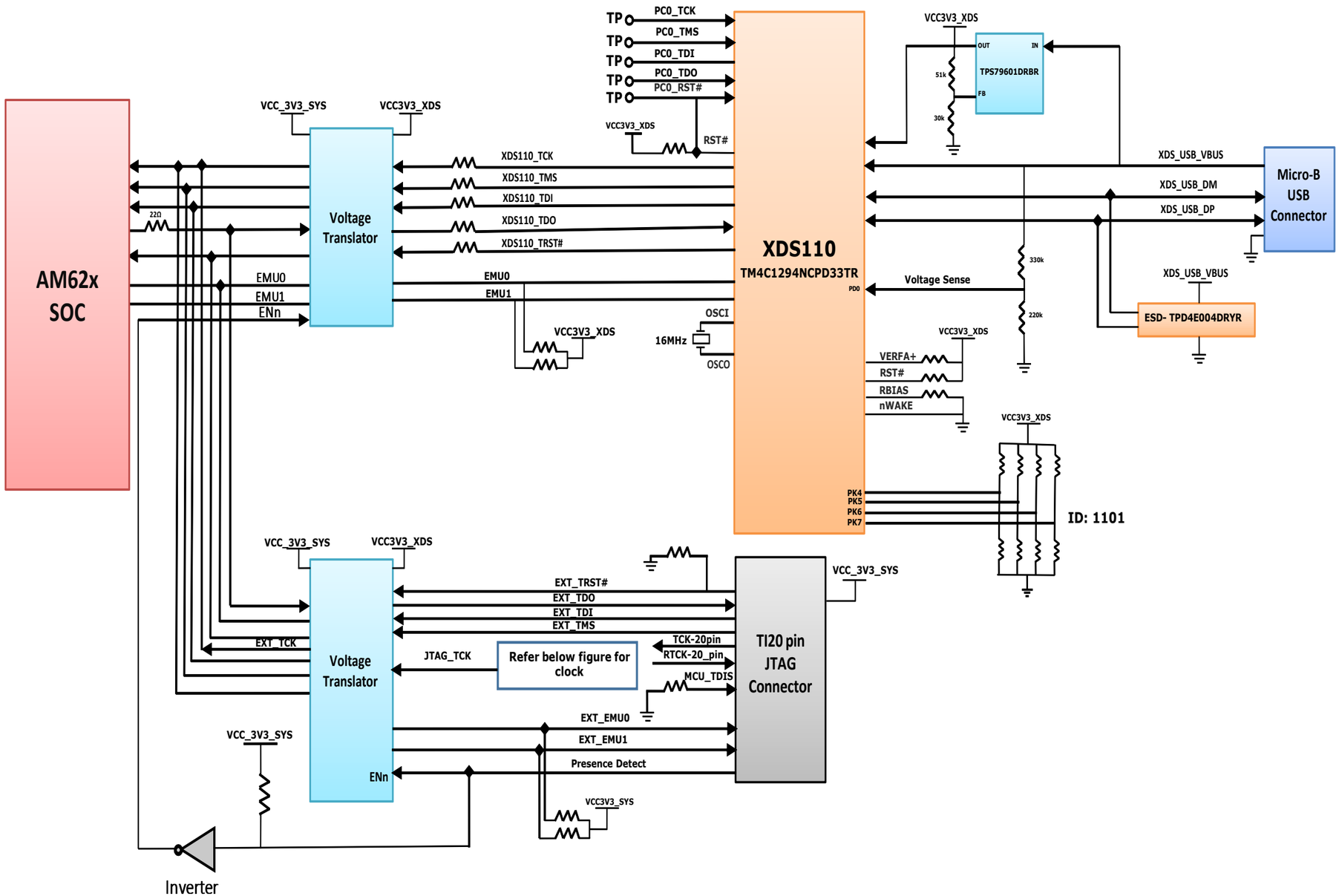
BLOCK DIAGRAM



Designed for TI by Mistral Solutions Pvt Ltd

Title	BLOCK DIAGRAM AM62x SKEVM		
Size	PROC142E1		Rev
C			E1
Date:	Wednesday, April 20, 2022	Sheet 3 of 44	

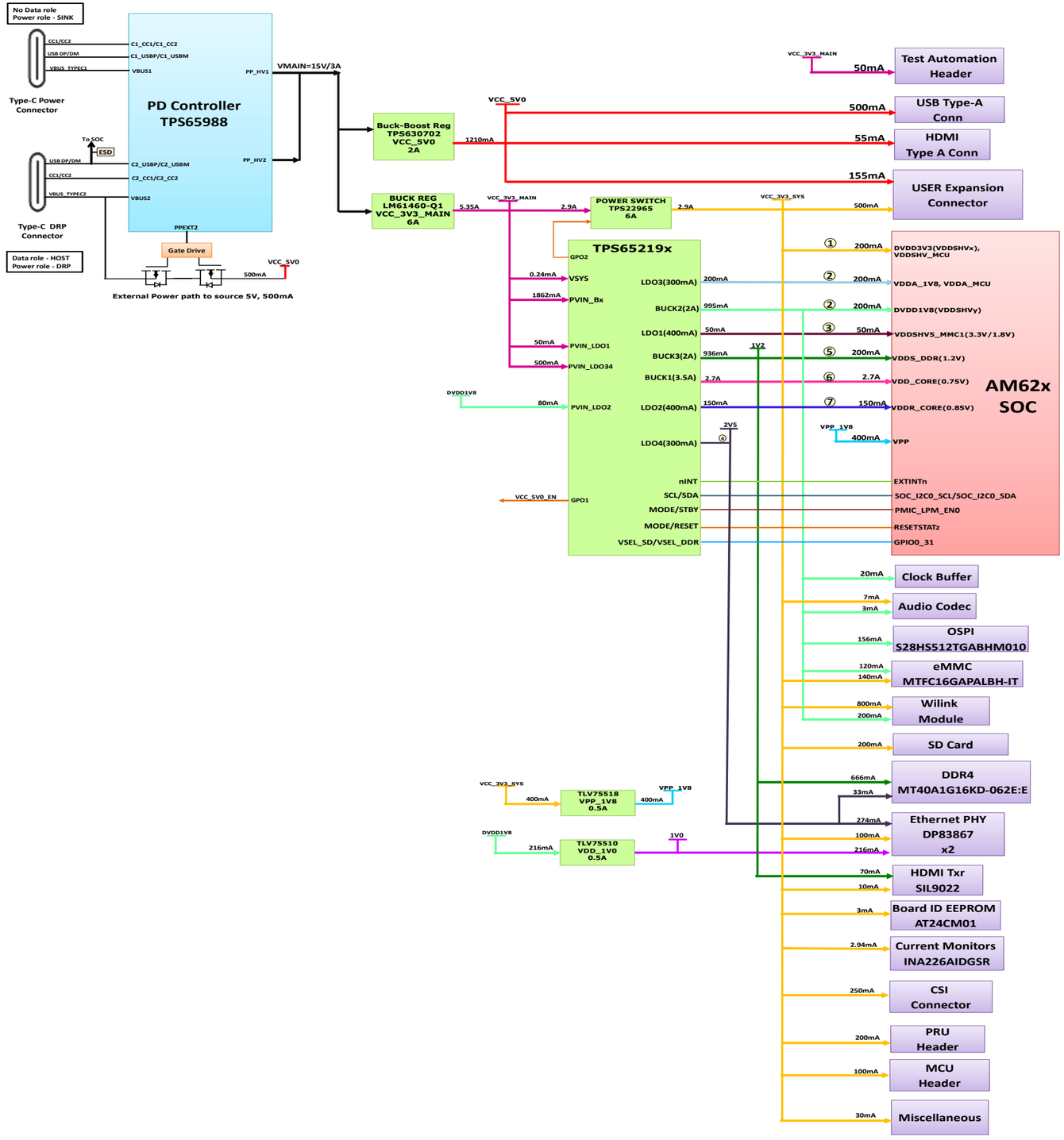
BLOCK DIAGRAM_XDS110



Designed for TI by Mistral Solutions Pvt Ltd

Title	BLOCK DIAGRAM_XDS110	
Size	PROC142E1	Rev
C		E1
Date:	Wednesday, April 20, 2022	Sheet 4 of 44

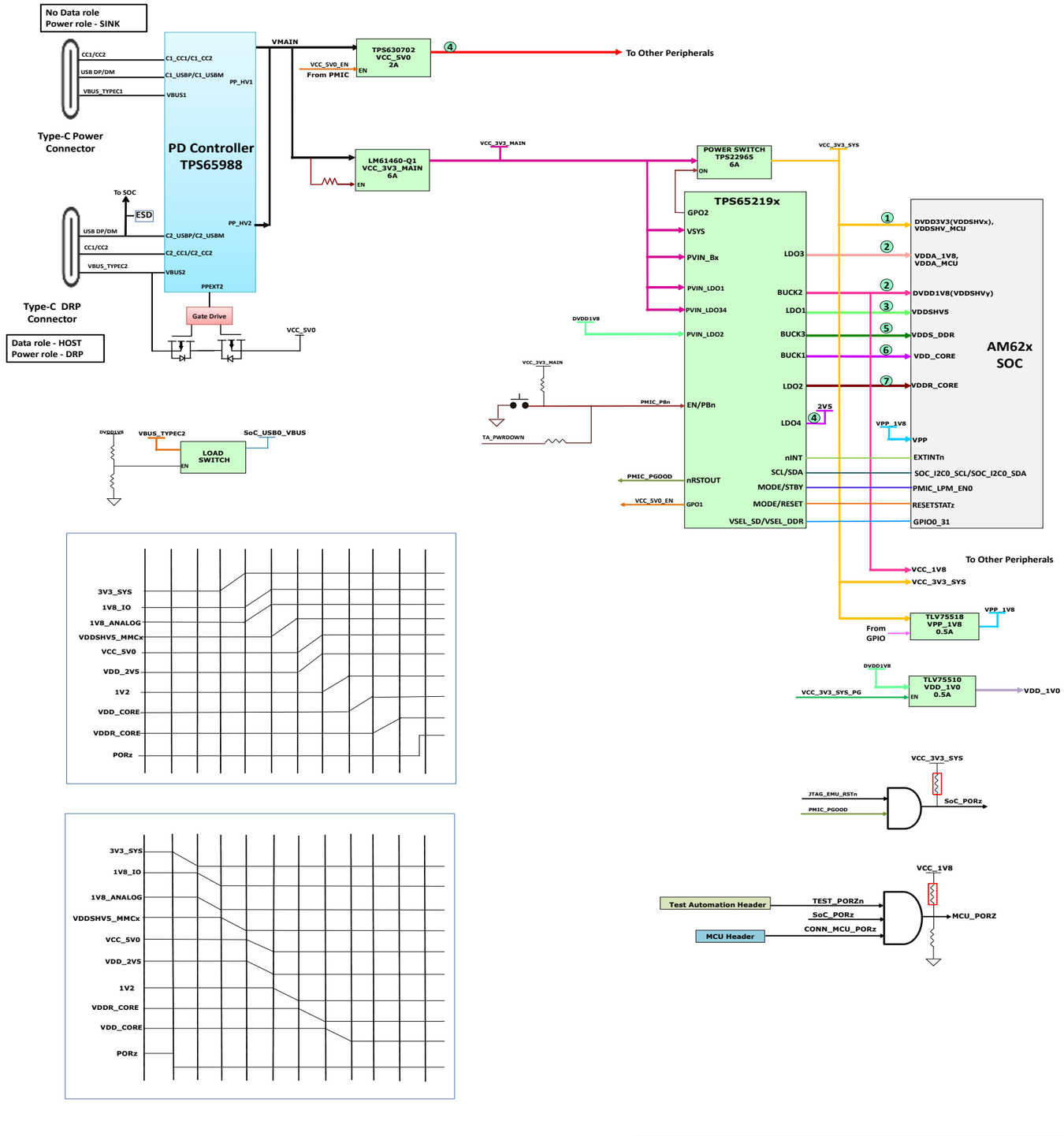
POWER BLOCK DIAGRAM



Designed for TI by Mistral Solutions Pvt Ltd

Title	POWER BLOCK DIAGRAM	
Size C	PROC142E1	Rev E1
Date: Wednesday, April 20, 2022	Sheet 5 of 44	

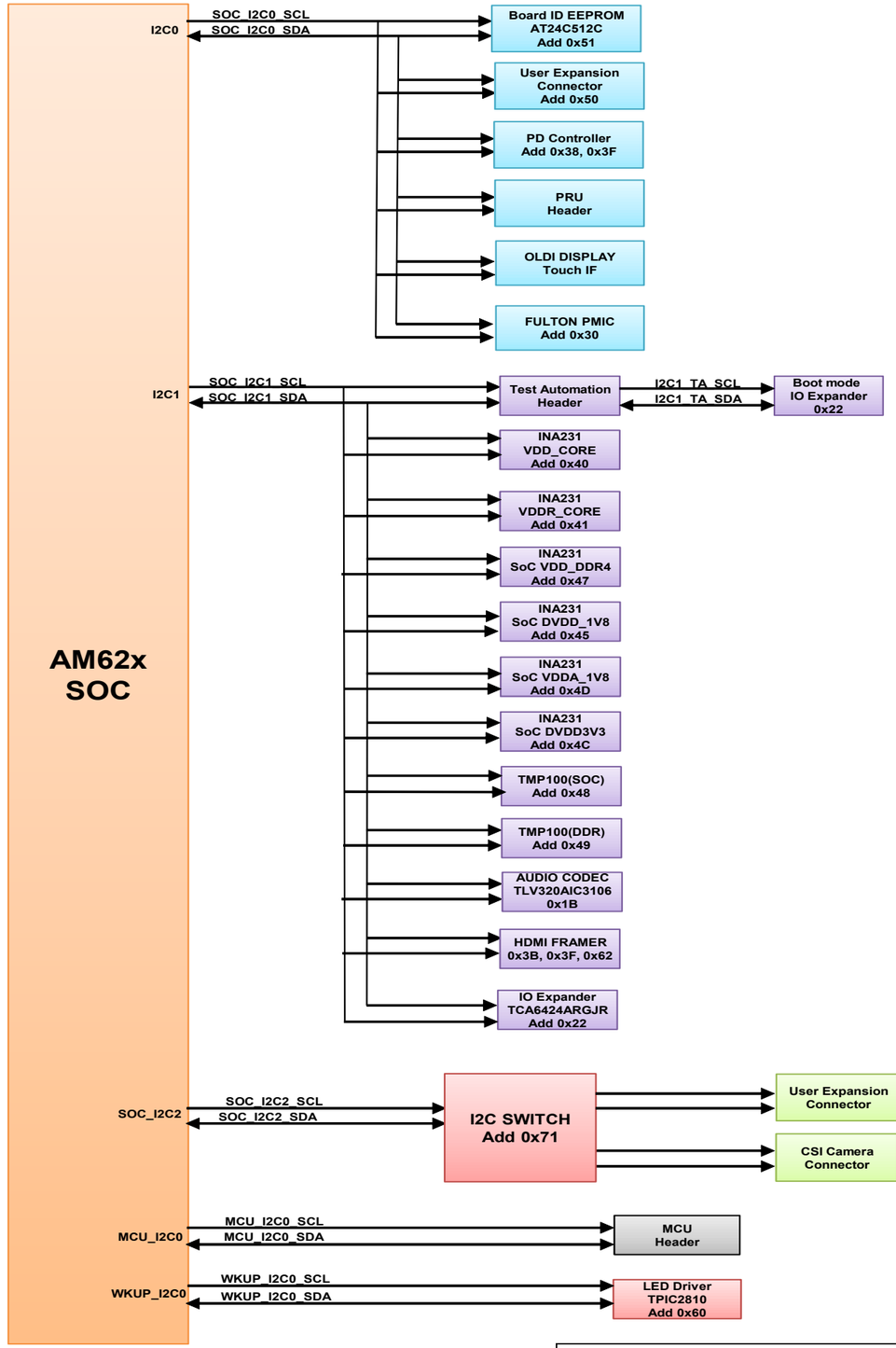
POWER SEQUENCE



Designed for TI by Mistral Solutions Pvt Ltd

Title	POWER SEQUENCE		
Size	PROC142E1		Rev
C			E1
Date:	Wednesday, April 20, 2022	Sheet 6 of 44	

I2C TREE



Designed for TI by Mistral Solutions Pvt Ltd

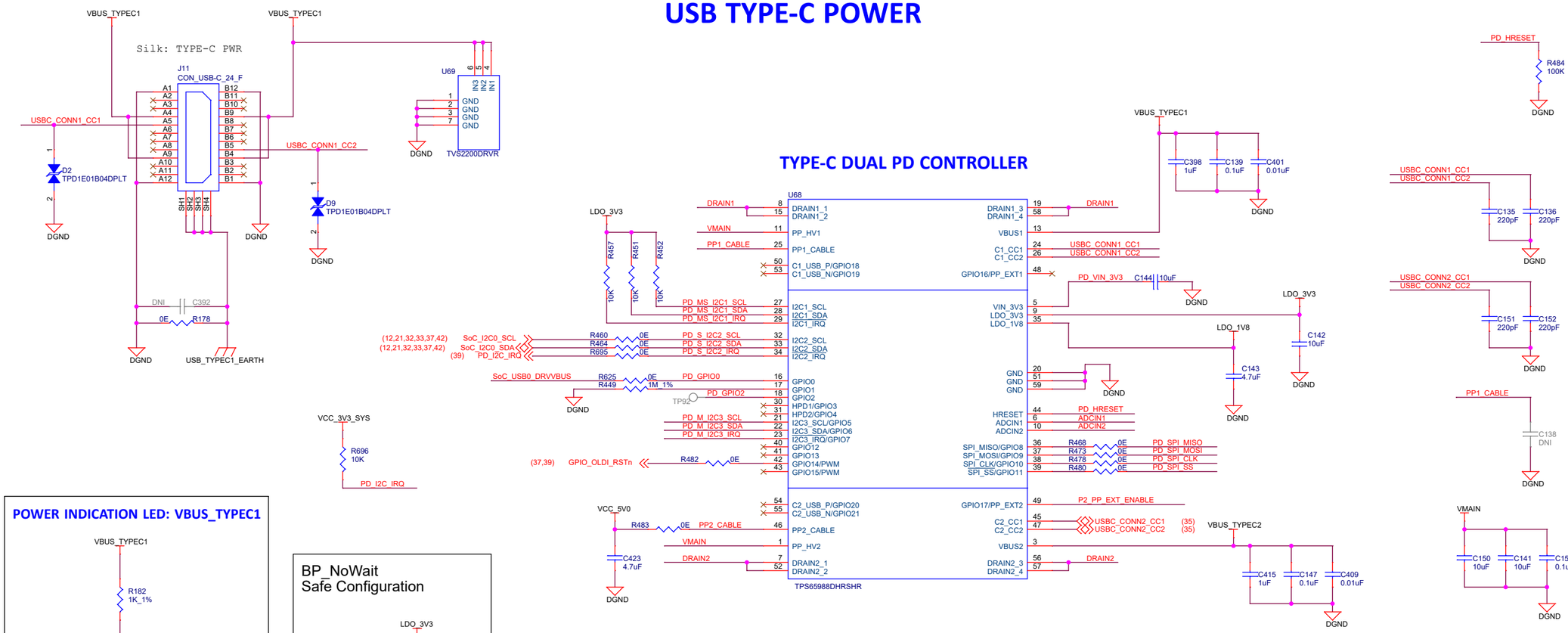
Title	I2C TREE	
Size: C	PROC142E1	Rev: E1
Date: Friday, April 22, 2022	Sheet 7 of 44	

GPIO MAPPING TABLE

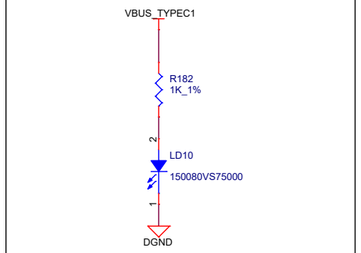
SL NO.	GPIO DESCRIPTION	GPIO NETNAME	FUNCTIONALITY	GPIO USED	SOC MUXED SIGNAL NAME	DIRECTION WITH RESPECT TO CONTROL	DEFAULT STATE	ACTIVE STATE	VOLTAGE DOMAIN ON SOC SIDE	VOLTAGE CONNECTED ON SKEVM
1	Enable for WLAN Interface	WLAN_EN	ENABLE	GPIO0_71	MMC2_SDCD	OUTPUT	LOW	HIGH	VDDSHV6	SoC_DVDD1V8
2	WLAN Interrupt	WLAN_IRQ	INTERRUPT	GPIO0_72	MMC2_SDWP	INPUT	HIGH	LOW	VDDSHV6	SoC_DVDD1V8
3	Enable for BT Interface	BT_EN_SOC	ENABLE	MCU_GPIO0_1	MCU_SPI0_CS0	OUTPUT	LOW	HIGH	VDDSHV_MCU	SoC_DVDD3V3
4	CPSW Ethernet PHY Interrupt PRU Connector Interrupt PMIC_INTn	CPSW_RGMII_INTn/PRU_INTn	INTERRUPT	GPIO1_31	EXTINTn	INPUT	HIGH	LOW	VDDSHV0	SoC_DVDD3V3
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	GPIO1_23_INTn	INTERRUPT	SoC_GPIO1_23	UART0_RTSN	INPUT	HIGH	LOW	VDDSHV0	SoC_DVDD3V3
9	User Interrupt Push Button/ TEST GPIO1 from Test Automation Connector									
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 - P00		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	EXP_HAT_DETECT	DETECTION	IO EXPANDER - P07		INPUT	HIGH	LOW	VDDSHV0	SoC_DVDD3V3
9	Audio Codec Reset Control GPIO	GPIO_AUD_RSTn	DETECTION	IO EXPANDER - P10		INPUT	HIGH	LOW	VDDSHV0	SoC_DVDD3V3
10	eMMC Reset control GPIO	GPIO_eMMC_RSTn	RESET	IO EXPANDER - P11		OUTPUT	HIGH	LOW	VDDSHV0	SoC_DVDD3V3
11	UART1 FET Switch and Buffer Enable signal	UART1_FET_BUF_EN	ENABLE	IO EXPANDER - P12		OUTPUT	HIGH	LOW	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	PD Controller Interrupt	PD_I2C_IRQ	INTERRUPT	IO EXPANDER - P21		INPUT	HIGH	LOW	VDDSHV0	SoC_DVDD3V3
19	MCASP1 FET Switch Enable	MCASP1_FET_EN	ENABLE	IO EXPANDER - P22		OUTPUT	LOW	HIGH	VDDSHV0	SoC_DVDD3V3
20	MCASP1 Level Translator buffer for BT Enable	MCASP1_BUF_BT_EN	ENABLE	IO EXPANDER - P23		OUTPUT	LOW	HIGH	VDDSHV0	SoC_DVDD3V3
21	MCASP1 FET Switch select pin status	MCASP1_FET_SEL	GPIO	IO EXPANDER - P24		INPUT	LOW	HIGH	VDDSHV0	SoC_DVDD3V3
22	SOC UART1 FET Switch Select	UART1_FET_SEL	SELECT	IO EXPANDER - P25		OUTPUT	LOW	HIGH	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

USB TYPE-C POWER

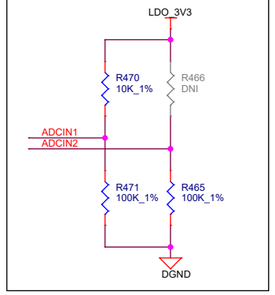
TYPE-C DUAL PD CONTROLLER



POWER INDICATION LED: VBUS_TYPEC1

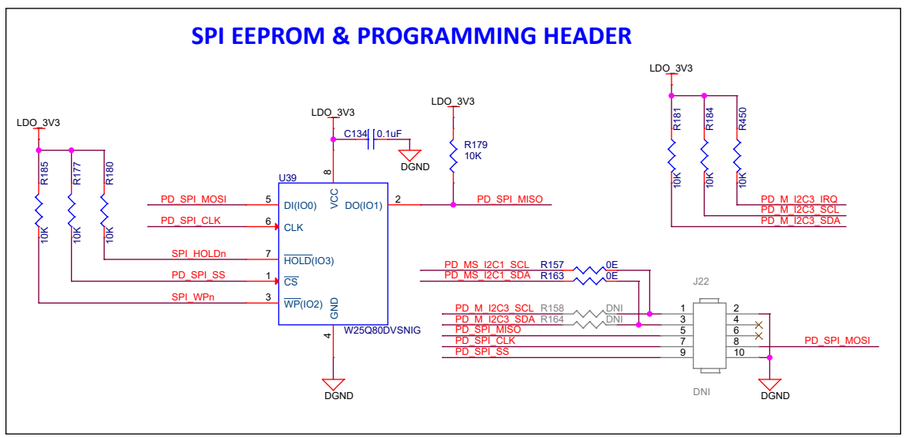


BP_NoWait Safe Configuration

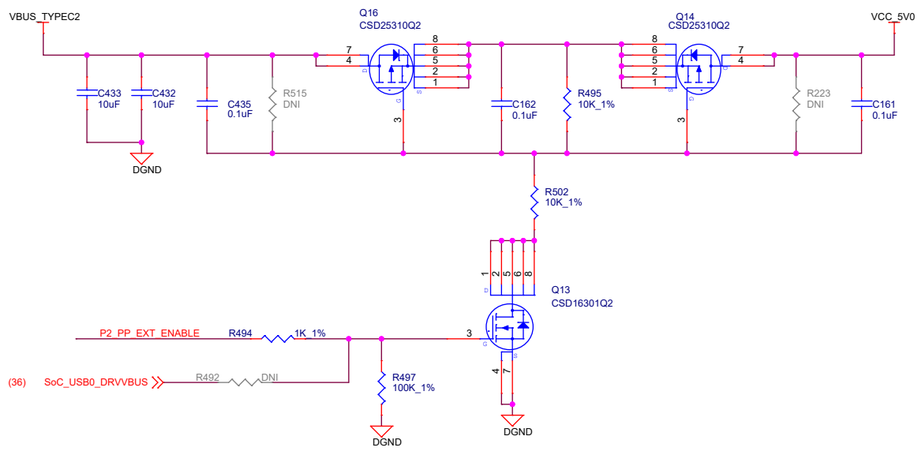


I2C Slave Address	Port1	Port2
I2C2(Default)	0x38	0x3F
I2C1	0x20	0x24

SPI EEPROM & PROGRAMMING HEADER



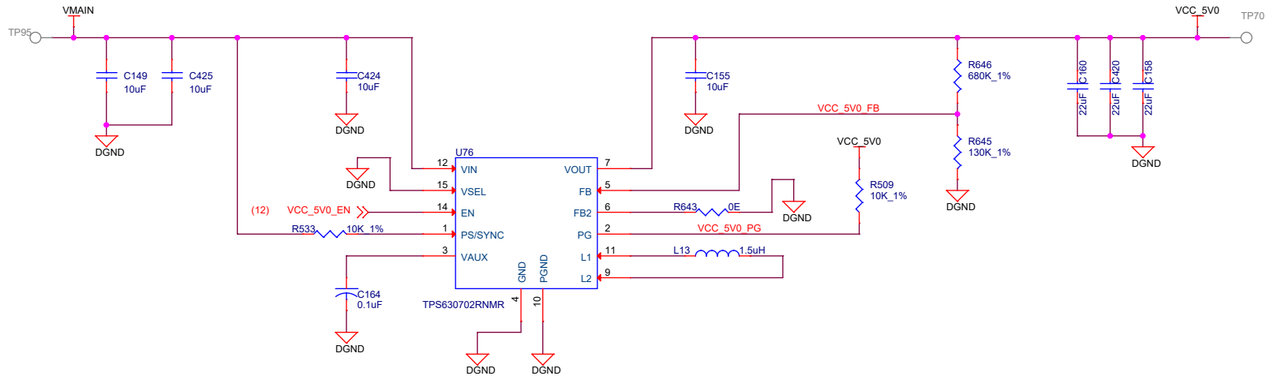
EXTERNAL POWER PATH FOR SOURCING, 5V/0.5A



Designed for TI by Mistral Solutions Pvt Ltd

Title	USB TYPE-C POWER		
Size	PROC142E1		Rev
C			E1
Date:	Wednesday, April 20, 2022	Sheet 9 of 44	

PERIPHERAL POWER SUPPLY-1



GROUND TEST POINTS

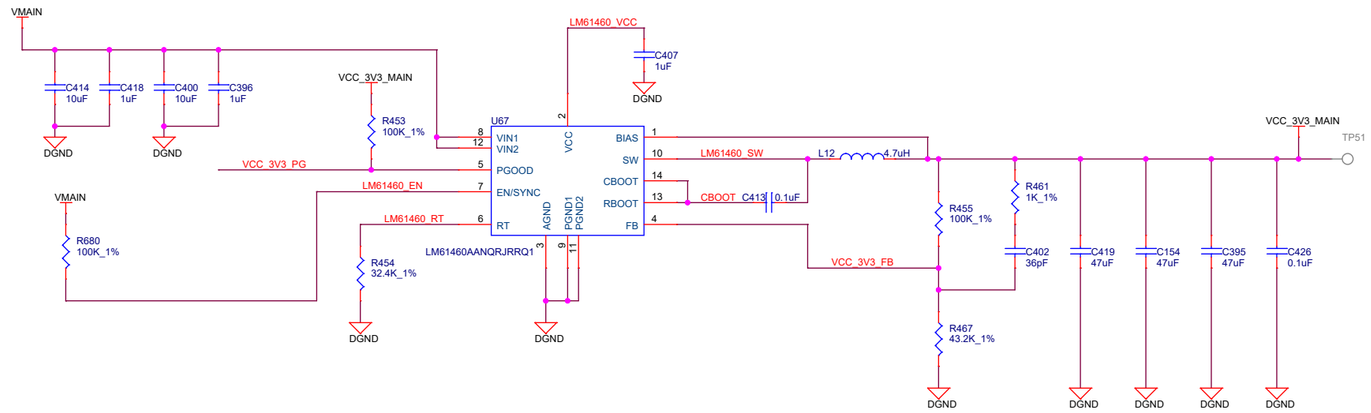
Designed for TI by Mistral Solutions Pvt Ltd

Title	PERIPHERAL POWER SUPPLY -1	
Size: C	Variant Name = PROC142E1	Rev: E1
Date: Wednesday, May 04, 2022	Sheet 10 of 44	

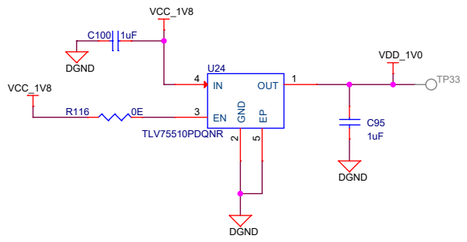
PERIPHERAL POWER SUPPLY-2

3.3V, 6.0AMPS SUPPLY

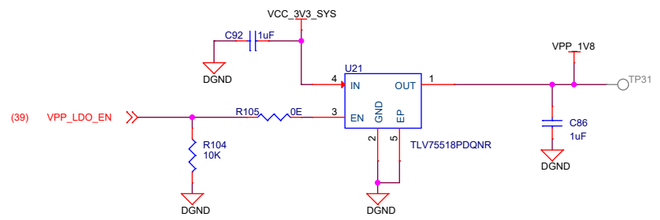
VinMin = 4.5V
VinMax = 24V
Vout = 3.3V @ 6A



1.0V, 0.5AMPS SUPPLY (ETHERNET)



1.8V VPP, 0.5AMPS SUPPLY

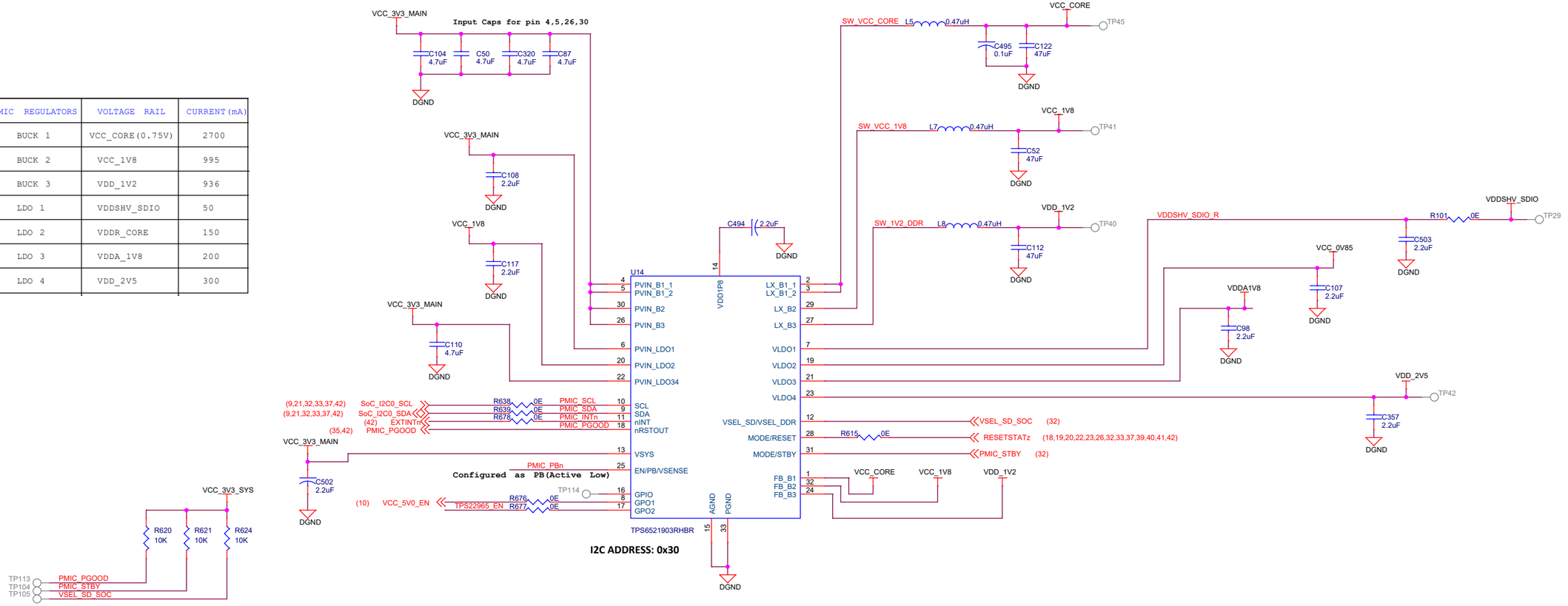


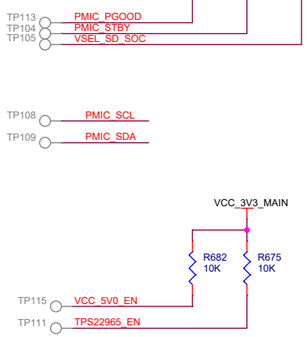
Designed for TI by Mistral Solutions Pvt Ltd

Title	PERIPHERAL POWER SUPPLY-2	
Size C	PROC142E1	Rev E1
Date: Wednesday, April 20, 2022	Sheet 11 of 44	

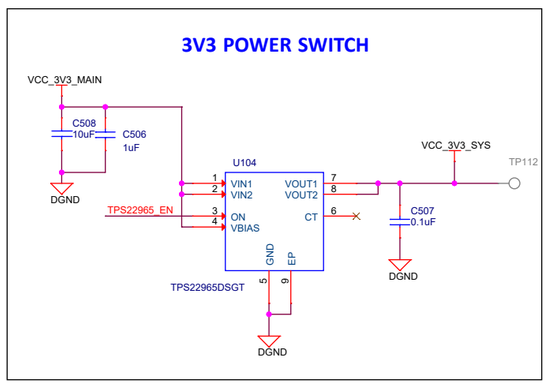
FULTON PMIC

PMIC REGULATORS	VOLTAGE RAIL	CURRENT(mA)
BUCK 1	VCC_CORE(0.75V)	2700
BUCK 2	VCC_1V8	995
BUCK 3	VDD_1V2	936
LDO 1	VDDSHV_SDIO	50
LDO 2	VDDR_CORE	150
LDO 3	VDDA_1V8	200
LDO 4	VDD_2V5	300

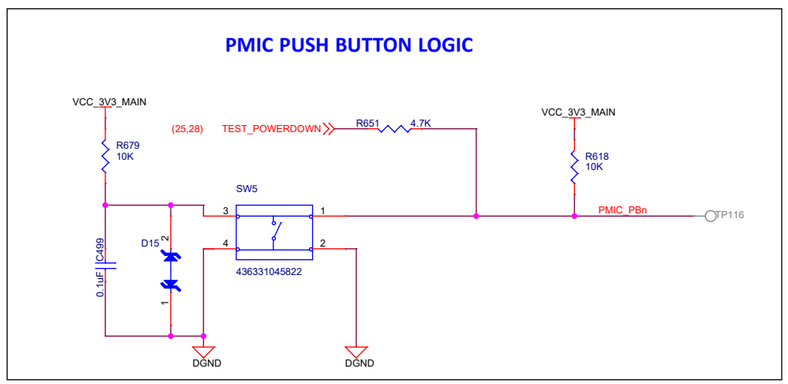




3V3 POWER SWITCH



PMIC PUSH BUTTON LOGIC

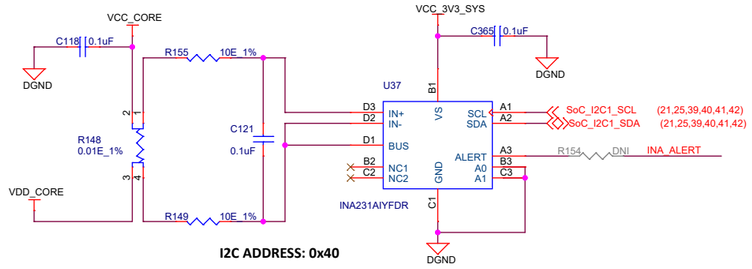


Designed for TI by Mistral Solutions Pvt Ltd

Title	SOC POWER SUPPLY	
Size: C	PROC142E1	Rev: E1
Date: Friday, May 06, 2022	Sheet 12 of 44	

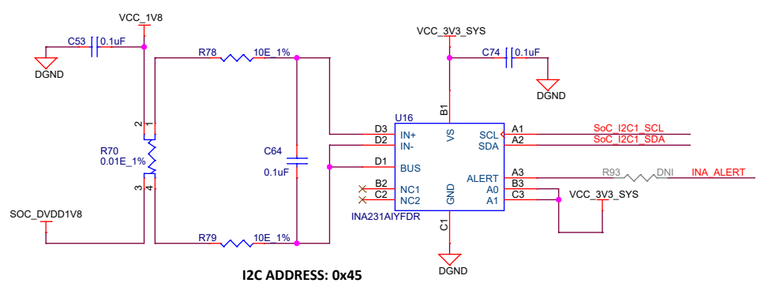
CURRENT MONITORING DEVICES

VDD_CORE



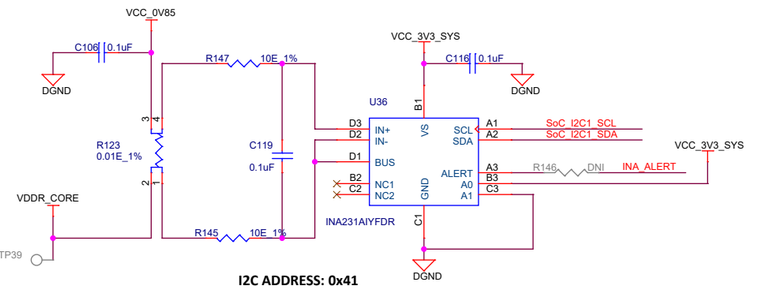
I2C ADDRESS: 0x40

SoC_DVDD1V8



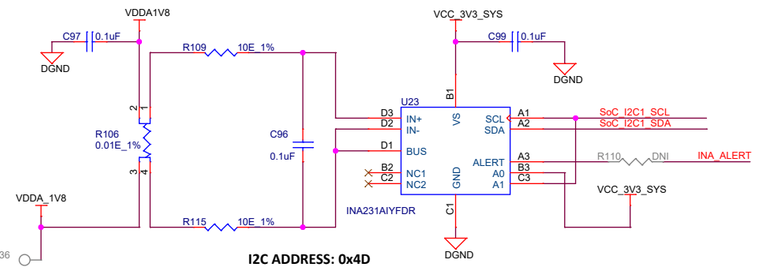
I2C ADDRESS: 0x45

VDDR_CORE



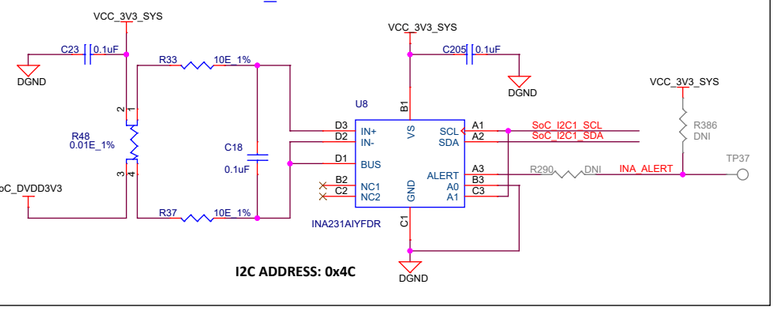
I2C ADDRESS: 0x41

VDDA_1V8



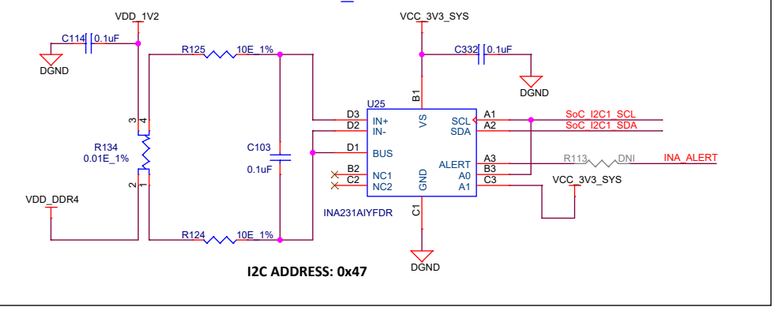
I2C ADDRESS: 0x4D

SoC_DVDD3V3



I2C ADDRESS: 0x4C

VDD_DDR4



I2C ADDRESS: 0x47

RES Option to short VDD_CORE and VDDR_CORE rails when both are 0.85V(Both should be generated from the same source)

CORE SUPPLY	ARRAY CORE SUPPLY	Assembly
0.75 VDD_CORE	0.85 VDDR_CORE	DNI R699 and Mount R123
0.85 VDD_CORE	0.85 VDDR_CORE	DNI R123 and Mount R699

INA I2C SLAVE ADDRESS

POWER SOURCE	SUPPLY NET	SLAVE ADDRESS (IN HEX)
VCC_CORE	VDD_CORE	40
VCC_0V85	VDDR_CORE	41
VCC_3V3_SYS	SoC_DVDD3V3	4C
VCC_1V8	SoC_DVDD1V8	45
VDDA1V8	VDDA_1V8	4D
VCC1V2_DDR	VDD_DDR4	47

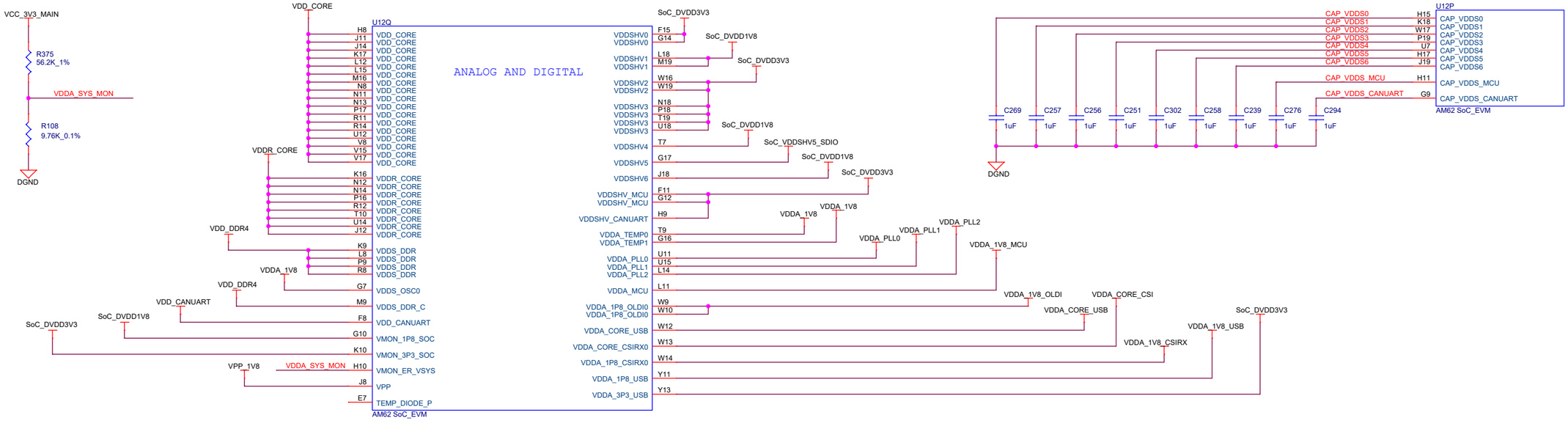
Designed for TI by Mistral Solutions Pvt Ltd

TEXAS INSTRUMENTS

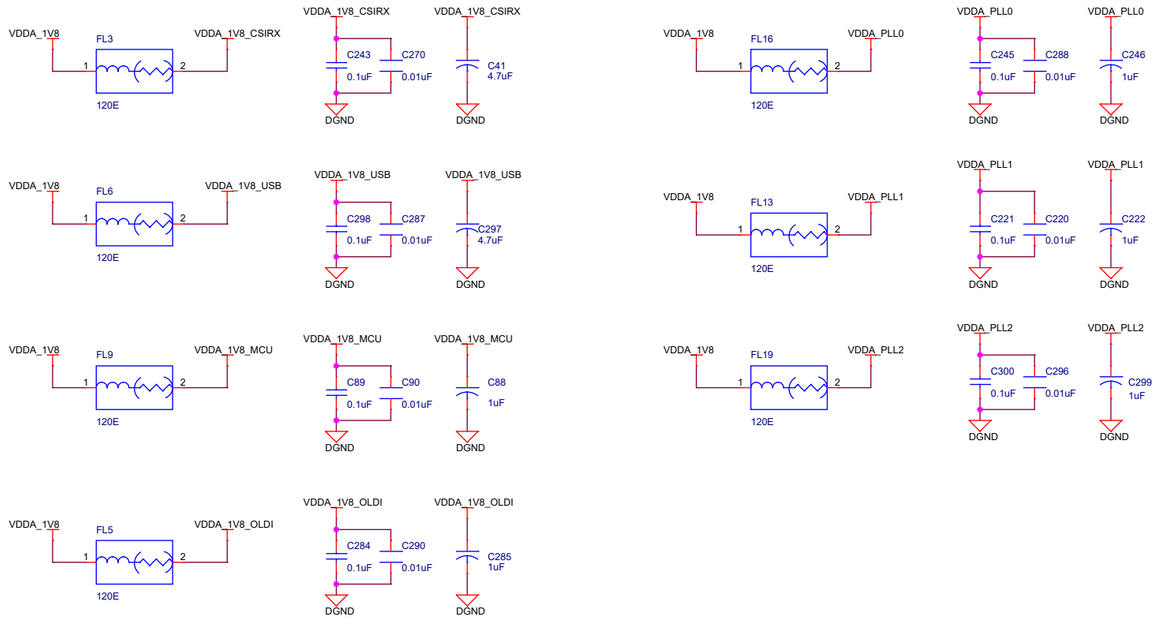
MISTRAL

Title	CURRENT MONITORING DEVICES	
Size C	PROC142E1	Rev E1
Date: Wednesday, May 04, 2022	Sheet 13 of 44	

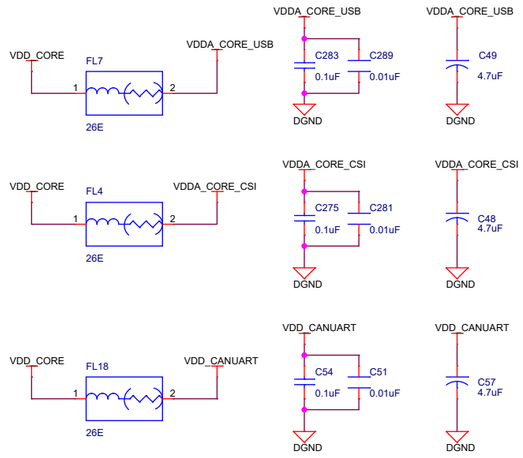
SOC POWER



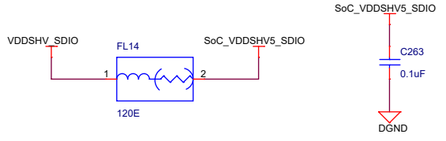
1.8V Analog SUPPLY



CORE SUPPLY



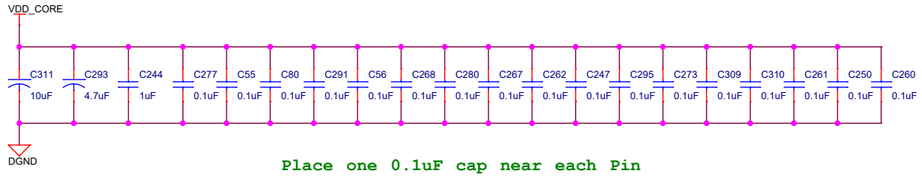
3.3V/1.8V MMC1 SUPPLY



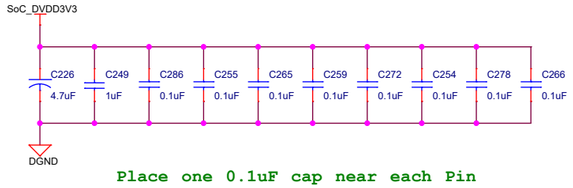
Designed for TI by Mistral Solutions Pvt Ltd

Title	SOC POWER	
Size: C	Variant Name = PROC142E1	Rev: E1
Date: Wednesday, April 20, 2022	Sheet 14 of 44	

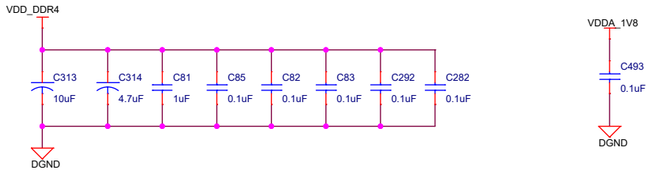
SOC POWER DECAPS



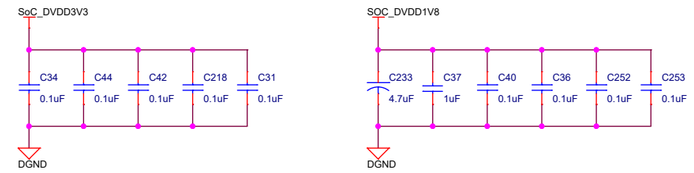
Place one 0.1uF cap near each Pin



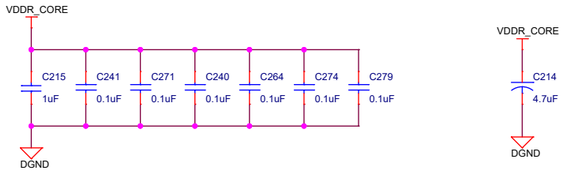
Place one 0.1uF cap near each Pin



Place one 0.1uF cap near each Pin

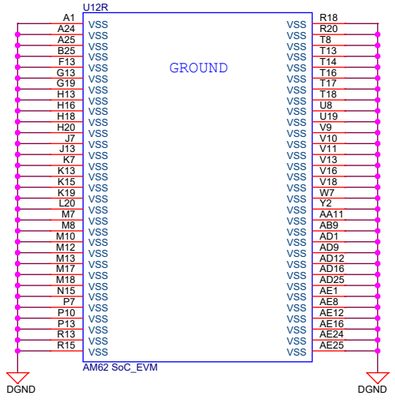


Place one 0.1uF cap near each Pin



Place one 0.1uF cap near each Pin

SOC VSS

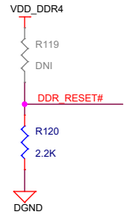


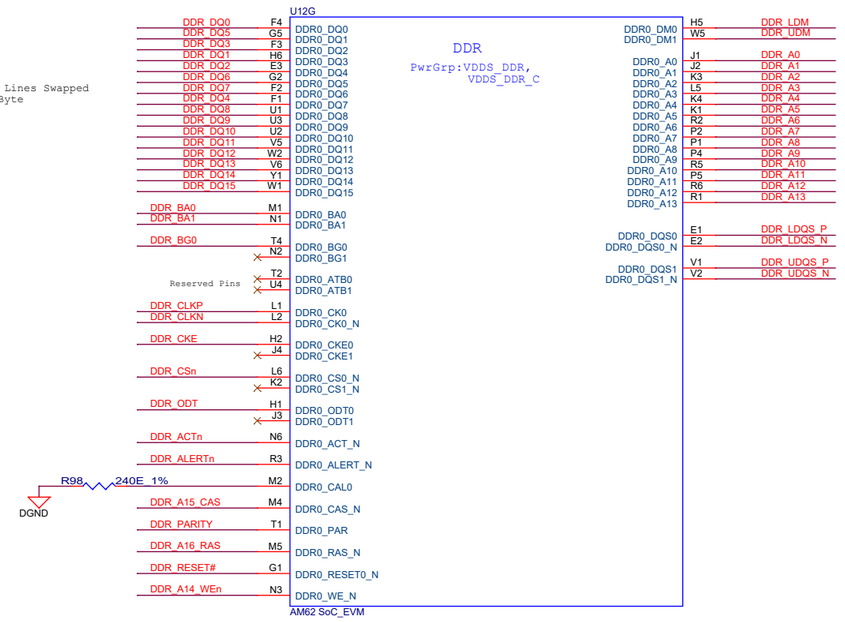
Designed for TI by Mistral Solutions Pvt Ltd

Title	SOC POWER CAPS & SOC VSS	
Size: C	Variant Name = PROC142E1	Rev
Date: Wednesday, April 20, 2022	Sheet 15 of 44	

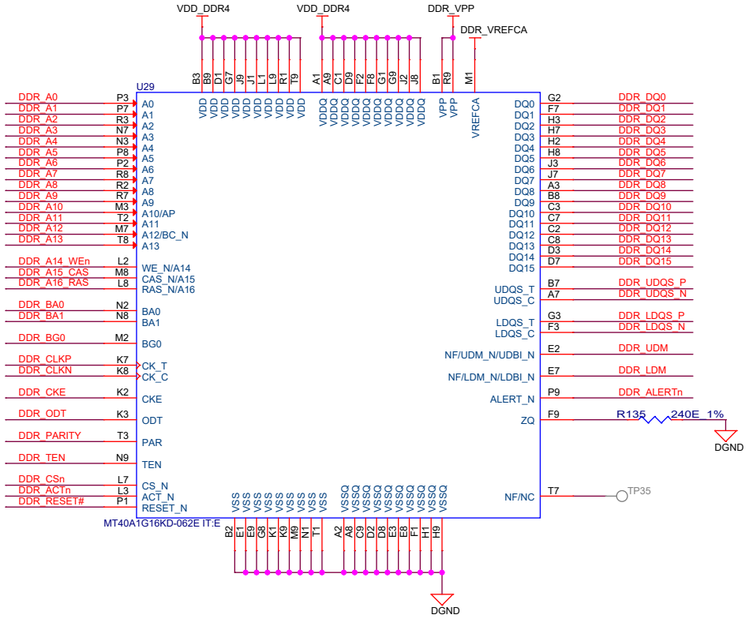
SOC DDR INTERFACE

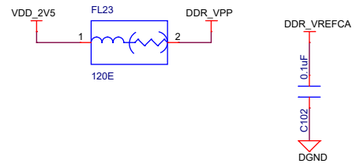
NOTE: DDR DQ Lines Swapped
Within Data Byte

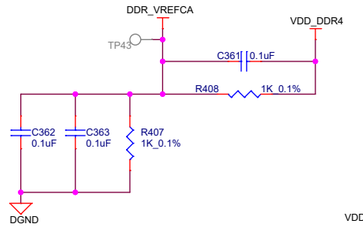


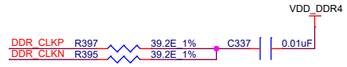


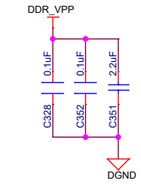
DDR4 DEVICE

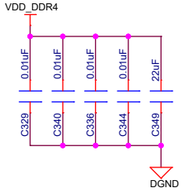


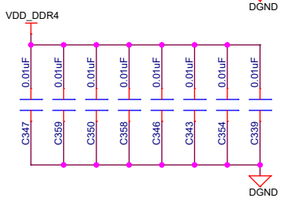


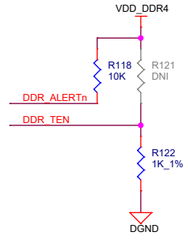


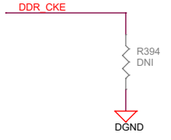








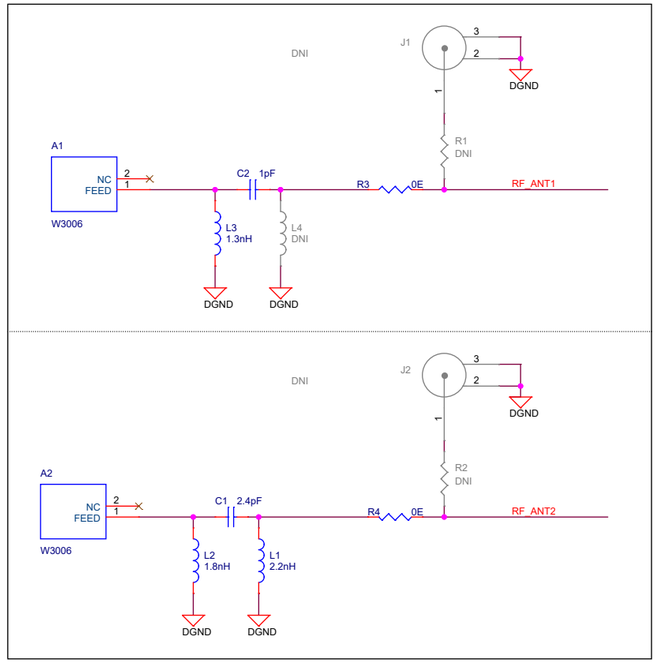


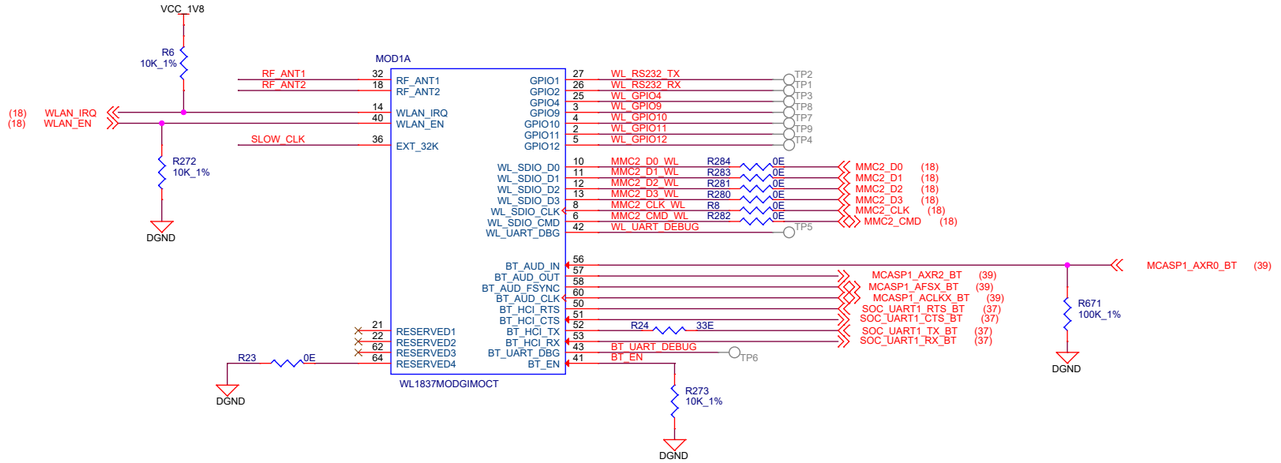


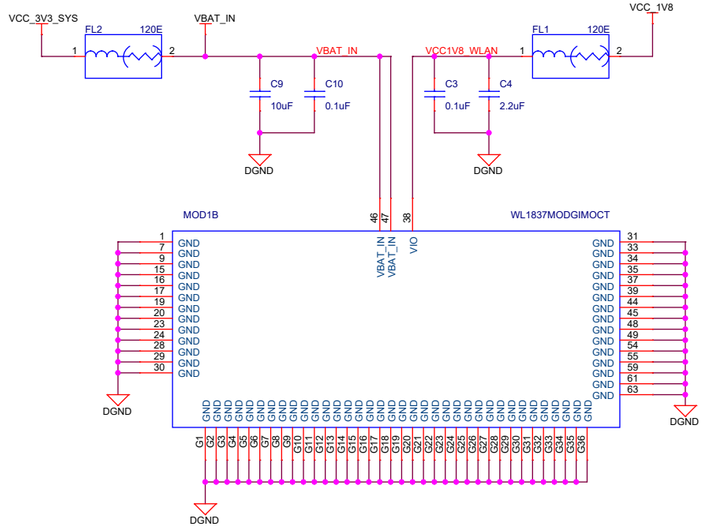
Designed for TI by Mistral Solutions Pvt Ltd

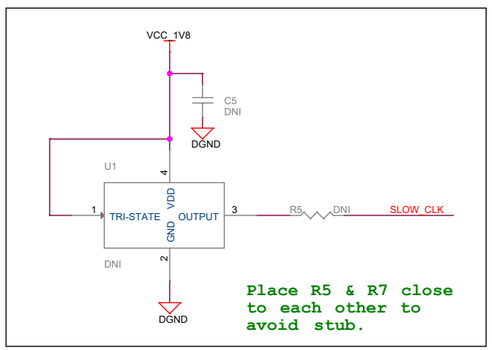
Title	DDR4 Interface	
Size C	Variant Name = PROC142E1	Rev E1
Date: Wednesday, April 20, 2022	Sheet 16 of 44	

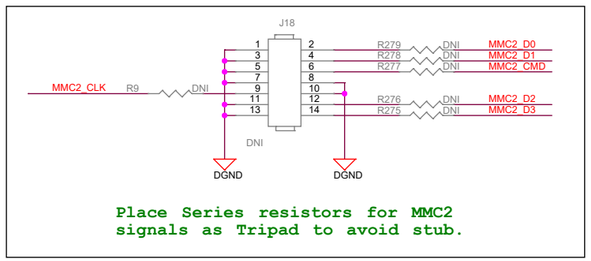
WL1837 MODULE

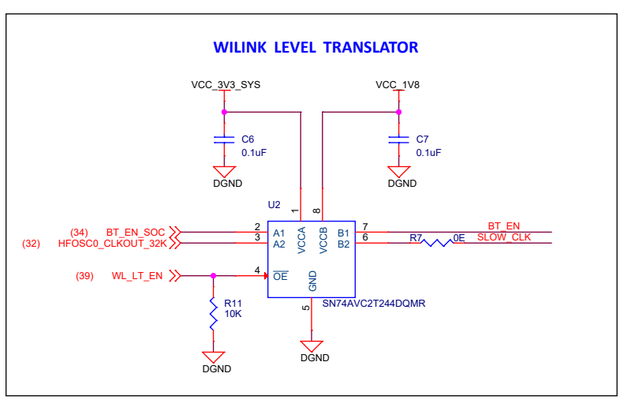


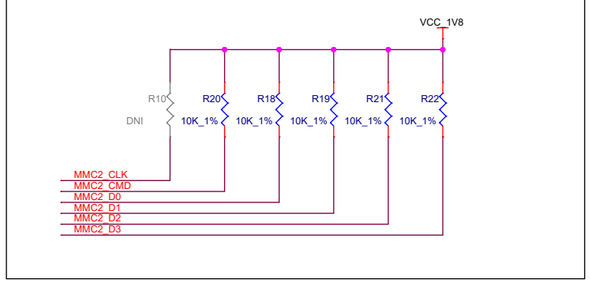








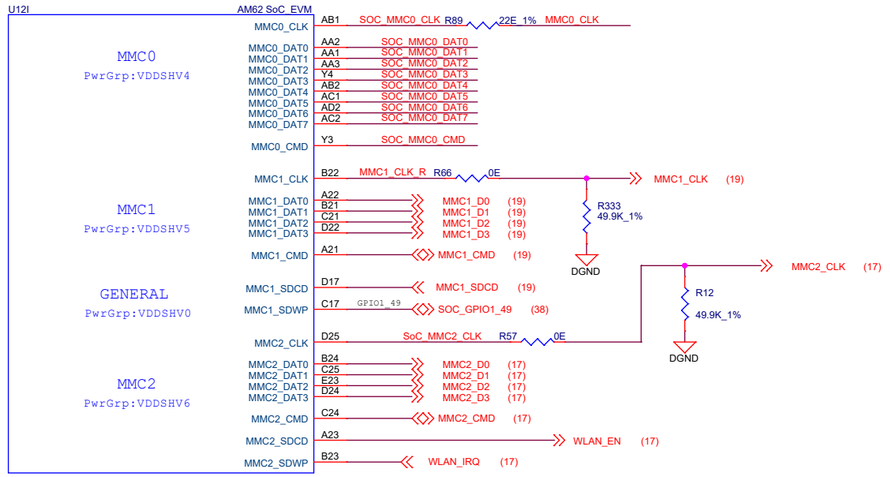




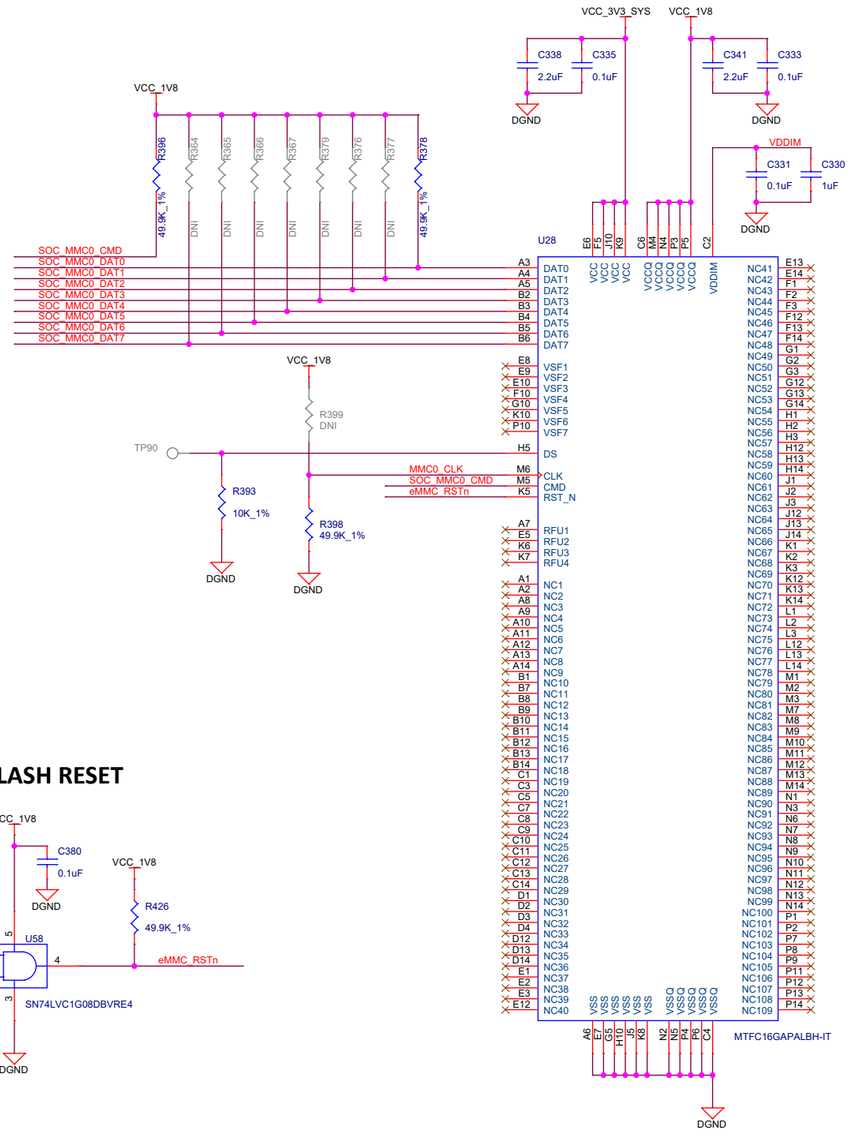
Designed for TI by Mistral Solutions Pvt Ltd

Title	WL1837 MODULE		
Size	PROC142E1		Rev
C			E1
Date:	Wednesday, April 20, 2022	Sheet 17 of 44	

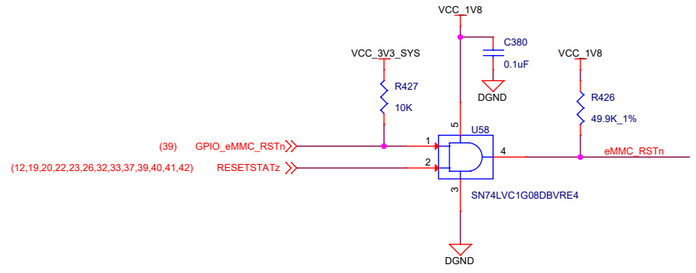
SOC - MMC Interface



eMMC FLASH



eMMC FLASH RESET

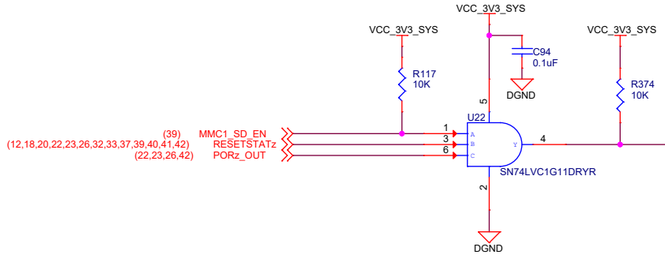


Designed for TI by Mistral Solutions Pvt Ltd

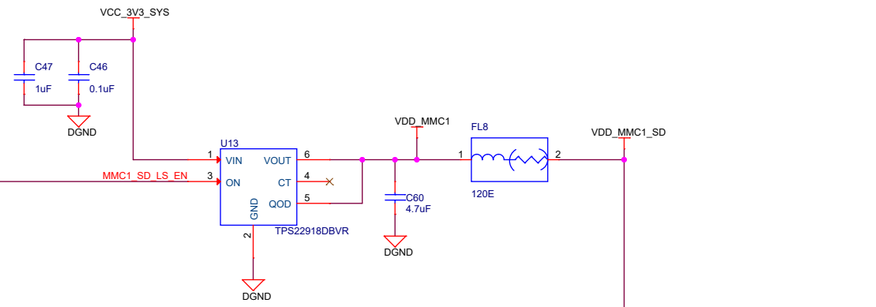
Title	eMMC FLASH INTERFACE	
Size C	PROC142E1	Rev E1
Date: Wednesday, April 20, 2022	Sheet 18 of 44	

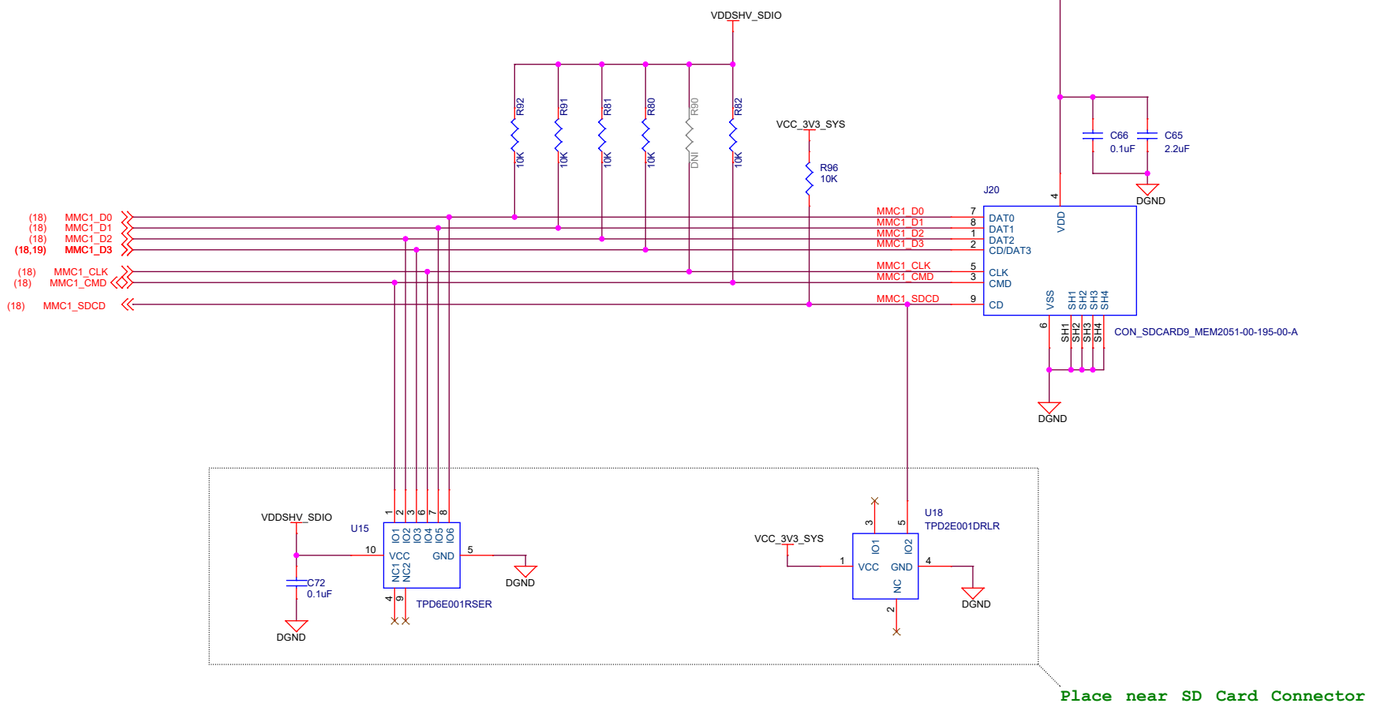
SD CARD INTERFACE

SD CARD RESET



LOAD SWITCH

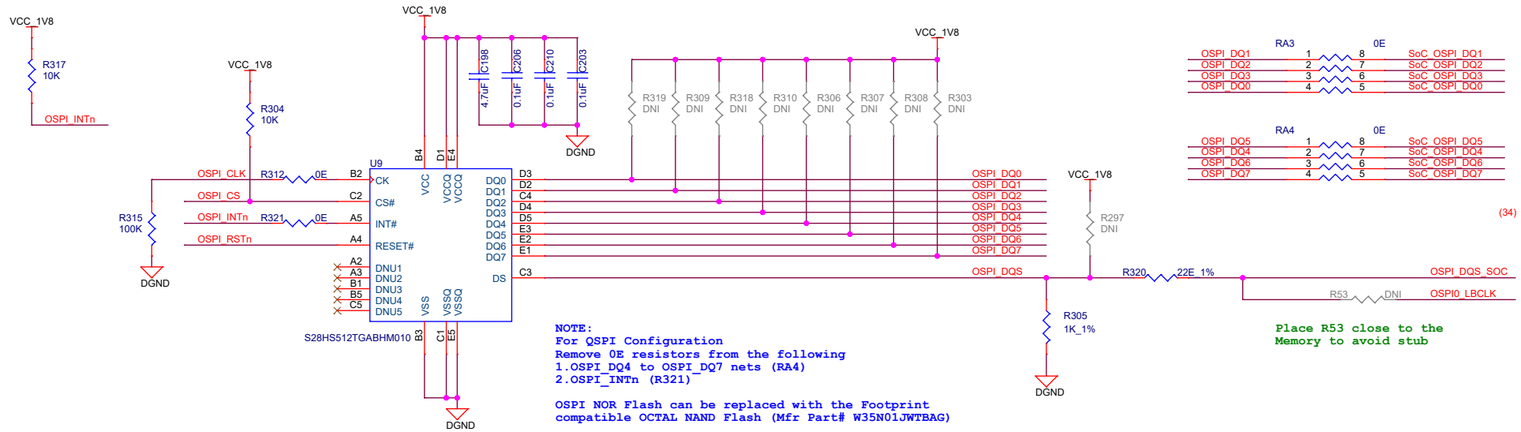




Designed for TI by Mistral Solutions Pvt Ltd

Title	SD CARD INTERFACE	
Size: C	PROC142E1	Rev: E1
Date: Wednesday, April 20, 2022	Sheet 19 of 44	

OSPI FLASH



RA3

OSPI_DQ1	1	8	SoC_OSPI_DQ1
OSPI_DQ2	2	7	SoC_OSPI_DQ2
OSPI_DQ3	3	6	SoC_OSPI_DQ3
OSPI_DQ0	4	5	SoC_OSPI_DQ0

0E

RA4

OSPI_DQ5	1	8	SoC_OSPI_DQ5
OSPI_DQ4	2	7	SoC_OSPI_DQ4
OSPI_DQ6	3	6	SoC_OSPI_DQ6
OSPI_DQ7	4	5	SoC_OSPI_DQ7

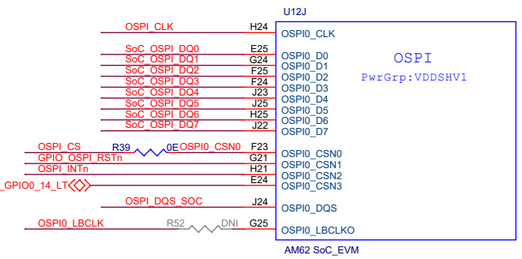
0E

NOTE:
For QSPI Configuration
Remove 0E resistors from the following
1.OSPI_DQ4 to OSPI_DQ7 nets (RA4)
2.OSPI_INTn (R321)

OSPI NOR Flash can be replaced with the Footprint
compatible OCTAL NAND Flash (Mfr Part# W35N01JWTBAG)

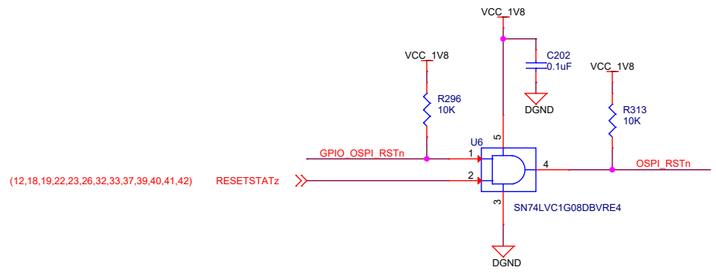
Place R53 close to the
Memory to avoid stub

SOC OSPI INTERFACE



Place R52 close to the SOC Ball
with as little trace as possible

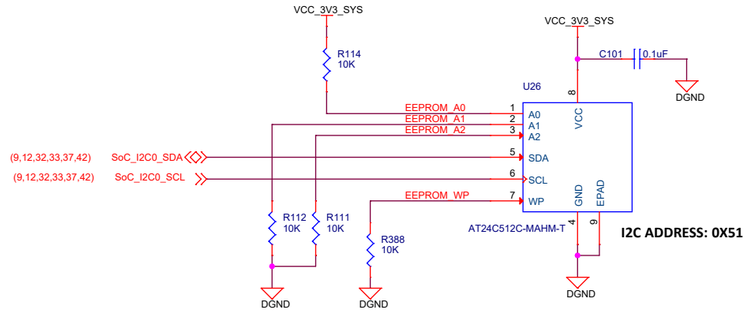
OSPI FLASH RESET



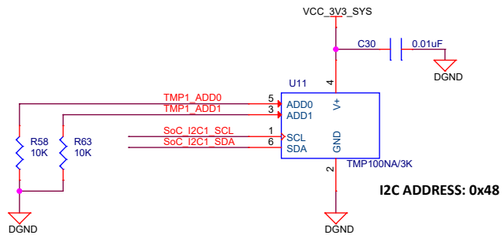
Designed for TI by Mistral Solutions Pvt Ltd

Title	OSPI INTERFACE	
Size C	PROC142E1	Rev E1
Date: Wednesday, April 20, 2022	Sheet 20 of 44	

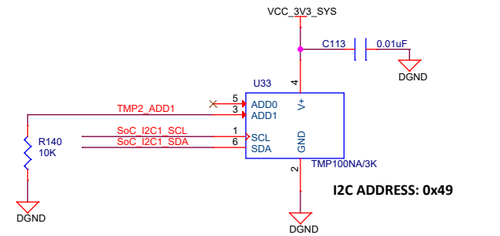
BOARD ID EEPROM



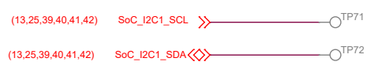
TEMPERATURE SENSORS



CAD NOTE: PLACE TEMP SENSOR U11 CLOSE TO SoC



CAD NOTE: PLACE TEMP SENSOR U33 CLOSE TO DDR4

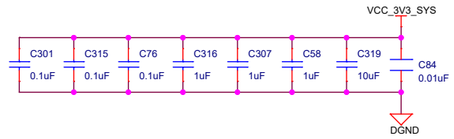


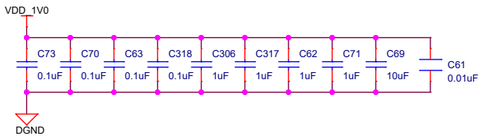
Silk: SOC_I2C1

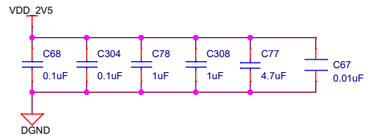
Designed for TI by Mistral Solutions Pvt Ltd

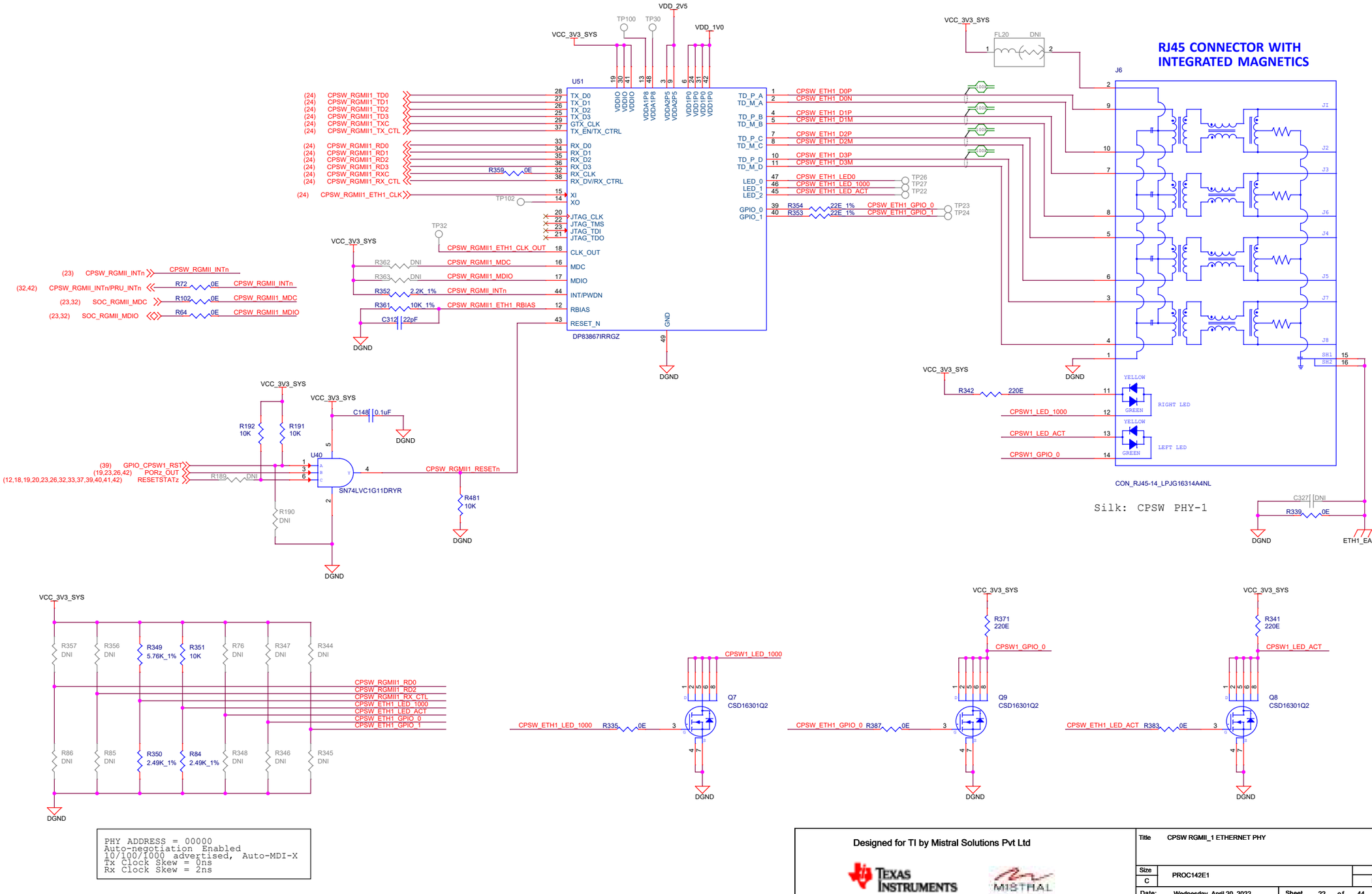
Title	BOARD ID EEPROM & TEMPERATURE SENSORS	
Size: C	PROC142E1	Rev: E1
Date: Wednesday, April 20, 2022	Sheet 21 of 44	

CPSW RGMII 1 - PHY







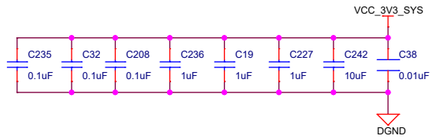


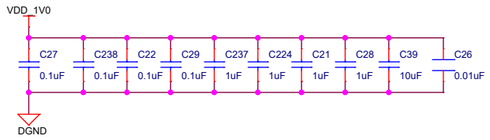
PHY ADDRESS = 00000
Auto-negotiation Enabled
10/100/1000 advertised, Auto-MDI-X
Tx Clock Skew = 0ns
Rx Clock Skew = 2ns

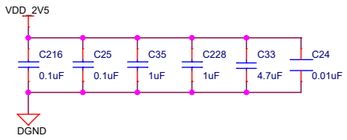
Designed for TI by Mistral Solutions Pvt Ltd

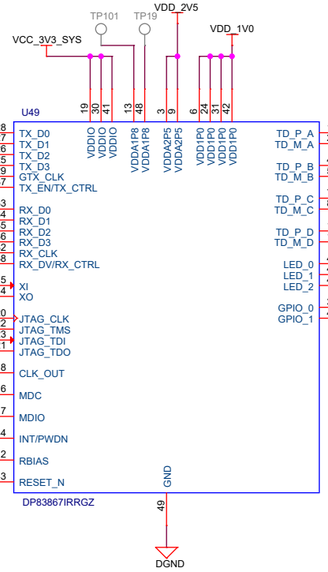
Title	CPSW RGMII_1 ETHERNET PHY	
Size C	PROC142E1	Rev E1
Date: Wednesday, April 20, 2022	Sheet 22 of 44	

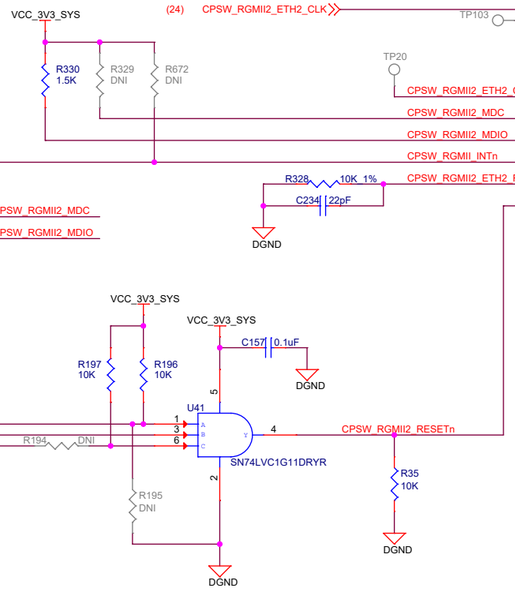
CPSW RGMII 2 - PHY

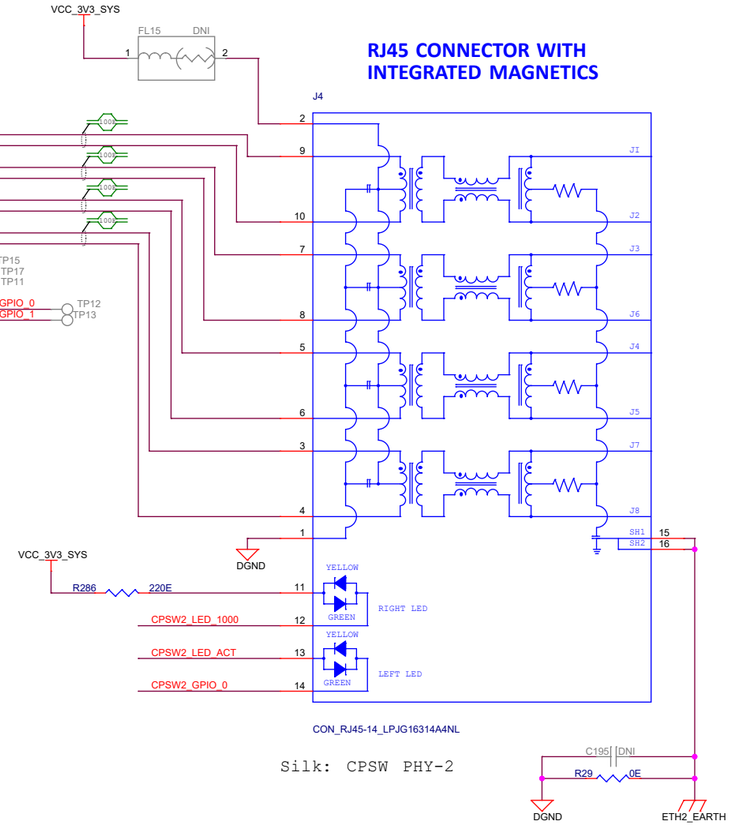




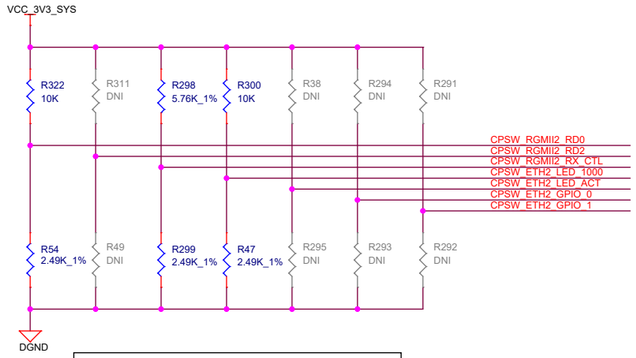


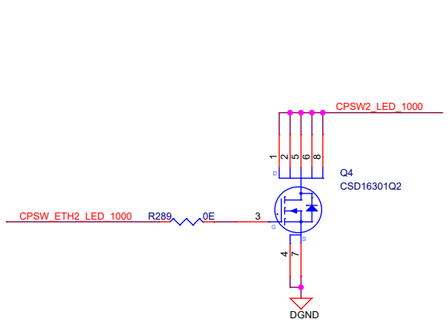


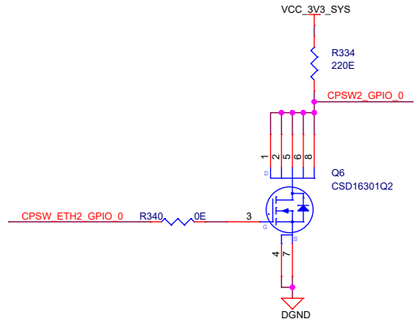


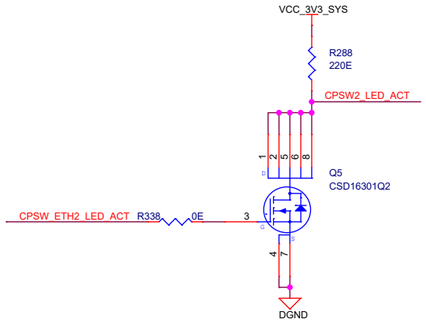


Silk: CPSW PHY-2










```
PHY ADDRESS = 00001
Auto-negotiation  Enabled
10/100/1000 advertised,  Auto-MDI-X
Tx Clock Skew = 0ns
Rx Clock Skew = 2ns
```

Designed for TI by Mistral Solutions Pvt Ltd

Title	CPSW RGMII_2 ETHERNET PHY		
Size	PROC142E1		Rev
C			E1
Date:	Wednesday, April 20, 2022	Sheet 23 of 44	

AM62 SoC_EVM

U12M

RGMII1
PwrGrp:VDDSHV2

RGMII1_RD0	AB17	CPSW_RGMII1_RD0	(22)
RGMII1_RD1	AC17	CPSW_RGMII1_RD1	(22)
RGMII1_RD2	AB16	CPSW_RGMII1_RD2	(22)
RGMII1_RD3	AA15	CPSW_RGMII1_RD3	(22)
RGMII1_RXC	AD17	CPSW_RGMII1_RXC	(22)
RGMII1_RX_CTL	AE17	CPSW_RGMII1_RX_CTL	(22)
RGMII1_TD0	AE20	CPSW_RGMII1_TD0	(22)
RGMII1_TD1	AD20	CPSW_RGMII1_TD1	(22)
RGMII1_TD2	AE18	CPSW_RGMII1_TD2	(22)
RGMII1_TD3	AD18	CPSW_RGMII1_TD3	(22)
RGMII1_TXC	AE19 — R360 0E	CPSW_RGMII1_TXC	(22)
RGMII1_TX_CTL	AD19	CPSW_RGMII1_TX_CTL	(22)

RGMII2
PwrGrp:VDDSHV2

RGMII2_RD0	AE23	CPSW_RGMII2_RD0	(23)
RGMII2_RD1	AB20	CPSW_RGMII2_RD1	(23)
RGMII2_RD2	AC21	CPSW_RGMII2_RD2	(23)
RGMII2_RD3	AE22	CPSW_RGMII2_RD3	(23)
RGMII2_RXC	AD23	CPSW_RGMII2_RXC	(23)
RGMII2_RX_CTL	AD22	CPSW_RGMII2_RX_CTL	(23)
RGMII2_TD0	Y18	CPSW_RGMII2_TD0	(23)
RGMII2_TD1	AA18	CPSW_RGMII2_TD1	(23)
RGMII2_TD2	AD21	CPSW_RGMII2_TD2	(23)
RGMII2_TD3	AC20	CPSW_RGMII2_TD3	(23)
RGMII2_TXC	AE21 — R65 0E	CPSW_RGMII2_TXC	(23)
RGMII2_TX_CTL	AA19	CPSW_RGMII2_TX_CTL	(23)

ETHERNET PHY CLOCK BUFFER

VCC_1V8 — FL22 120E — VCC1V8_CLKBUF

C326 0.1uF, C325 0.1uF, C324 1uF — DGND

VCC1V8_CLKBUF — R380 10K

(42) CLKOUT0 → U52 LMK1C1103PWR

CLKIN, 1G, NC; VDD, GND; Y0, Y1, Y2

R372 22E 1%, R382 22E 1%, R369 22E 1%

SoC_CLKIN (34)
CPSW_RGMII1_ETH1_CLK (22)
CPSW_RGMII2_ETH2_CLK (23)

C322 DNI, R368 DNI — DGND

LED DRIVER

VCC_3V3_SYS

R175 220E	LD9 150040VS73220	GREEN
R171 220E	LD8 150040RS73220	RED
R170 220E	LD7 150040VS73220	GREEN
R168 220E	LD6 150040AS73220	AMBER
R159 220E	LD2 150040VS73220	GREEN
R161 220E	LD3 150040RS73220	RED
R166 220E	LD4 150040VS73220	GREEN
R167 220E	LD5 150040AS73220	AMBER

VCC_3V3_SYS — C375 0.1uF — DGND

U38 TPIC2810D

A0, A1, A2; SCL, SDA, G; VCC, GND; DRAIN0–DRAIN7

(32) WKUP_I2C0_SCL
(32) WKUP_I2C0_SDA

R160 10K, R162 10K, R169 10K — DGND

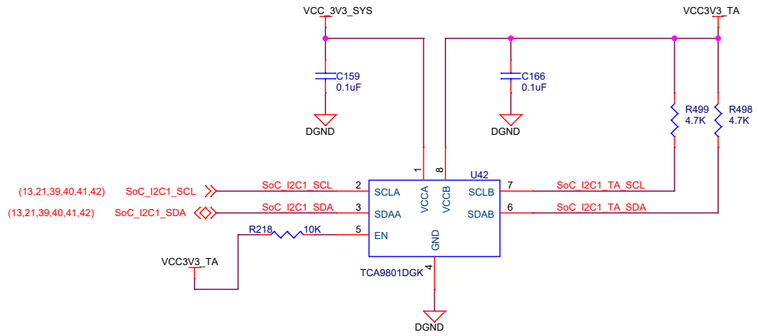
LED1 → LD9
LED2 → LD8
LED3 → LD7
LED4 → LD6
LED5 → LD2
LED6 → LD3
LED7 → LD4
LED8 → LD5

I2C ADDRESS: 0x60

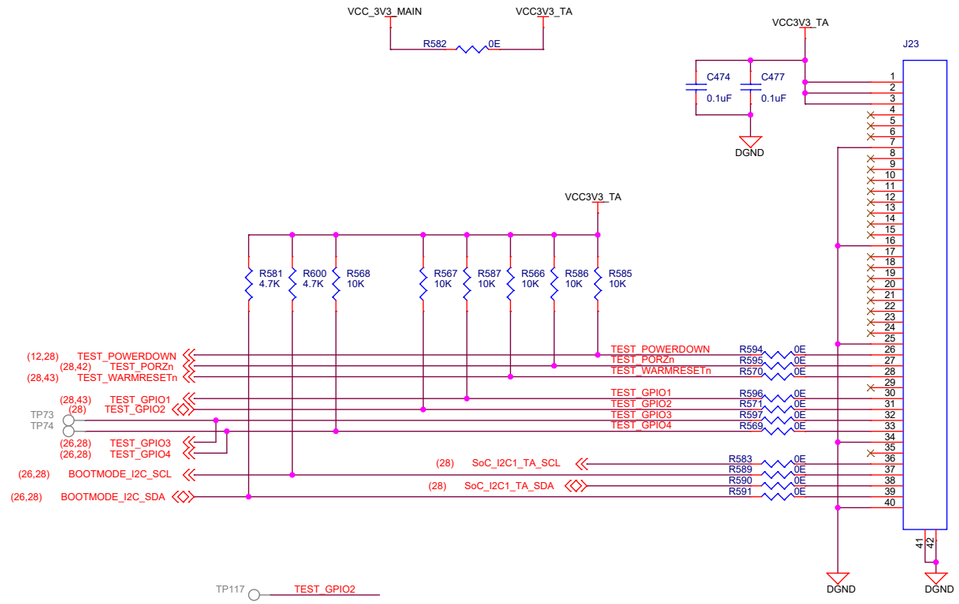
Designed for TI by Mistral Solutions Pvt Ltd

Title	ETHERNET PHY CLOCK BUFFER & LED DRIVER		
Size	PROC142E1		Rev
C			E1
Date:	Wednesday, April 20, 2022	Sheet 24 of 44	

I2C BUS BUFFER



40-PIN TEST AUTOMATION HEADER



CON_FLEX_40X1_FH12A-40S-0.5SH

Silk: AUTOMATION HDR

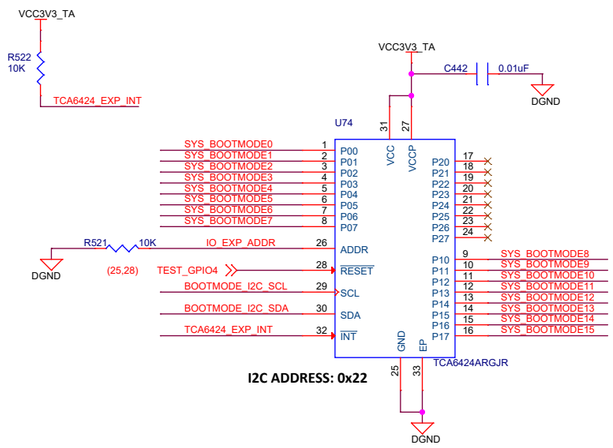
TEST AUTOMATION GPIO MAPPING

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 MCU_GPIO0_15 Pin	OUTPUT	External Pullup
TEST_GPIO2	Connected to a Testpoint	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

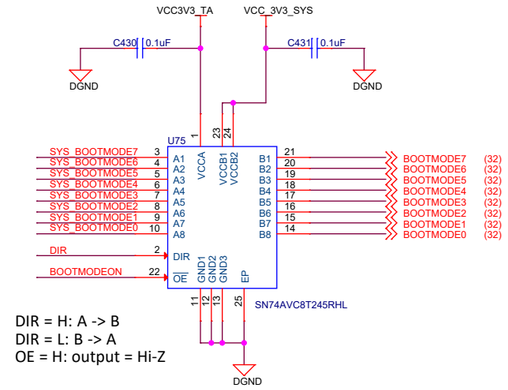
Designed for TI by Mistral Solutions Pvt Ltd

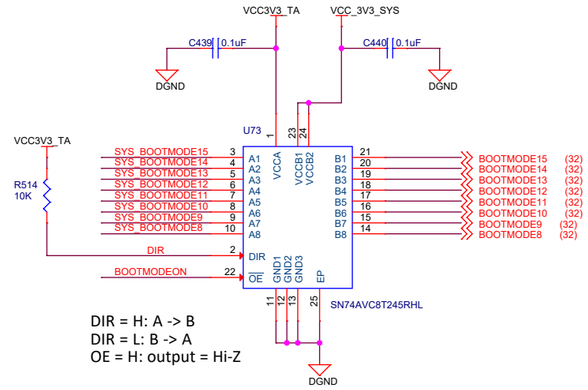
Title	TEST AUTOMATION	
Size C	PROC142E1	Rev E1
Date: Wednesday, April 20, 2022	Sheet 25 of 44	

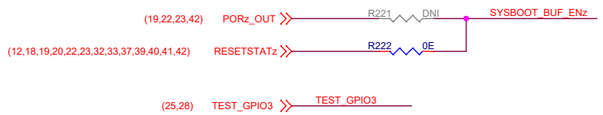
BOOTMODE IO EXPANDER

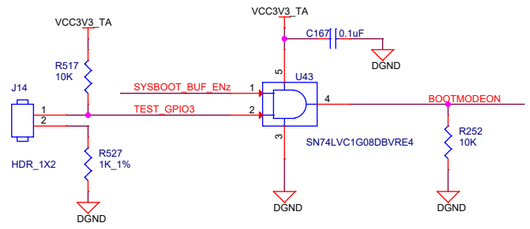


BOOT MODE BUFFERS

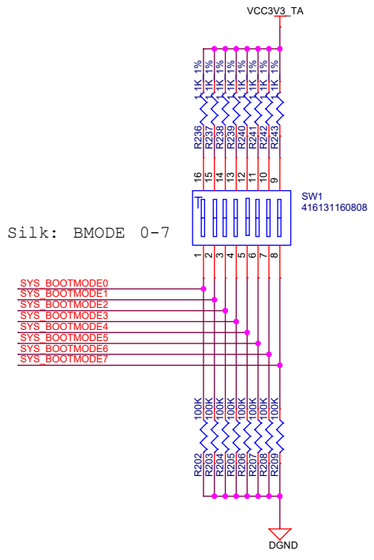




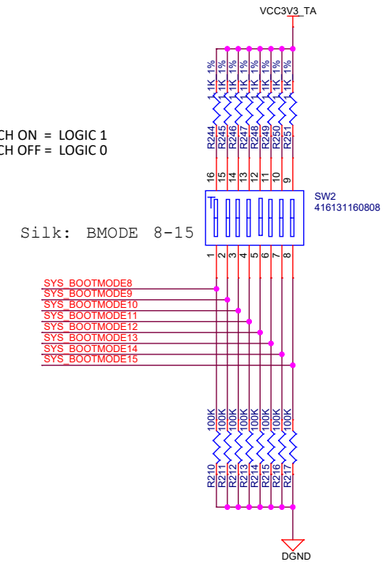




BOOT MODE SWITCHES



SWITCH ON = LOGIC 1
SWITCH OFF = LOGIC 0



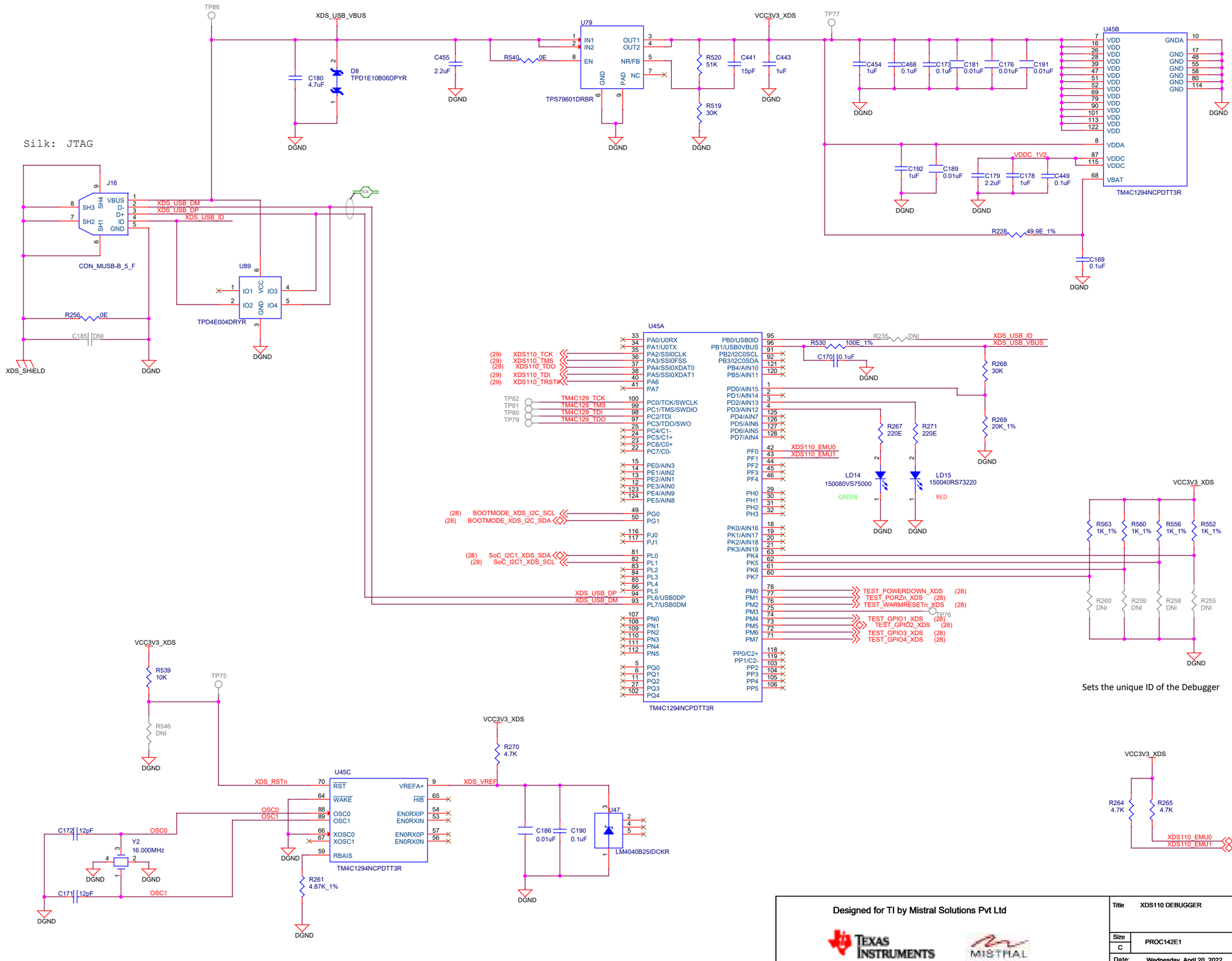
BOOT MODES SUPPORTED

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

Designed for TI by Mistral Solutions Pvt Ltd

Title	BOOT MODE BUFFER & SWITCHES		
Size C	PROC142E1		Rev E1
Date:	Wednesday, April 20, 2022	Sheet 26 of 44	

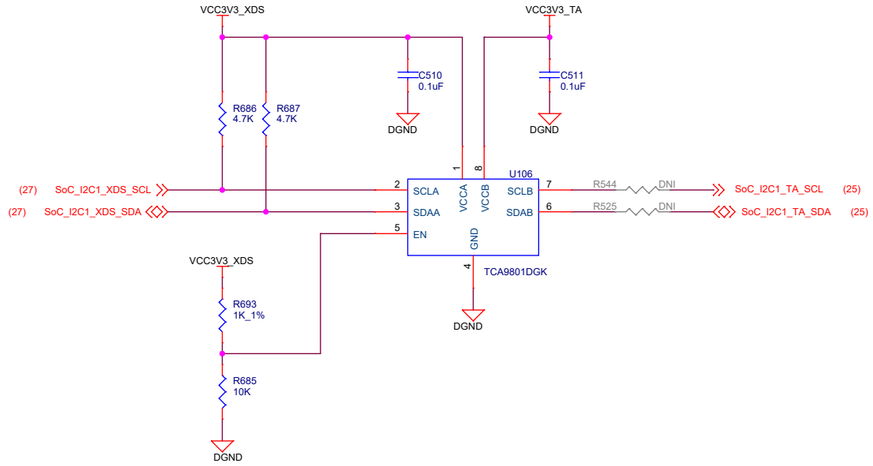
XDS110 DEBUGGER



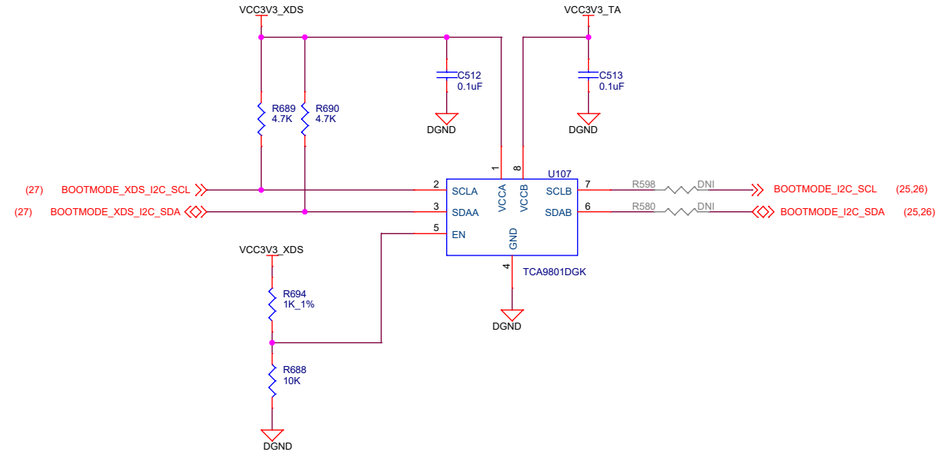
Designed for TI by Mistral Solutions Pvt Ltd

Title	XDS110 DEBUGGER		
Size	PROC142E1		Rev
C			E1
Date:	Wednesday, April 20, 2022	Sheet 27 of 44	

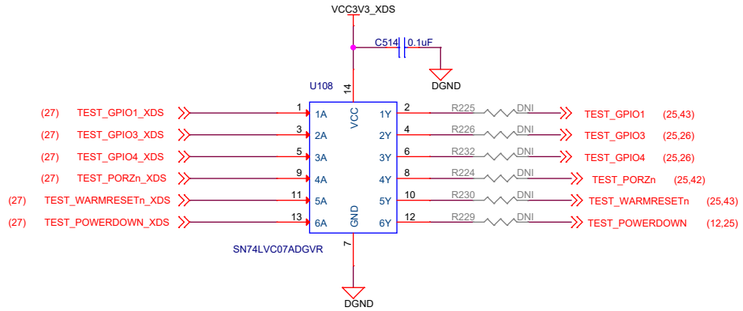
I2C_TA BUS BUFFER

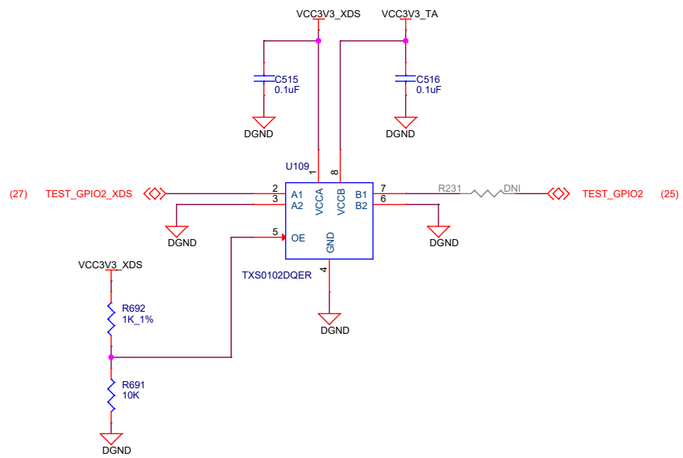


BOOTMODE_I2C_TA BUFFER



ISOLATION BUFFERS FOR TA SIGNALS



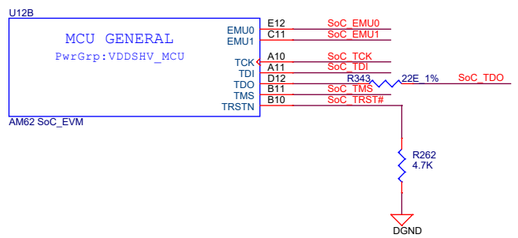


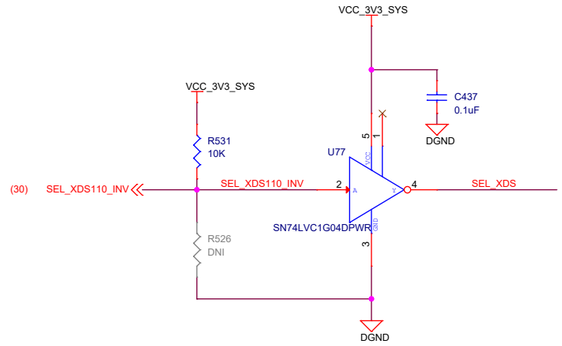
Pull ups(R567, R587, R517, R568, R585, R586 & R566) to VCC3V3_TA are present

Designed for TI by Mistral Solutions Pvt Ltd

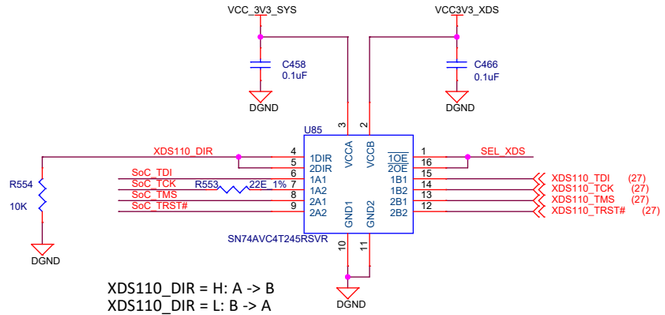
Title	AUTOMATION SIGNALS BUFFER	
Size	PROC142E1	Rev
C		E3
Date:	Wednesday, April 20, 2022	Sheet 28 of 44

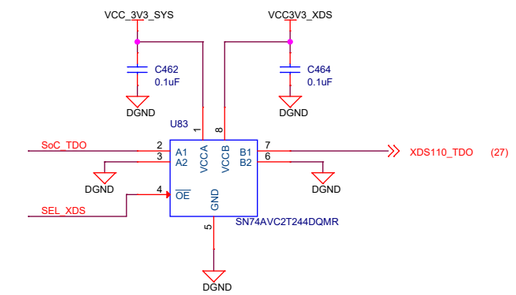
JTAG SOC SECTION

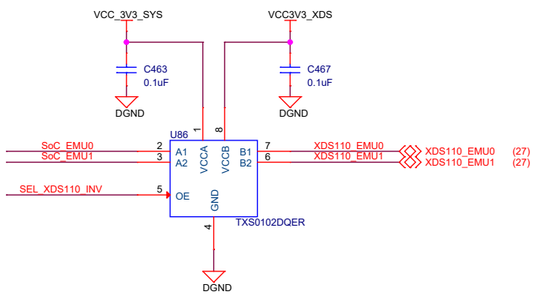




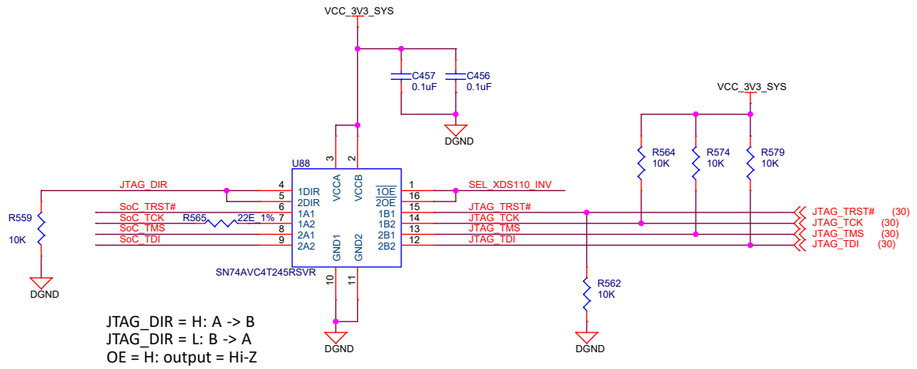
BUFFER XDS110

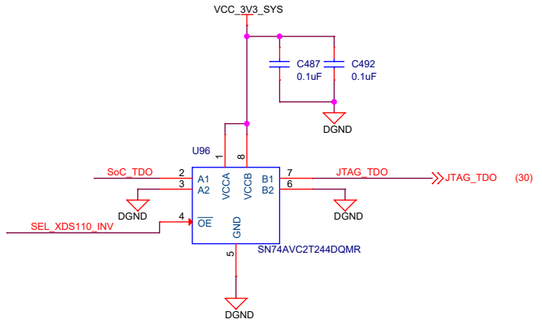




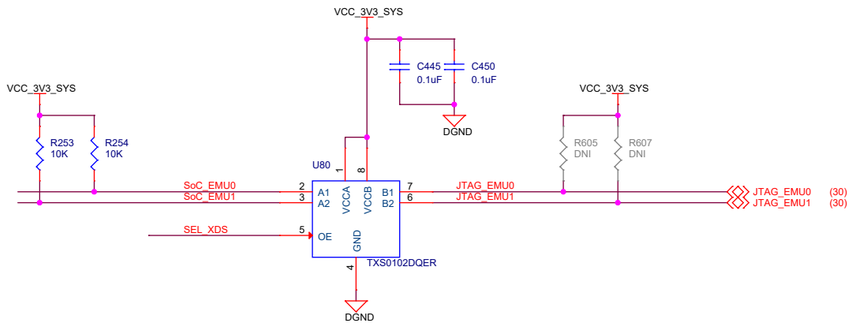


cTI20 JTAG BUFFERS





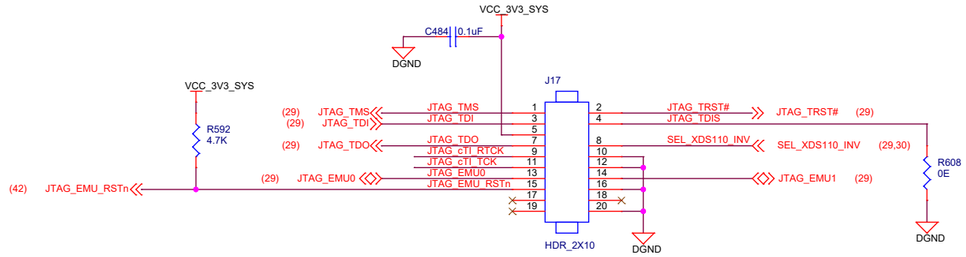
CAD NOTE: Buffers U88 and U96 need to be placed closer to the cTI-20pin connector J17 to reduce Stub length of the JTAG signals.



Designed for TI by Mistral Solutions Pvt Ltd

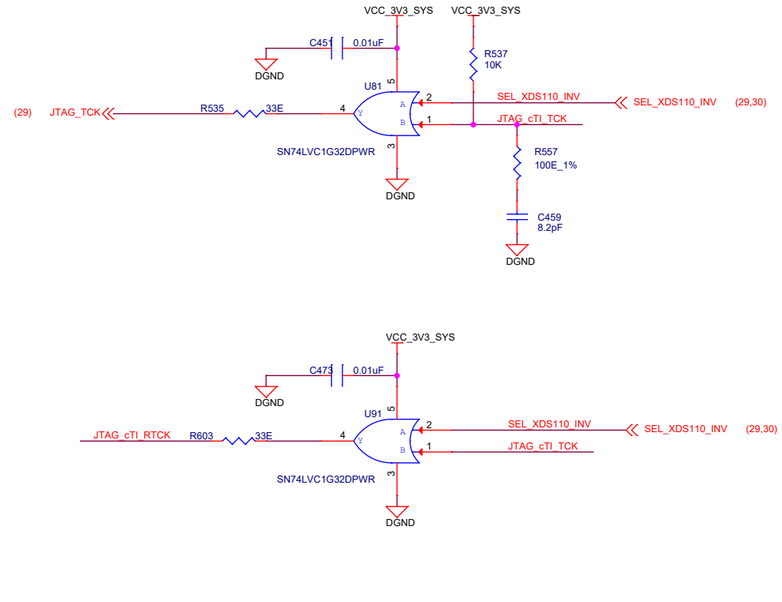
Title	JTAG BUFFER		
Size	PROC142E1		Rev
C			E1
Date:	Wednesday, April 20, 2022	Sheet 29 of 44	

JTAG 20 PIN cTI CONNECTOR



Silk: cTI

JTAG CLOCK BUFFER

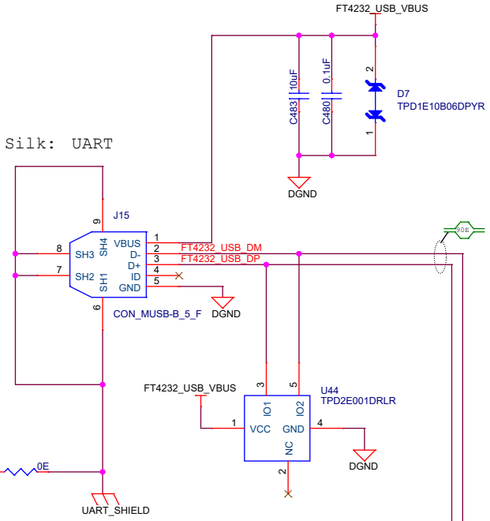


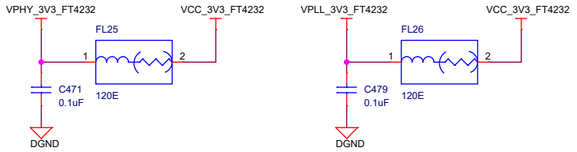
Designed for TI by Mistral Solutions Pvt Ltd

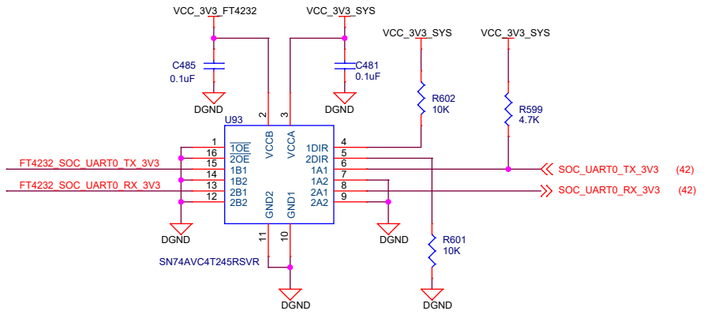
Title	JTAG 20 PIN cTI CONNECTOR		
Size	PROC142E1		Rev
C			E1
Date:	Wednesday, April 20, 2022	Sheet 30 of 44	

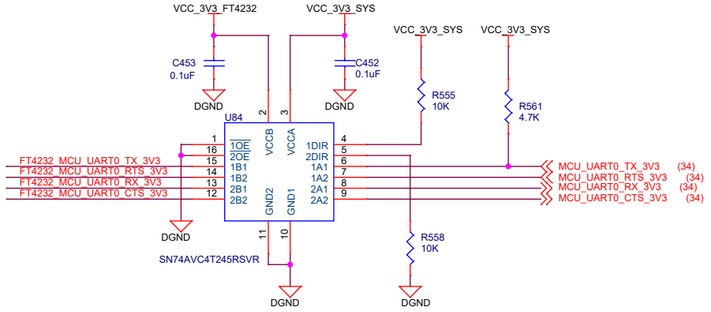
FT4232 UART

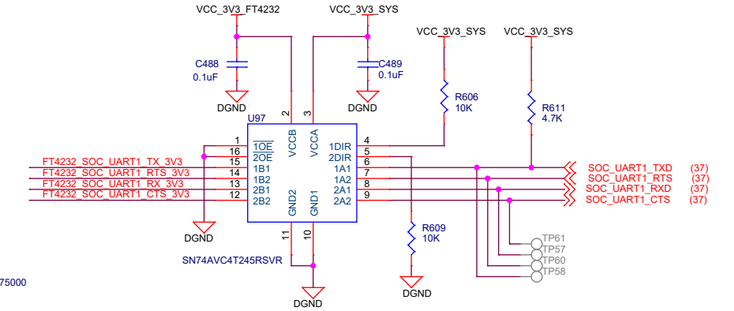
Silk: UART

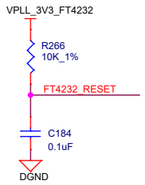


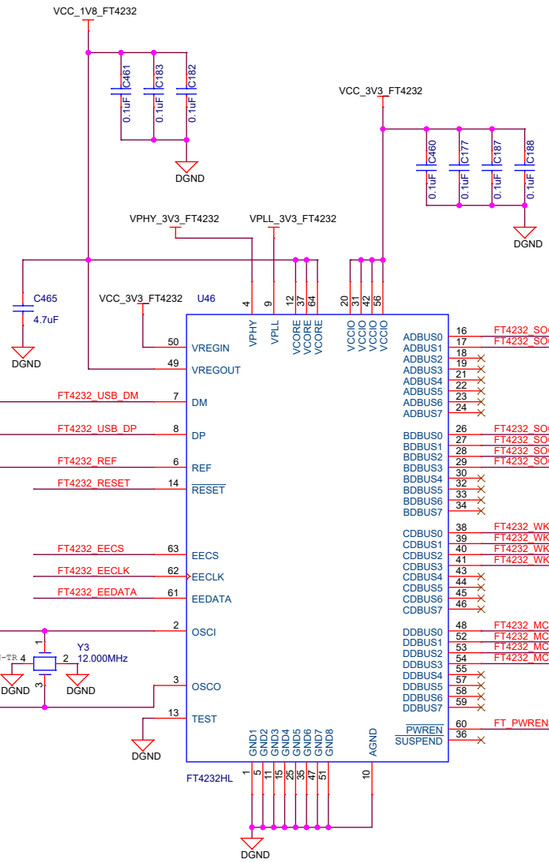




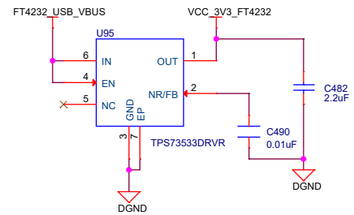




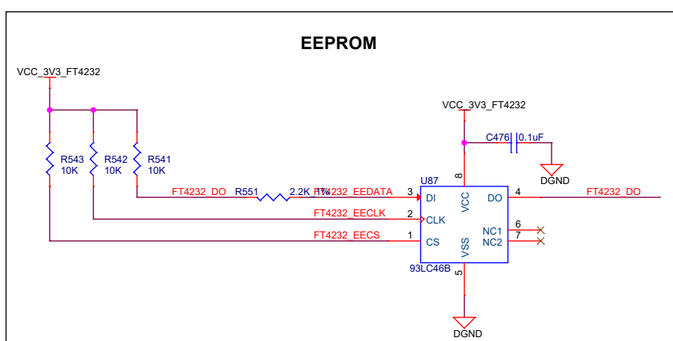




FT4232: 5V to 3.3V@500mA LDO



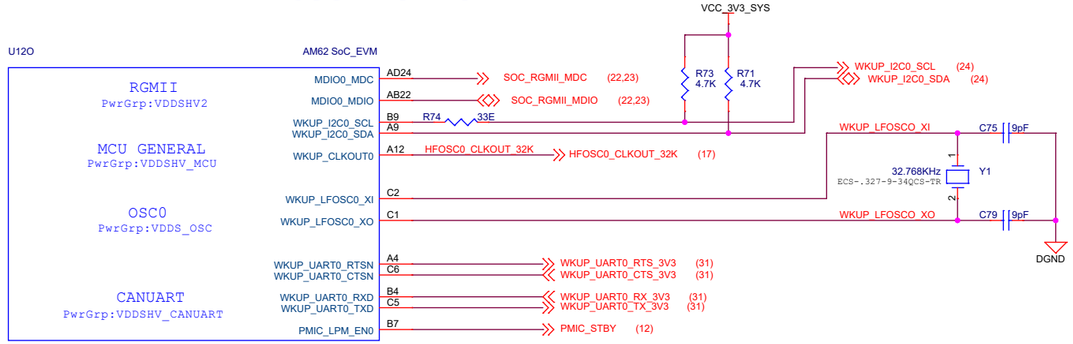
EEPROM



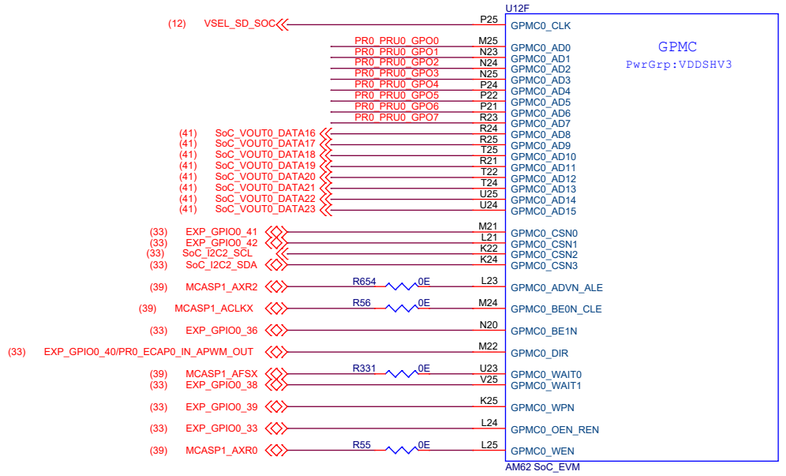
Designed for TI by Mistral Solutions Pvt Ltd

Title	FT4232 UART TO USB BRIDGE	
Size C	PROC142E1	Rev E1
Date: Wednesday, April 20, 2022	Sheet 31 of 44	

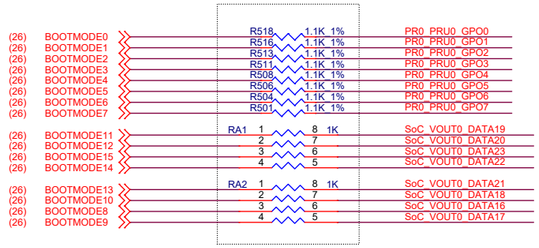
SOC WKUP DOMAIN



SOC GPMC

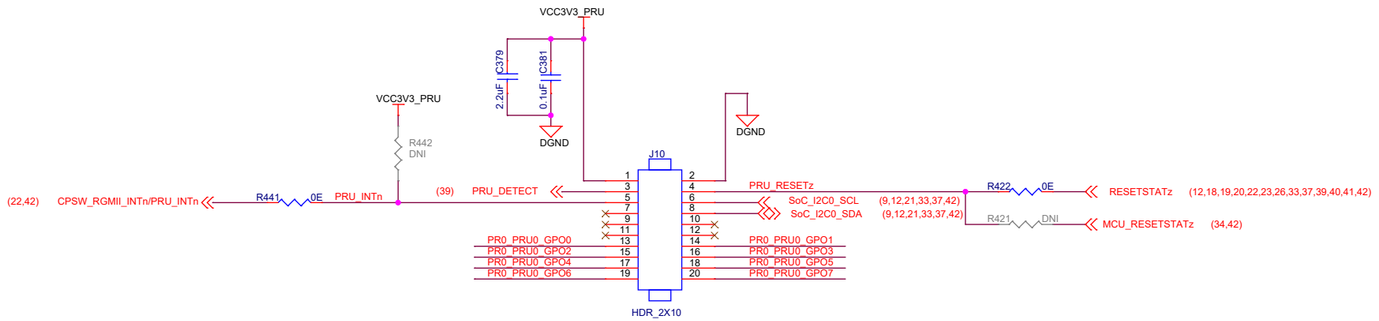


BOOTMODE PINS



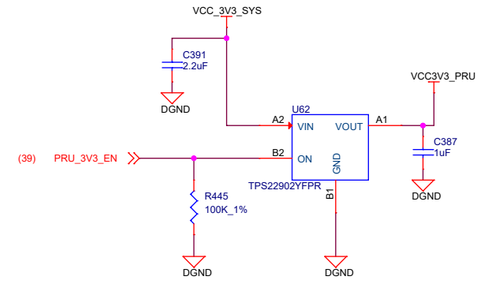
NOTE: Resistors are used to isolate the BOOTMODE control logic after the value is latched

PRU HEADER



Silk: PRU HDR

POWER SWITCH FOR PRU HEADER



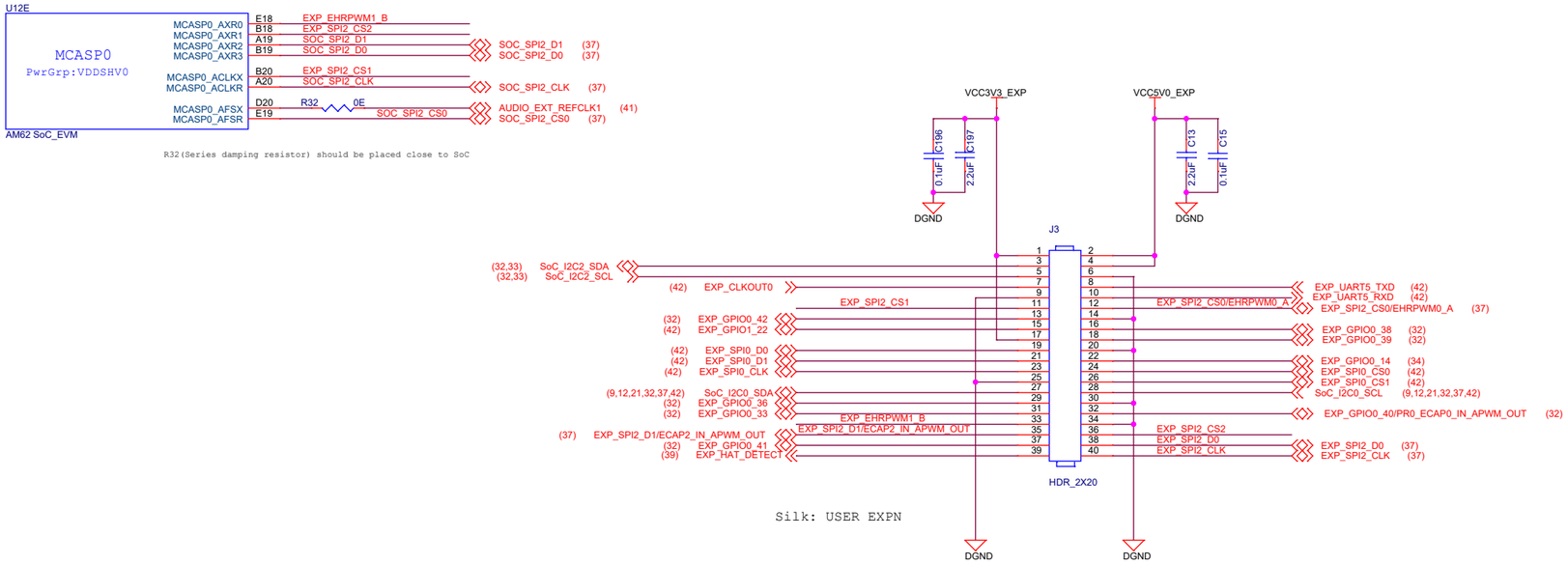
3V3 supply of PRU Header is limited to sourcing 500mA max.

NOTE: PRU Header I/O are not fail-safe and shall not be driven when AM62x Starter Kit is not powered.

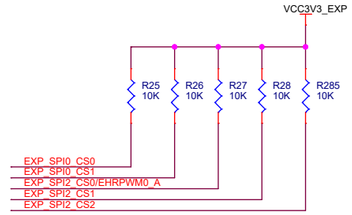
Designed for TI by Mistral Solutions Pvt Ltd

Title	PRU HEADER	
Size C	PROC142E1	Rev E1
Date: Wednesday, April 20, 2022	Sheet 32 of 44	

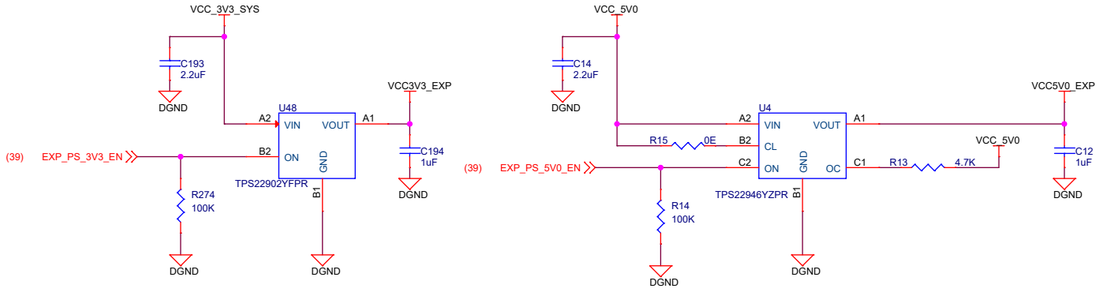
USER EXPANSION CONNECTOR



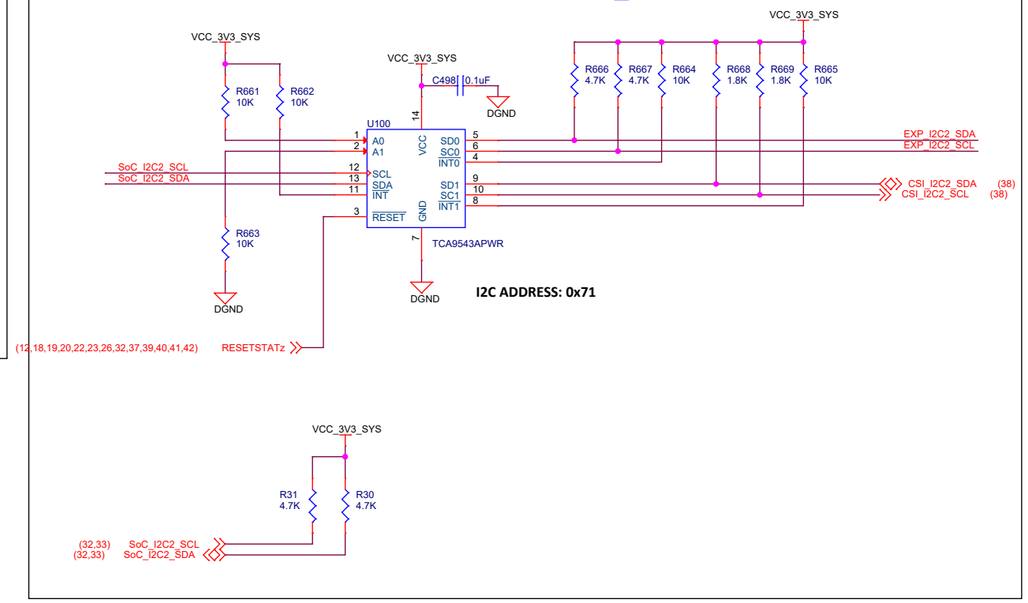
Note: Expansion boards should take care of the null modem connectivity for the UART signals (cross-over of Rx and Tx)



POWER SWITCHES FOR USER EXPANSION CONNECTOR



I2C SWITCH FOR SoC_I2C2



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.

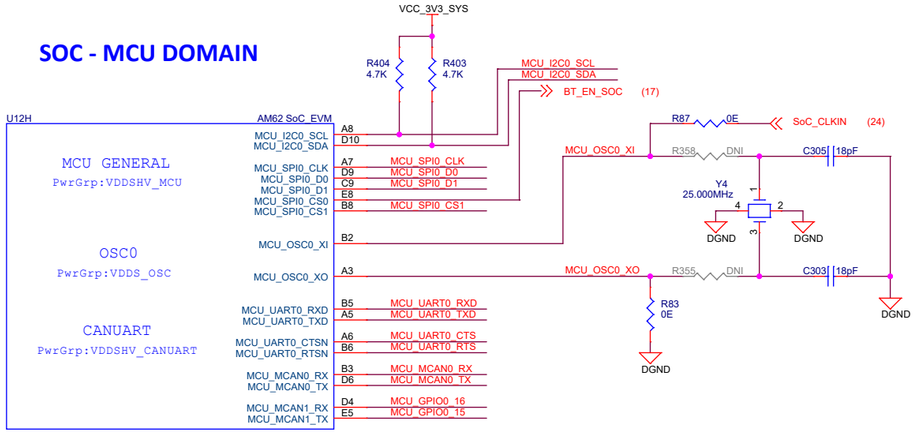
5V supply of User Expansion Connector is limited to sourcing 155mA max.

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

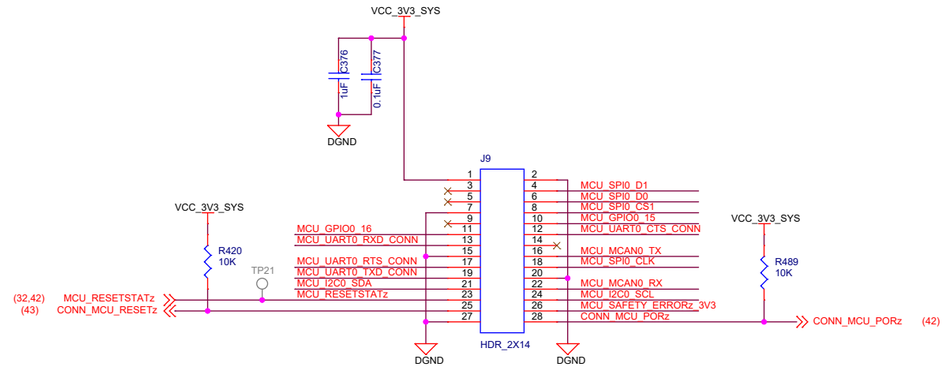
Designed for TI by Mistral Solutions Pvt Ltd

Title	USER EXPANSION CONNECTOR	
Size C	PROC142E1	Rev E1
Date: Wednesday, April 20, 2022	Sheet 33 of 44	

SOC - MCU DOMAIN

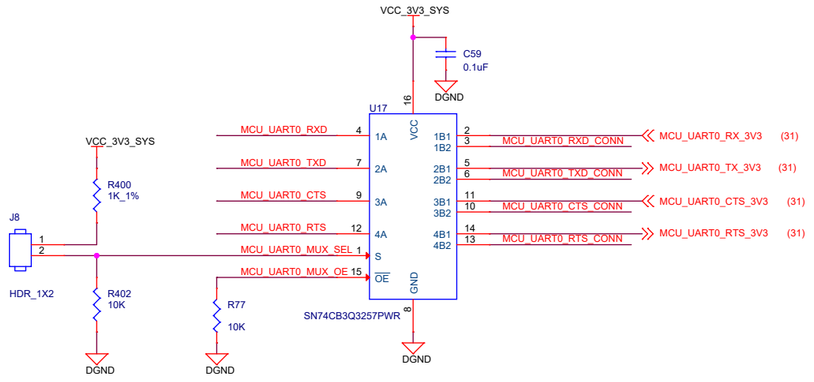


MCU HEADER

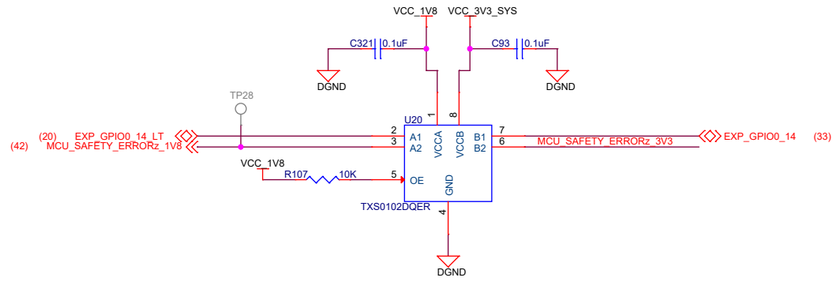


Silk: MCU HDR

MCU_UART0 MUX



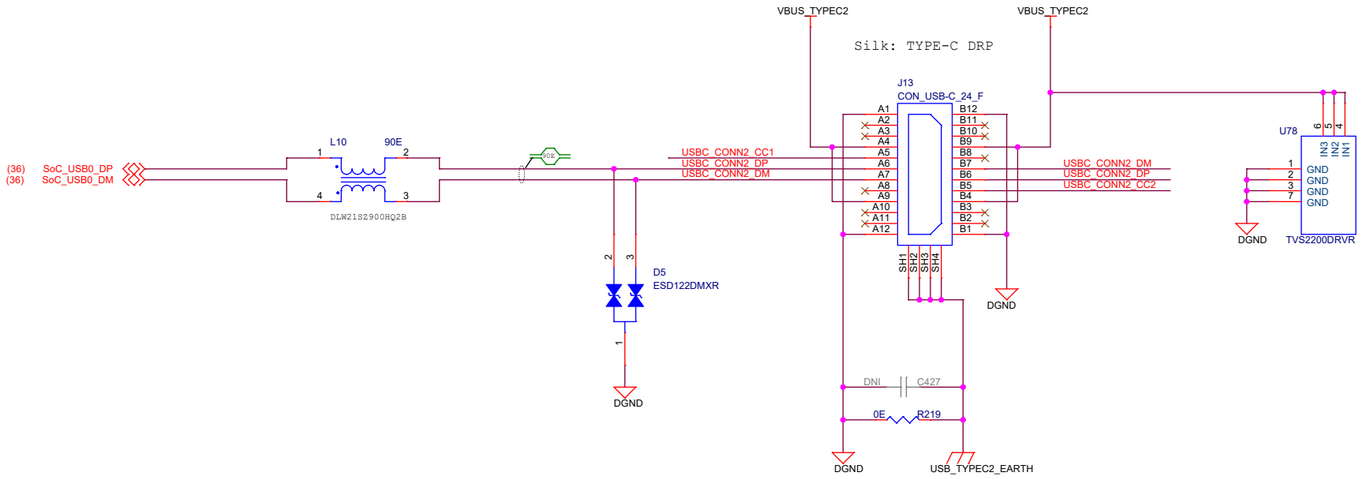
OEn	SEL	INPUT/OUTPUT An	
L	L(DEFAULT)	An=nB1	SOC - FT4232
L	H	An=nB2	SOC - MCU HEADER

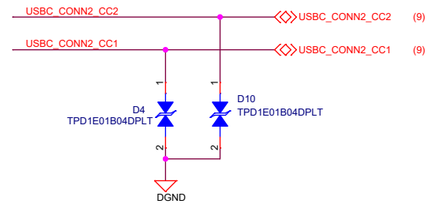


Designed for TI by Mistral Solutions Pvt Ltd

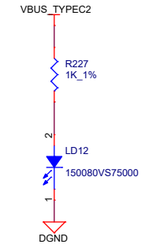
Title	MCU HEADER	
Size C	PROC142E1	Rev E1
Date: Wednesday, April 20, 2022	Sheet 34 of 44	

USB0 TYPE-C DRP

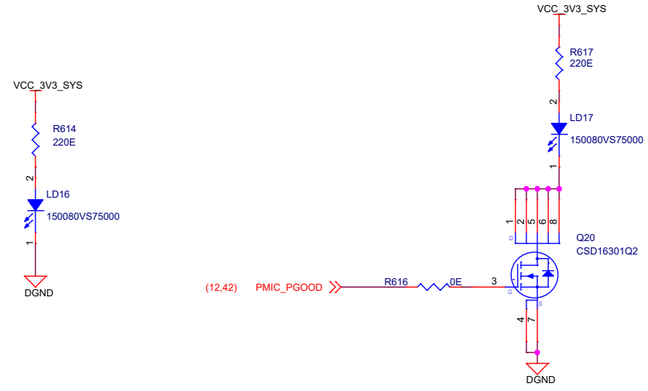




POWER INDICATION LED: VBUS_TYPEC2



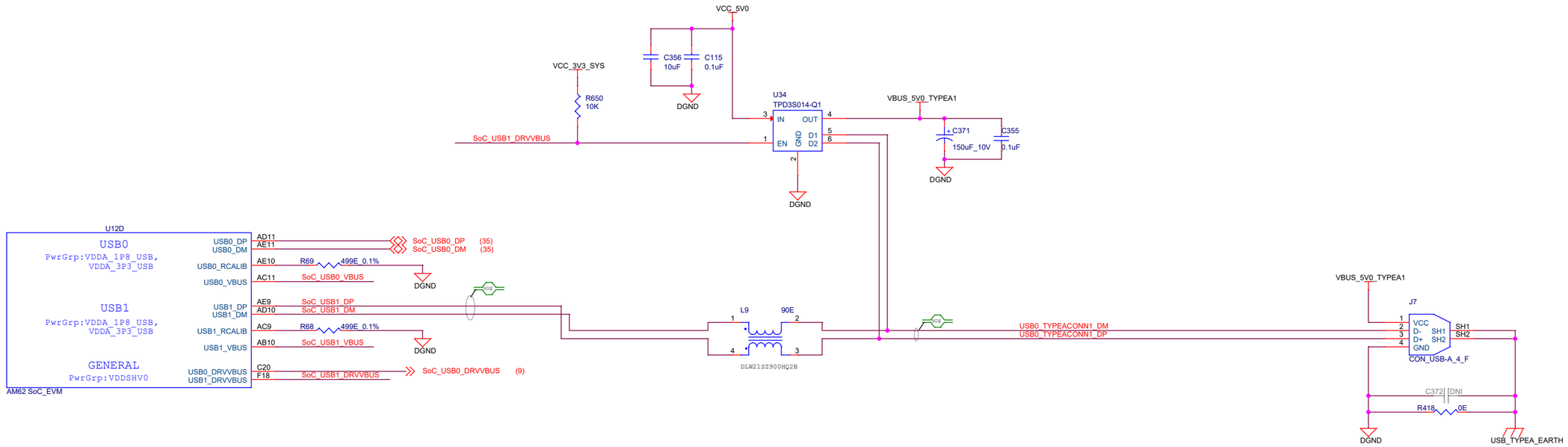
POWER RAIL LEDS



Designed for TI by Mistral Solutions Pvt Ltd

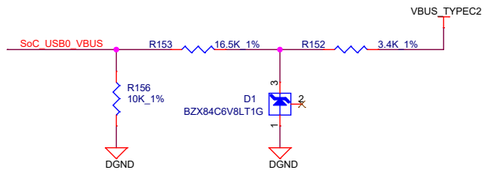
Title	USB0 TYPE-C DRP	
Size: C	PROC142E1	Rev: E1
Date: Wednesday, April 20, 2022	Sheet 35 of 44	

USB1 TYPE-A

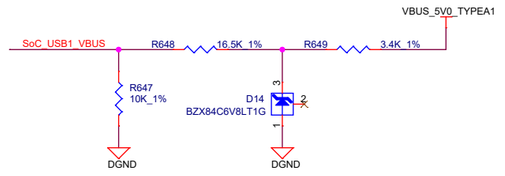


Silk: TYPE-A

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



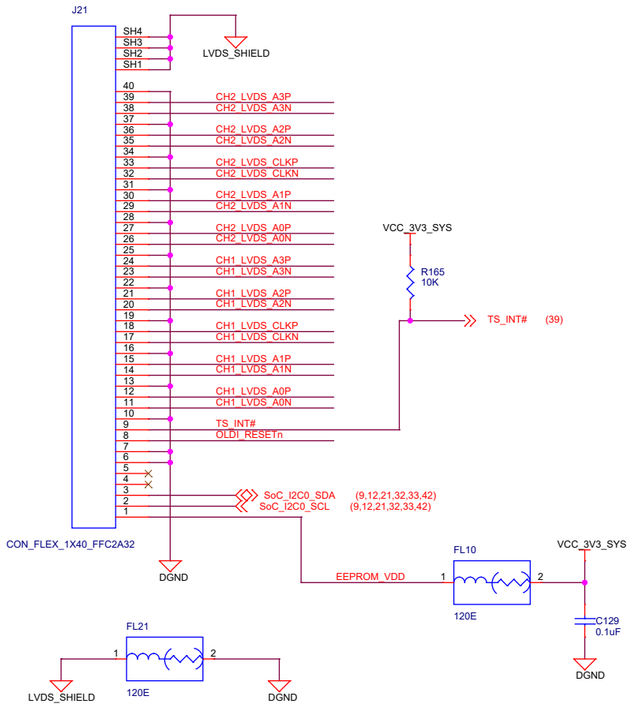
Note: Recommended VBUS circuit for SoC_USB1_VBUS



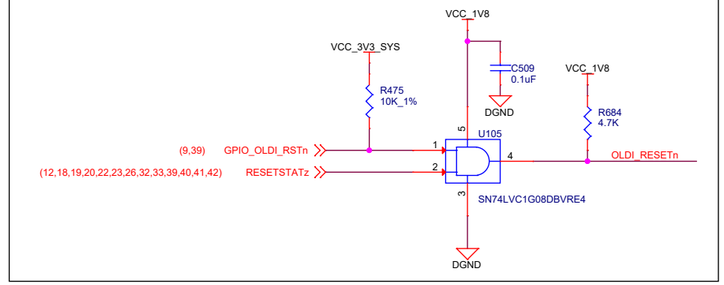
Designed for TI by Mistral Solutions Pvt Ltd

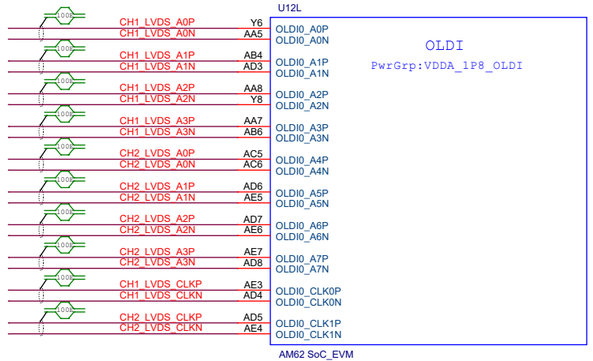
Title	USB1 TYPE-A	
Size: C	PROC142E1	Rev: E1
Date: Wednesday, April 20, 2022	Sheet 36 of 44	

OLDI DISPLAY INTERFACE

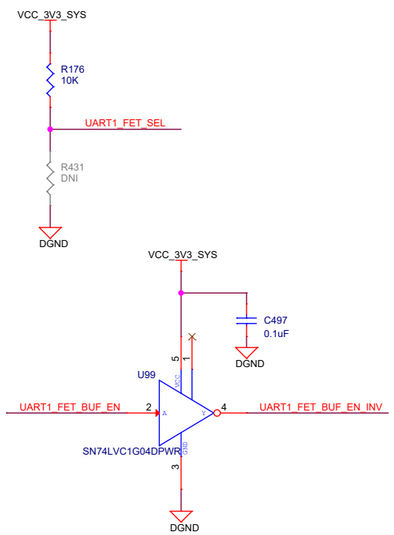


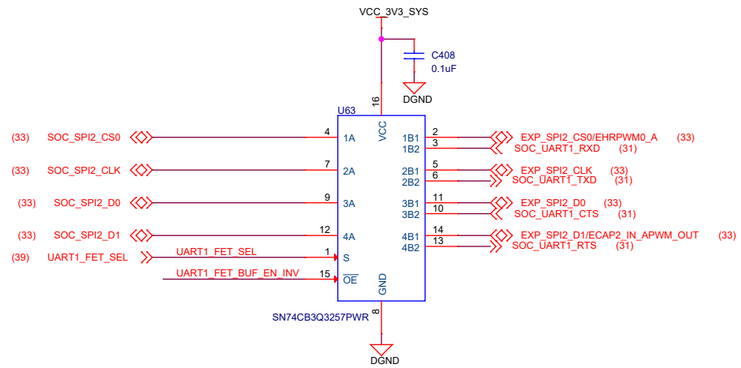
OLDI RESET

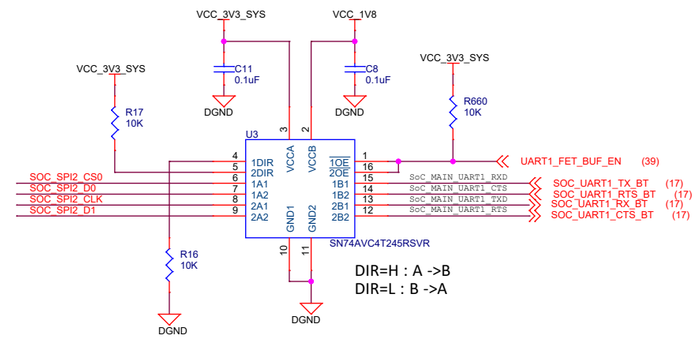




SoC UART1 FET SWITCH & BUFFER







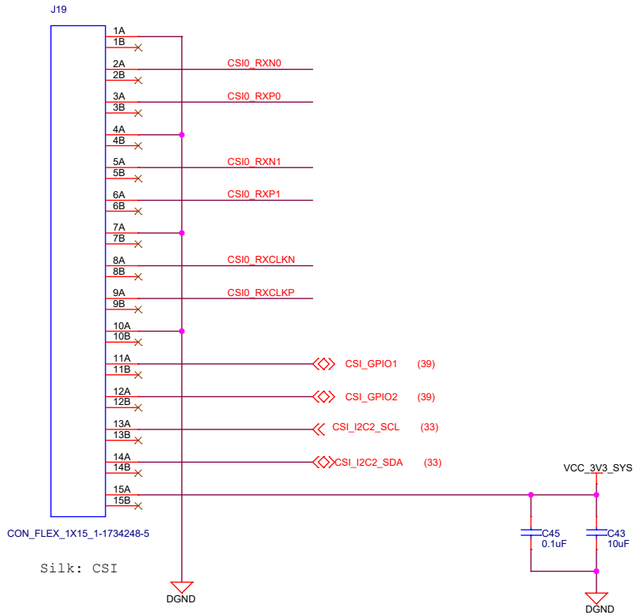
OEn	SEL	INPUT/OUTPUT An	
L	H(DEFAULT)	An=nB2	FT4232
L	L	An=nB1	EXP CONN

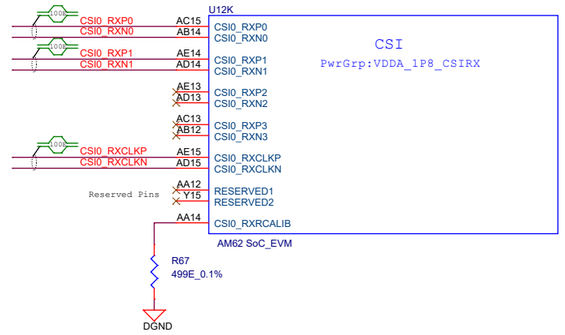
Designed for TI by Mistral Solutions Pvt Ltd

Title	OLDI DISPLAY INTERFACE		
Size	PROC142E1		Rev
C			E1
Date:	Wednesday, April 20, 2022	Sheet	37 of 44

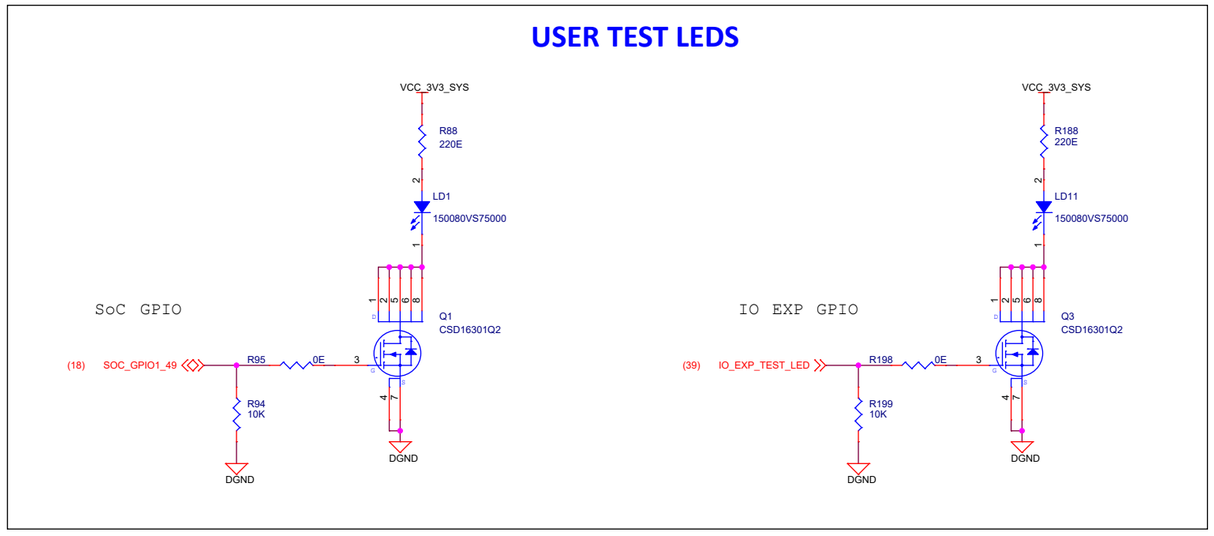
CSI INTERFACE

CSI CAMERA HEADER





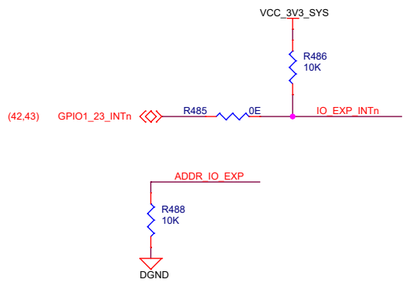
USER TEST LEDS

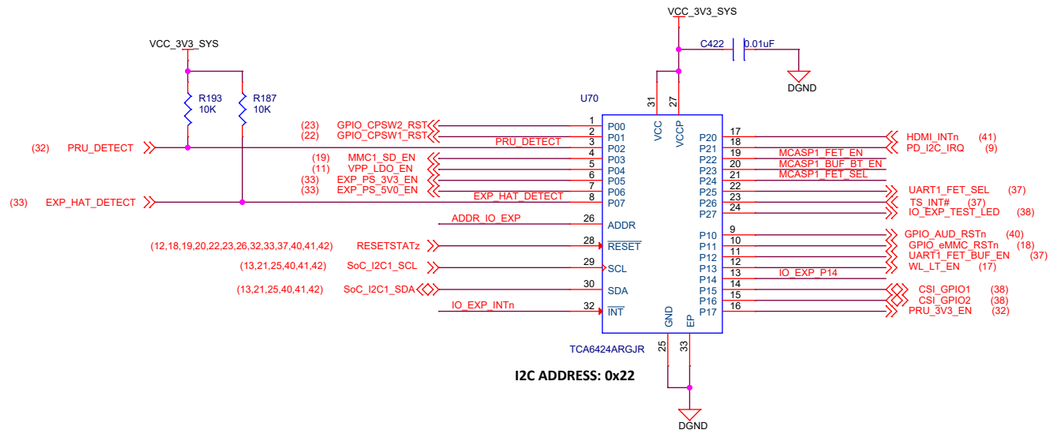


Designed for TI by Mistral Solutions Pvt Ltd

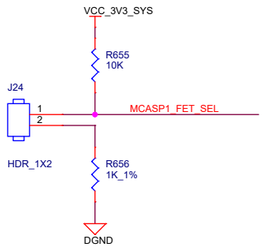
Title	CSI INTERFACE & USER TEST LEDS		
Size	PROC142E1		Rev
C			E1
Date:	Wednesday, April 20, 2022	Sheet 38 of 44	

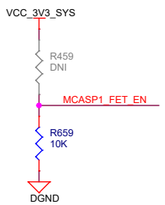
IO EXPANDER

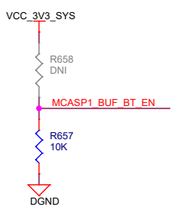


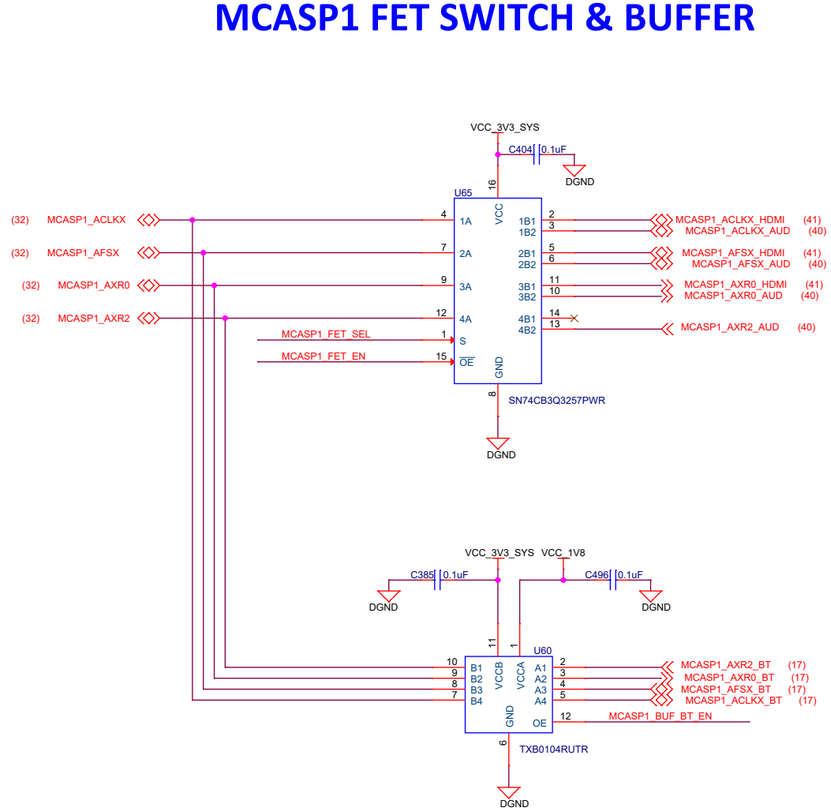


MCASP1 FET SWITCH & BUFFER







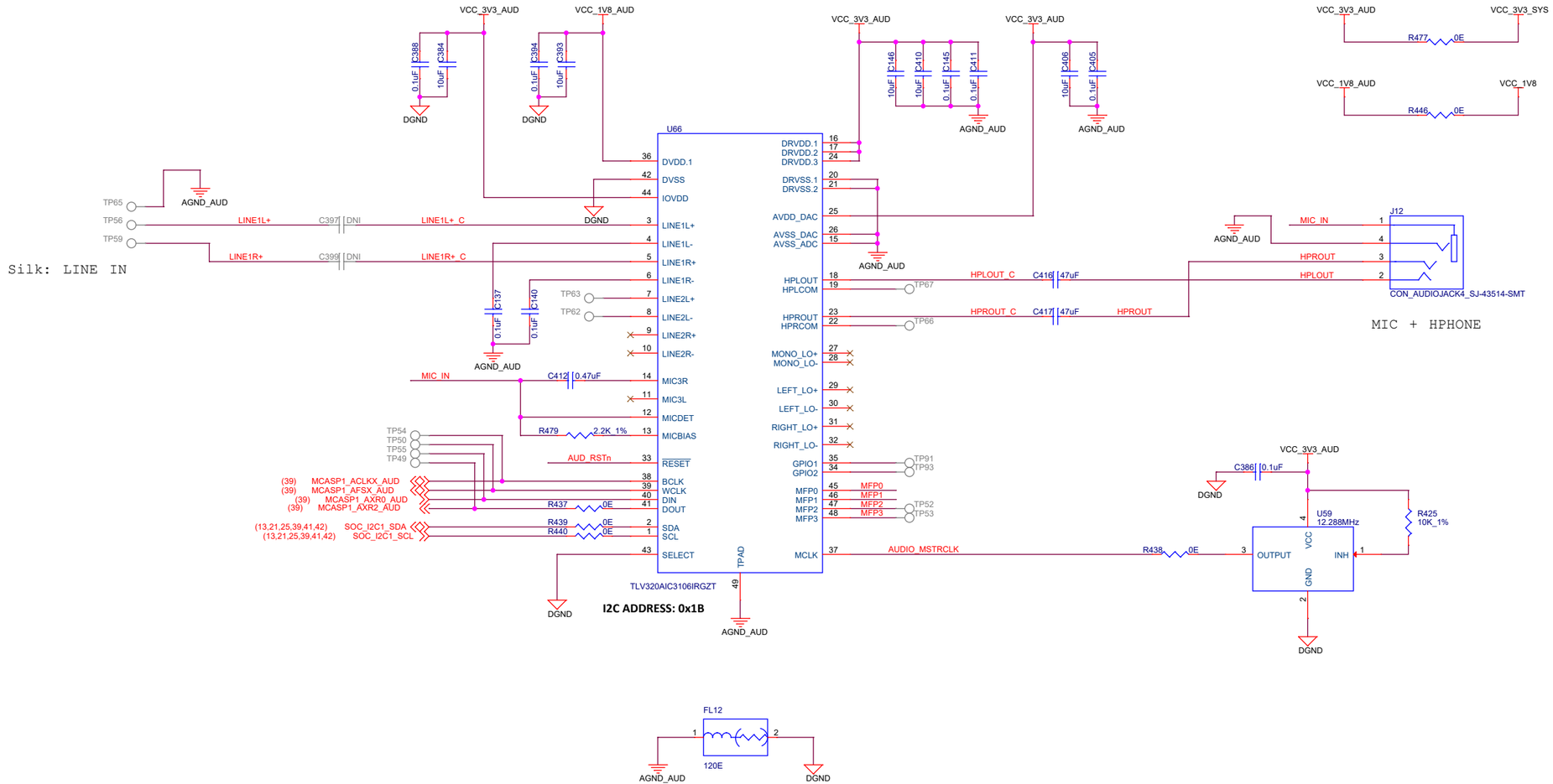


OEn	SEL	INPUT/OUTPUT An	
L	H(DEFAULT)	An=nB2	MCASP1 - CODEC
L	L	An=nB1	MCASP1 - HDMI

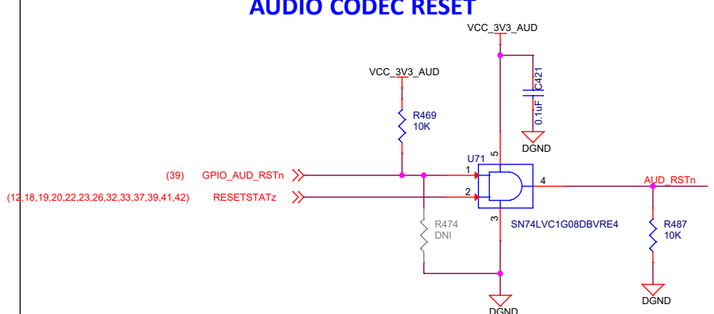
Designed for TI by Mistral Solutions Pvt Ltd

Title	IO EXPANDER		
Size C	PROC142E1		Rev E1
Date: Wednesday, April 20, 2022		Sheet 39 of 44	

AUDIO CODEC

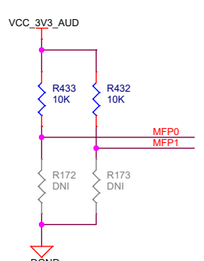


AUDIO CODEC RESET



CODEC I2C ADDRESS SELECTION

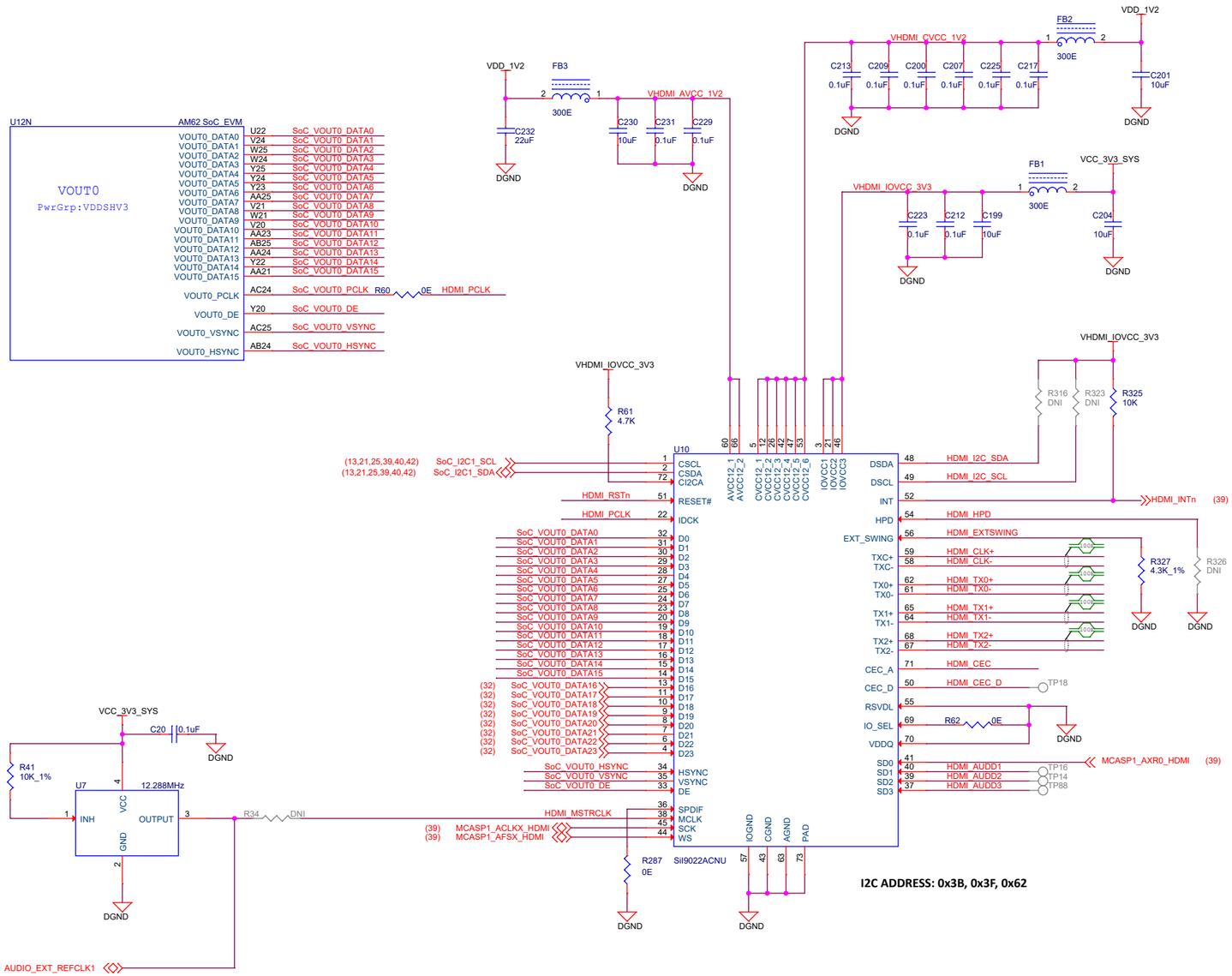
MFP0	MFP1	Device Address
0	0	0x18
0	1	0x19
1	0	0x1A
1	1	0x1B



Designed for TI by Mistral Solutions Pvt Ltd

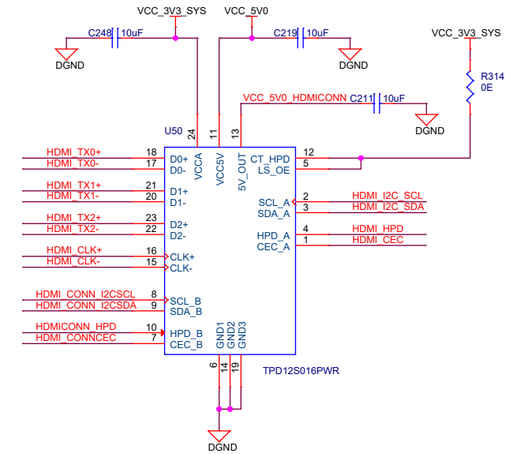
Title	AUDIO CODEC	
Size C	PROC142E1	Rev E1
Date: Wednesday, April 20, 2022	Sheet 40 of 44	

HDMI INTERFACE



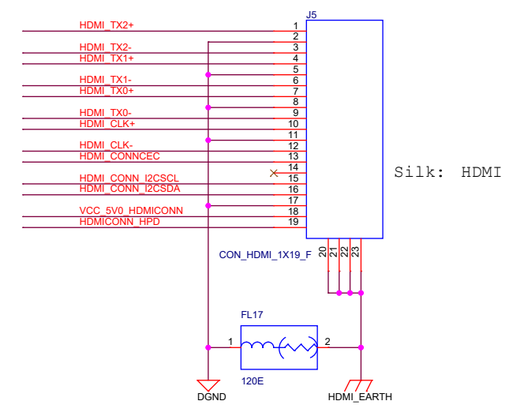
I2C ADDRESS: 0x3B, 0x3F, 0x62

HDMI ESD DEVICE

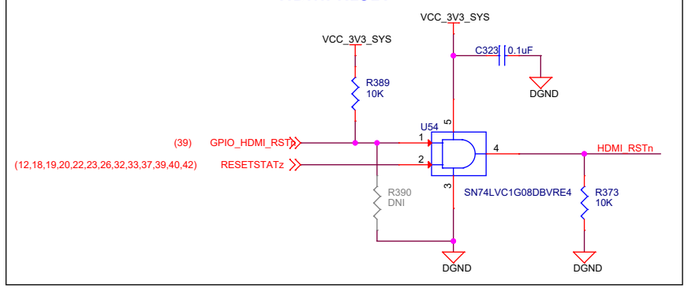


NOTE:
TPD12S016PWR has integrated pullup or pulldown resistors on the I2C and HPD lines hence no external pullup or pulldown required.

HDMI CONNECTOR



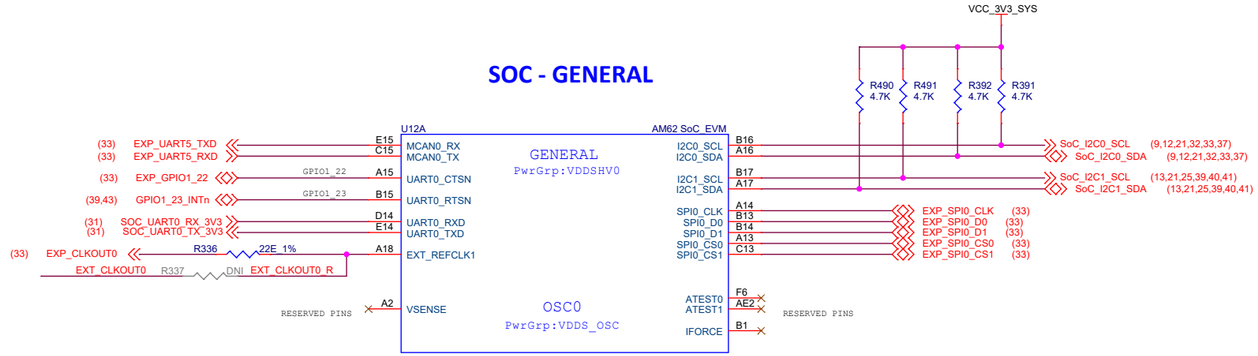
HDMI RESET



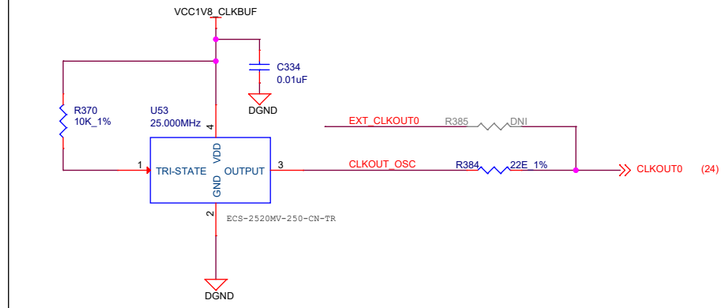
Designed for TI by Mistral Solutions Pvt Ltd

Title	HDMI INTERFACE		
Size	PROC142E1		Rev
C			E1
Date:	Wednesday, April 20, 2022	Sheet 41 of 44	

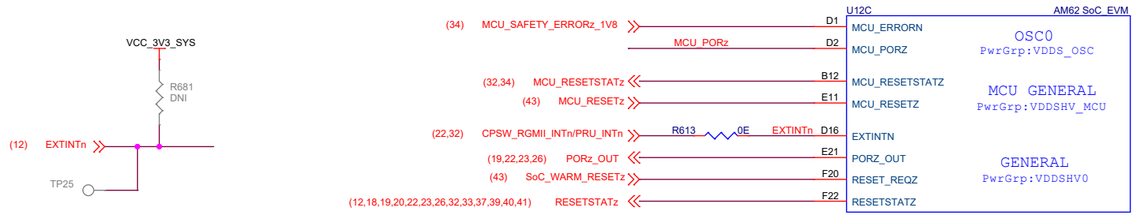
SOC - GENERAL

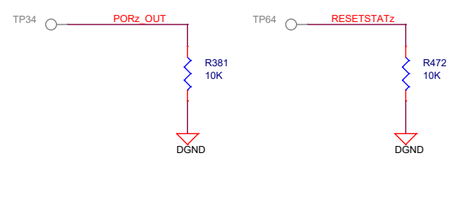


OSCILLATOR

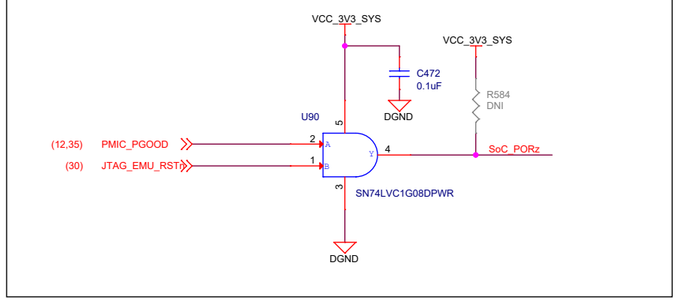


SOC - RESET

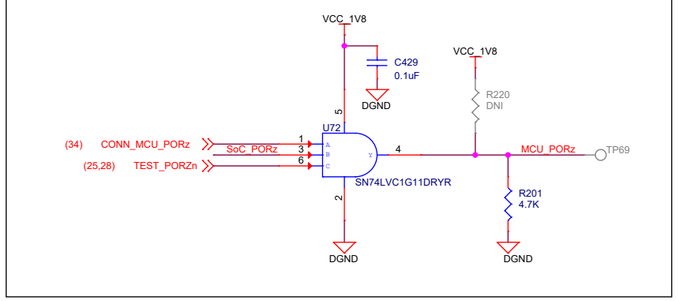




Pull-down resistor on PORz_OUT is provided to keep the signal low until the processor is released from reset during the power-up seqence



MCU POWER ON RESET

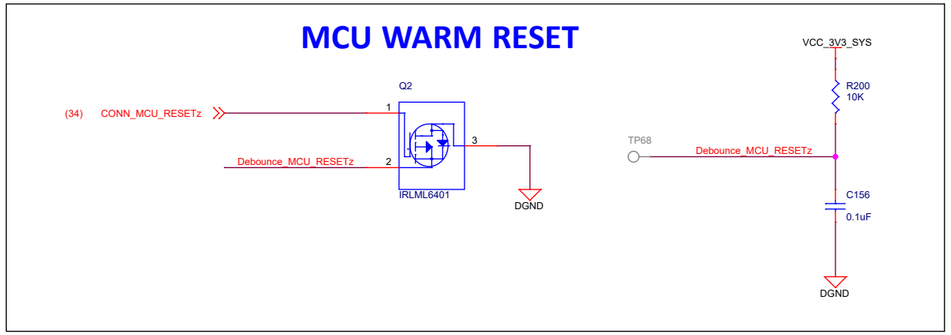


Designed for TI by Mistral Solutions Pvt Ltd

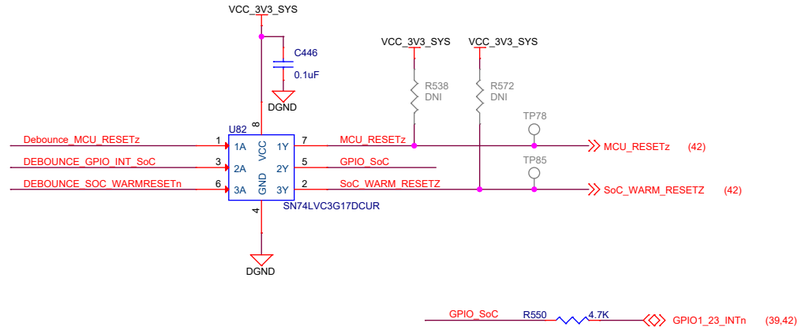
Title	OSCILLATOR	
Size: C	PROC142E1	Rev: E1
Date: Wednesday, April 20, 2022	Sheet 42 of 44	

RESET

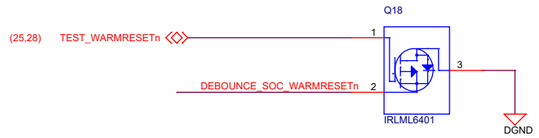
MCU WARM RESET

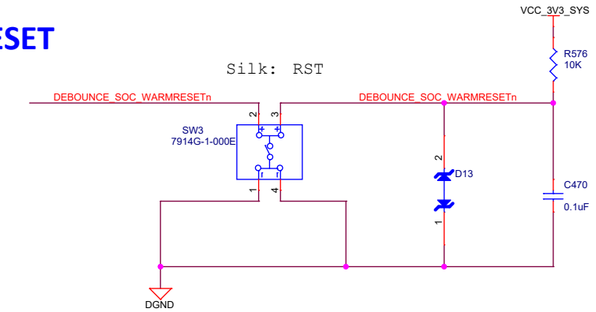


DEBOUNCE CIRCUIT

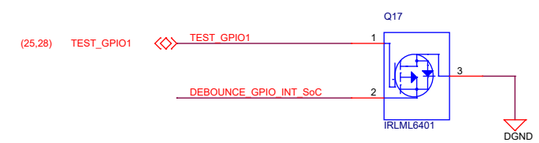


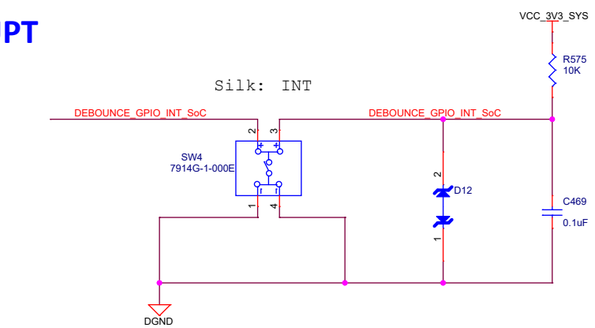
SOC WARM RESET





USER INTERRUPT





Designed for TI by Mistral Solutions Pvt Ltd

Title	RESET	
Size: C	PROC142E1	Rev: E1
Date: Wednesday, April 20, 2022	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

PROC142E1

PROC142E1

LOGOs

PCB LOGO DNI
Texas Intruments

PCB LOGO DNI
For Evaluation only; not FCC approved for resale

PCB LOGO DNI
WEEE Mark

PCB LOGO DNI
CE Mark

LABELS

Board Serial No.

LBL1
PCB LABEL
DNI

Assembly Revision

LBL2
PCB LABEL
DNI

FIDUCIALS

FID1 DNI
FID2 DNI
FID3 DNI
FID4 DNI
FID5 DNI
FID6 DNI

Designed for TI by Mistral Solutions Pvt Ltd

Title	HARDWARE SCHEMATICS	
Size: C	PROC142E1	Rev: E1
Date: Wednesday, May 04, 2022	Sheet 44 of 44	