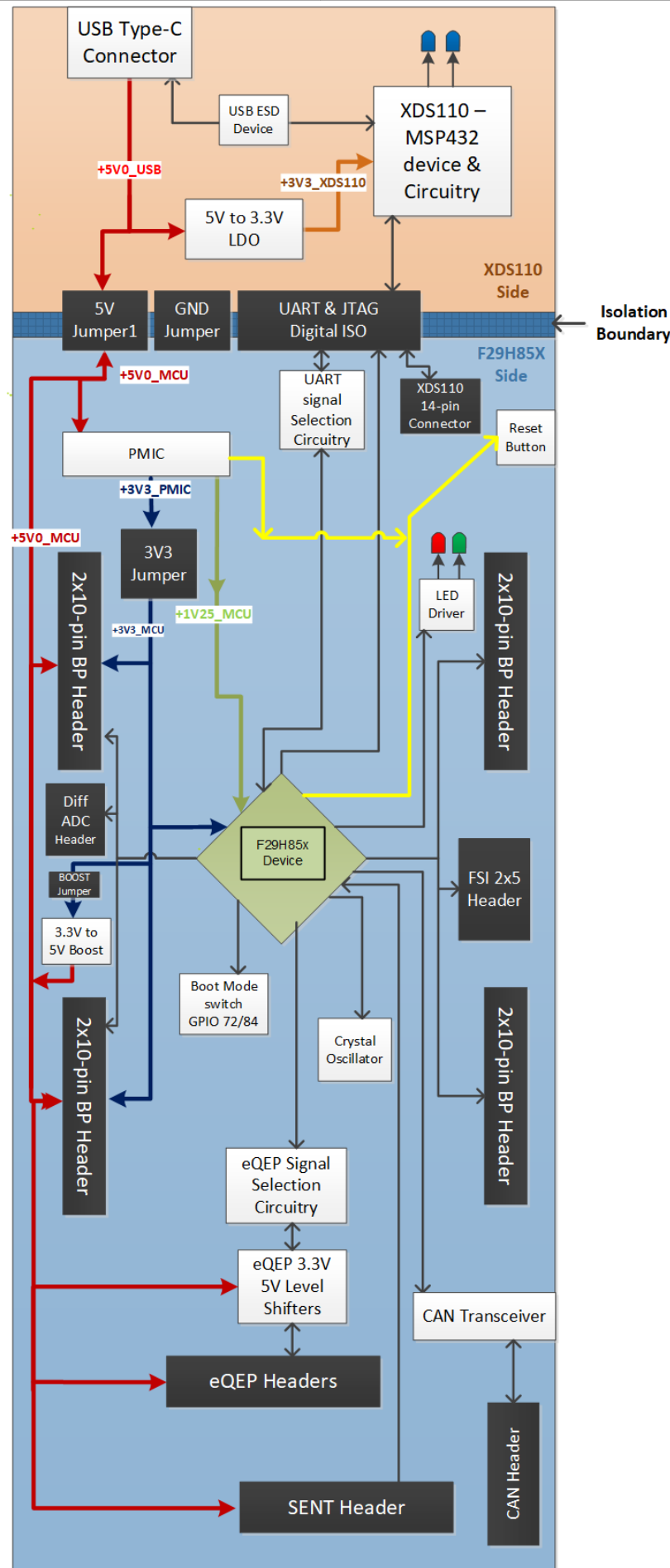


- 1) USB Differential Pairs - 90 Ohm
(A) USB_D_P and USB_D_N
2) ADC Differential pair Impedance Matching - 50 Ohm
(A) ADCINA4A5_P and ADCINA4A5_N
(B) ADCINB3B4_P and ADCINB3B4_N
(C) MCU_A4A5_P and MCU_A4A5_N
(D) MCU_B3B4_P and MCU_B3B4_N
3) CLK Paths - 50 Ohm
(A) X1
(B) X2



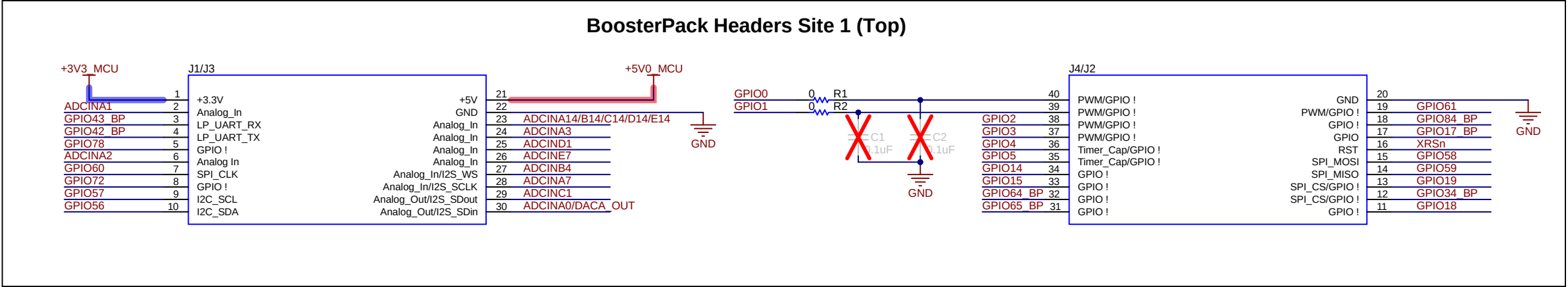
Revision History

Rev	ECN #	Approved Date	Approved by	Notes
E1	N/A	N/A	SB	Original engineering release.
A	N/A	June 20, 2025	SB	- Added C15 to U3A VOUT - Changed C28 from 0.1uF to 200pF - Changed GPIO30 connection on U10 - Changed ERRORSTS connection on U10 - Added OPN on U10 - Added R18, R26, and R27 - Added R25 and R28 - Corrected S5 and S6 silkscreen labels in PCB

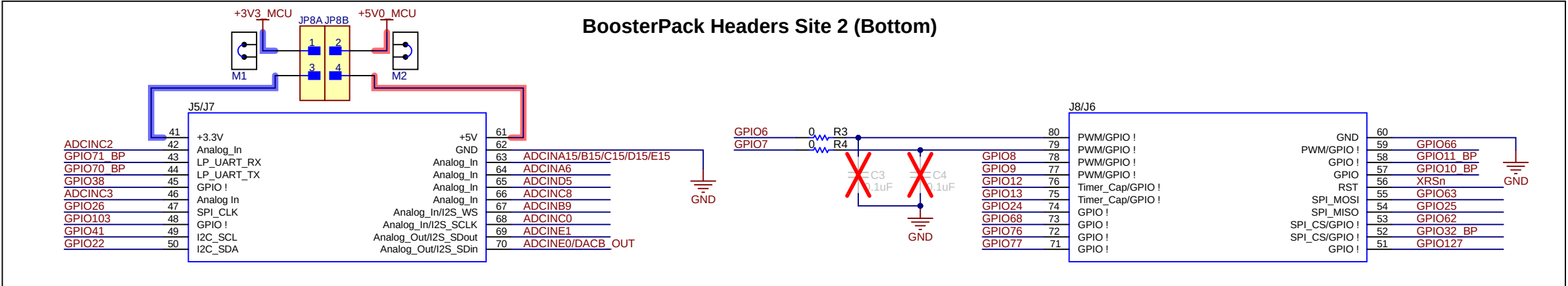
Texas Instruments and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Texas Instruments and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular purpose, or will operate in an implementation. Texas Instruments and/or its licensors do not warrant that the design is production worthy. You should completely validate and test your design implementation to confirm the system functionality for your application.

Orderable: LAUNCHXL-F29H85X	Designed for: Public Release	Mod. Date: 6/20/2025	
TID #: N/A	Project Title: LAUNCHXL-F29H85X		
Number: MCU119	Rev: A	Sheet Title:	
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 1 of 8	
Drawn By: Susmitha Bumadi	File: MCU119A_Block_Diagram_SchDoc	Size: B	
Engineer: Susmitha Bumadi	Contact: http://www.ti.com/support		http://www.ti.com © Texas Instruments 2024

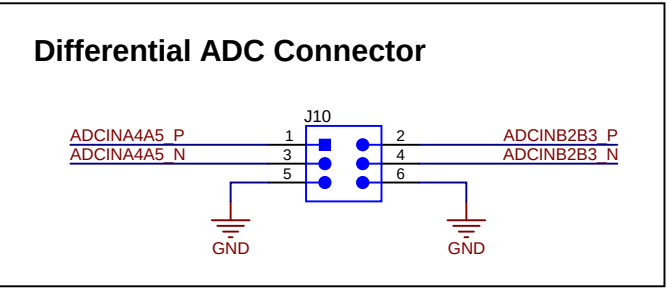
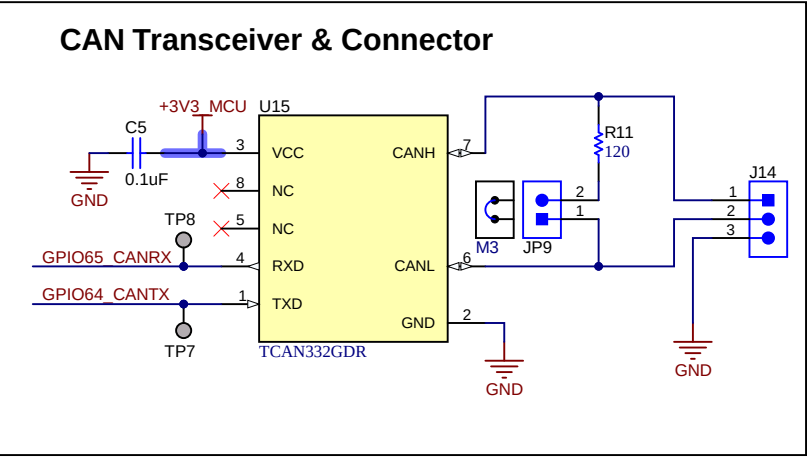
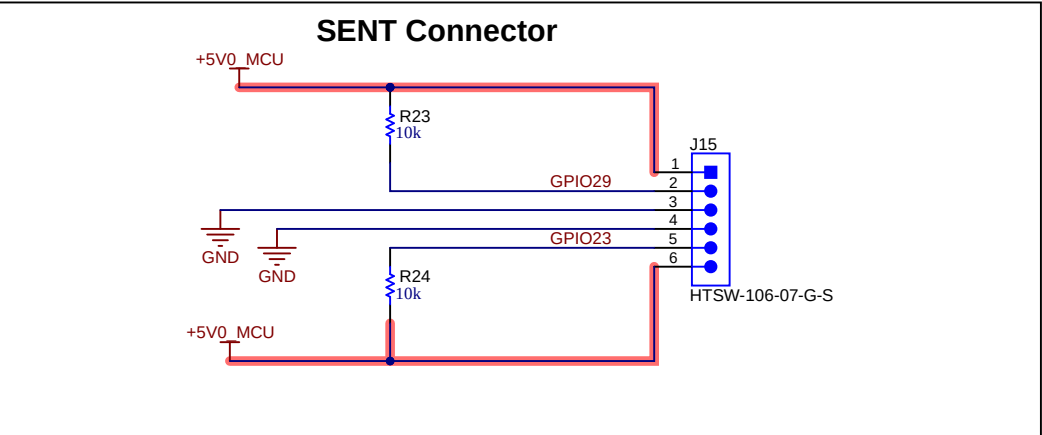
A



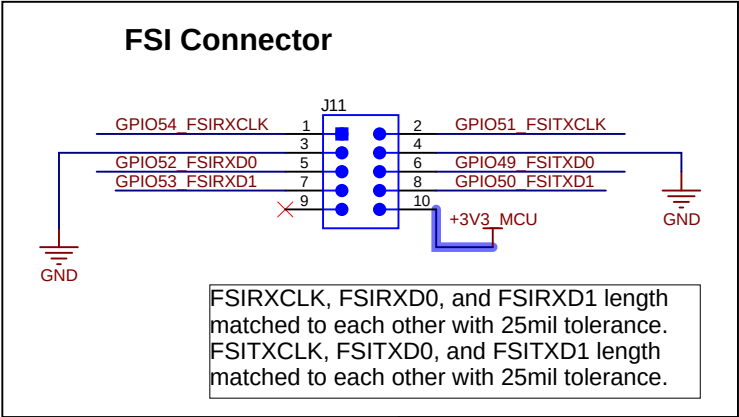
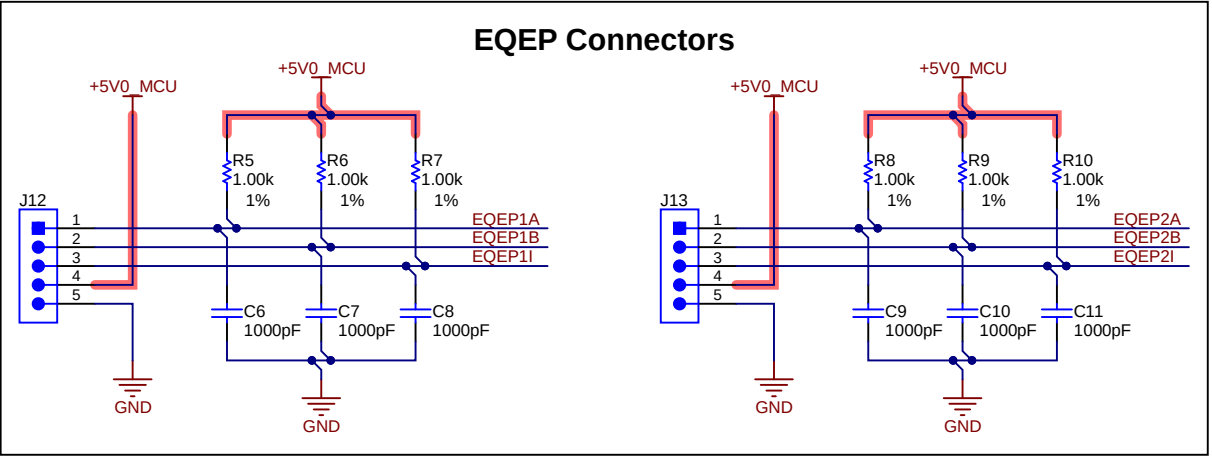
B



C



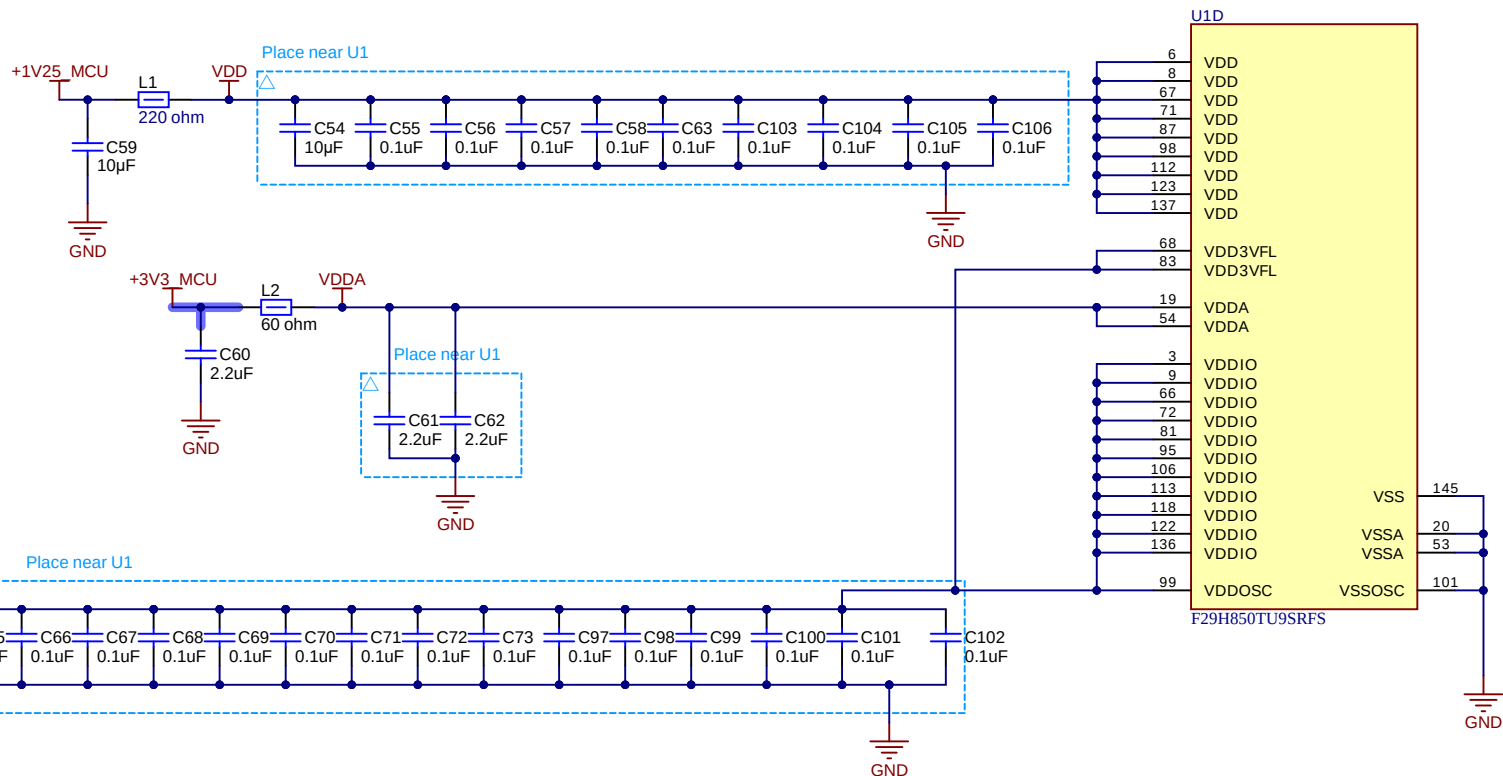
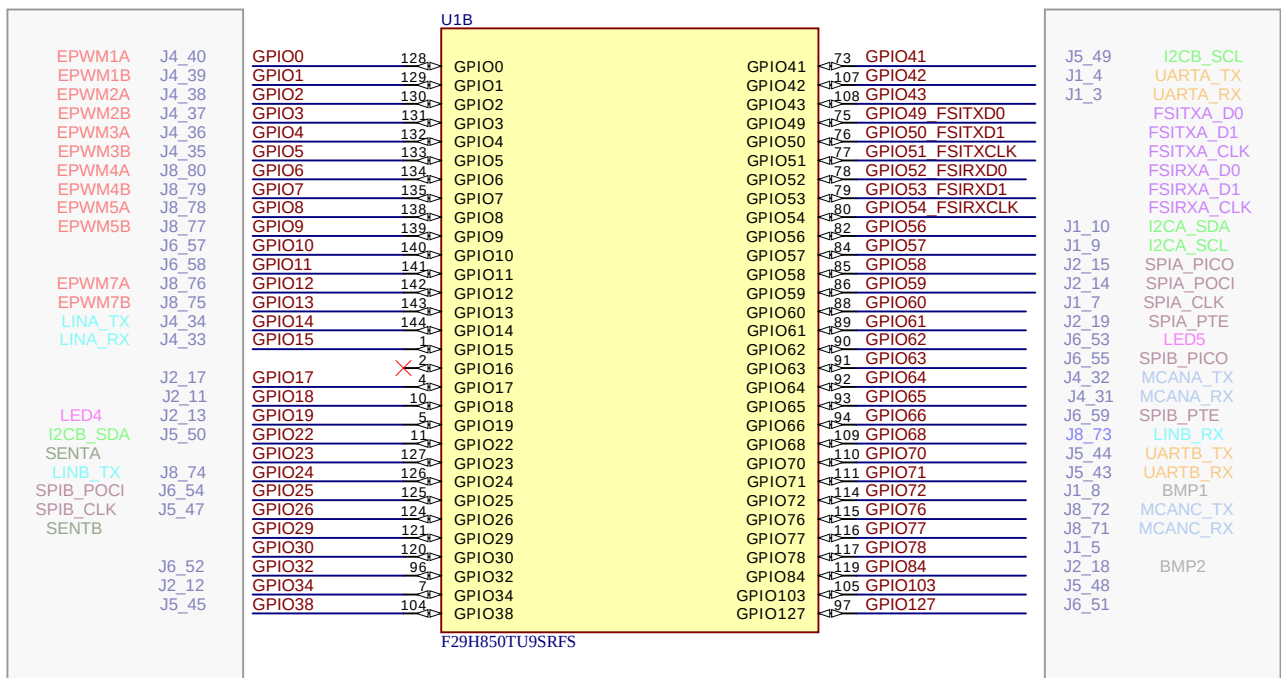
D

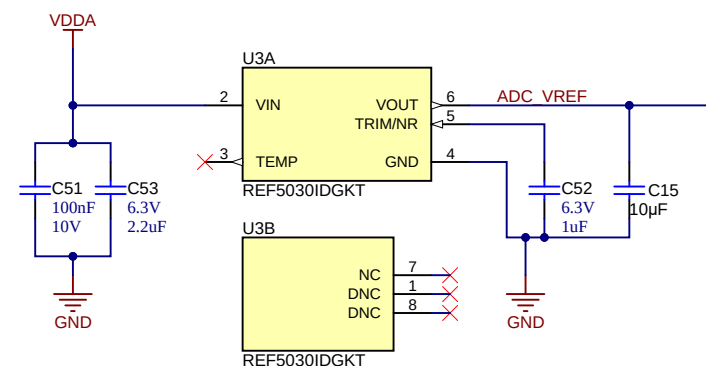
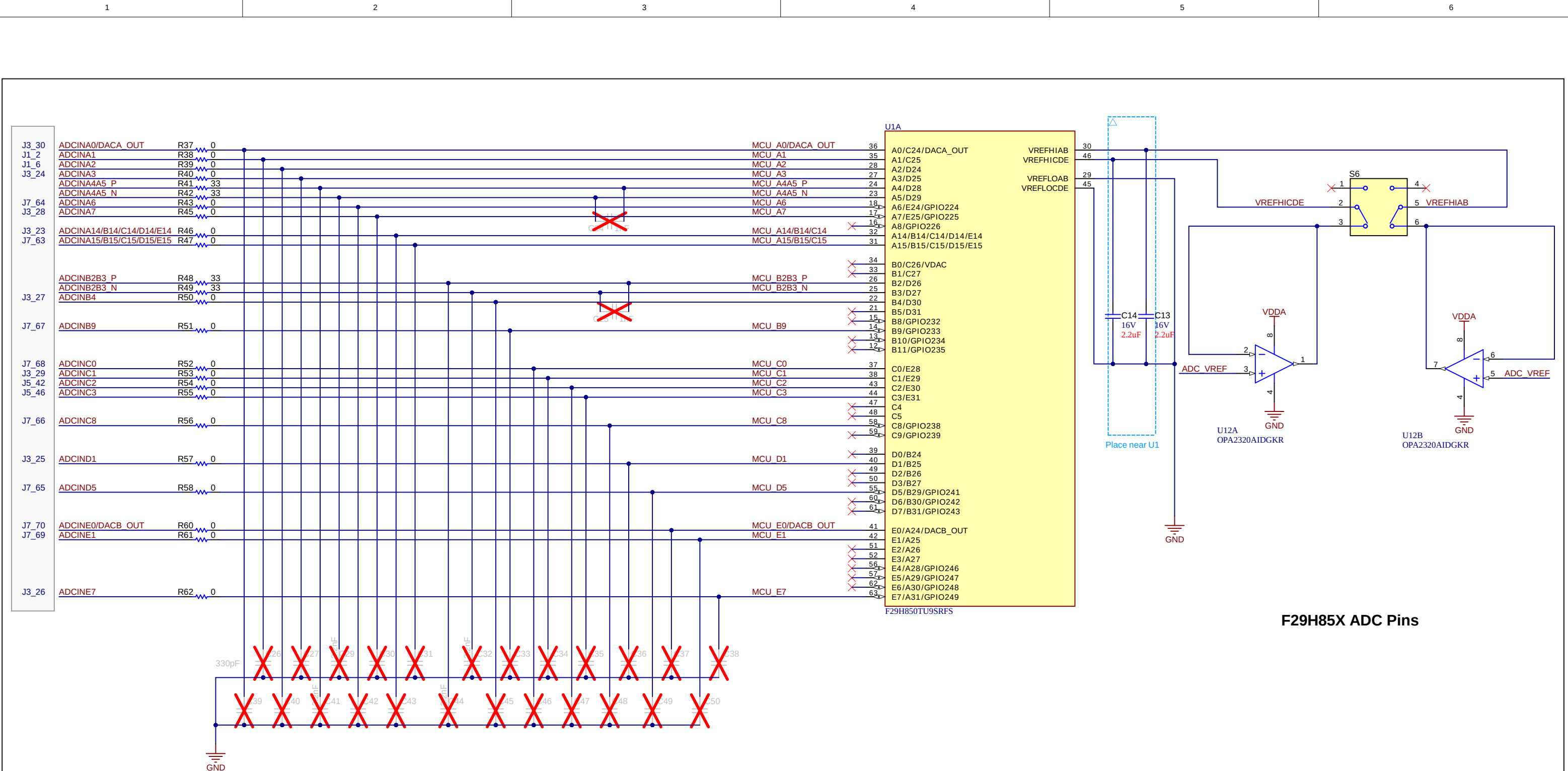


Texas Instruments and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Texas Instruments and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular purpose, or will operate in an implementation. Texas Instruments and/or its licensors do not warrant that the design is production worthy. You should completely validate and test your design implementation to confirm the system functionality for your application.

Orderable: LAUNCHXL-F29H85X	Designed for: Public Release	Mod. Date: 6/20/2025
TID #: N/A	Project Title: LAUNCHXL-F29H85X	
Number: MCU119	Rev: A	Sheet Title:
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 2 of 8
Drawn By: Susmitha Bumadi	File: MCU119A_Connectors.SchDoc	Size: B
Engineer: Susmitha Bumadi	Contact: http://www.ti.com/support	

F29H85x Device





A

B

C

D

A

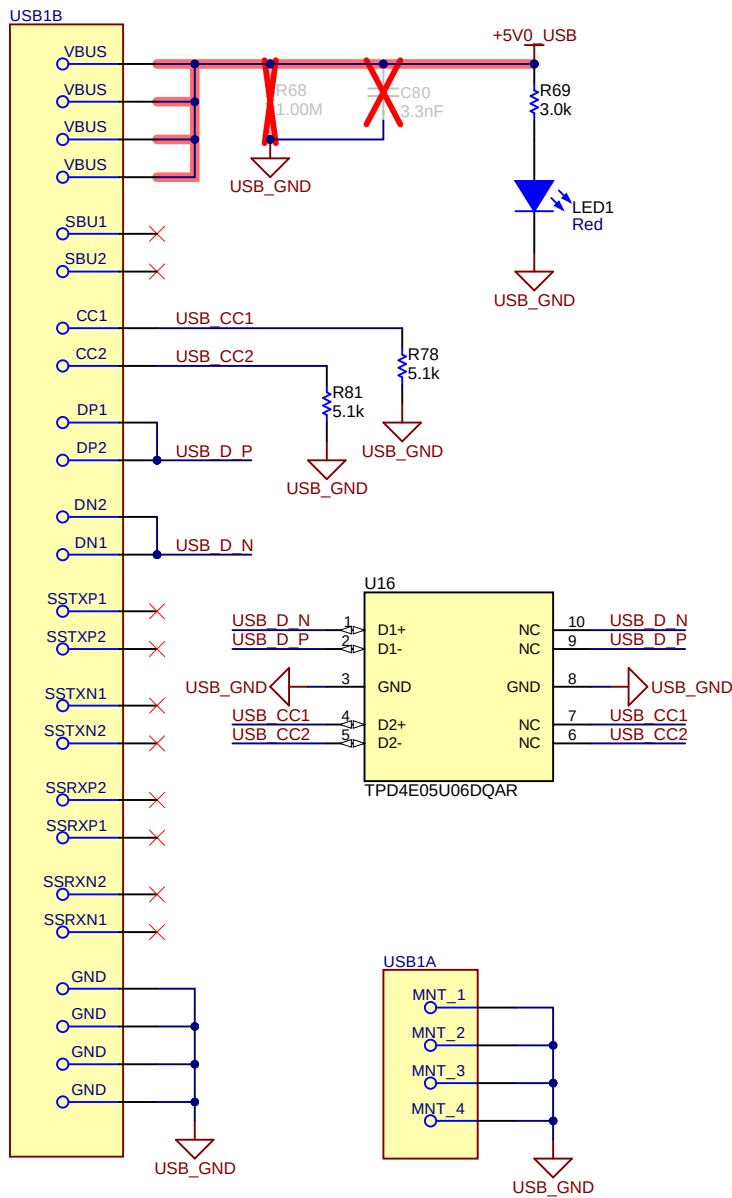
B

C

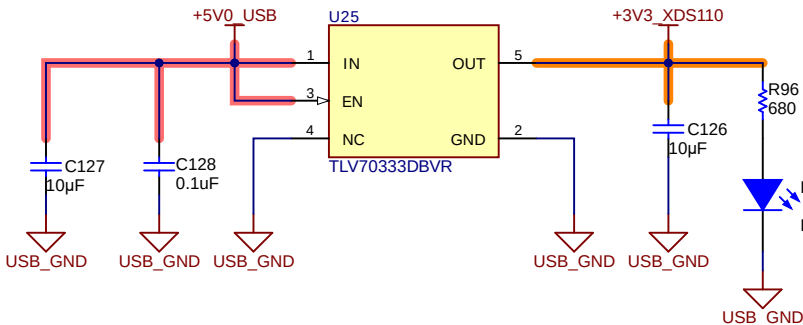
D

Emulation Side

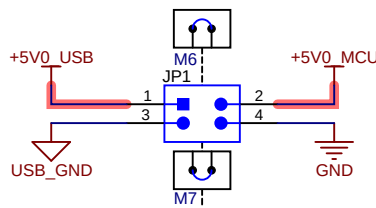
USB-C Connector



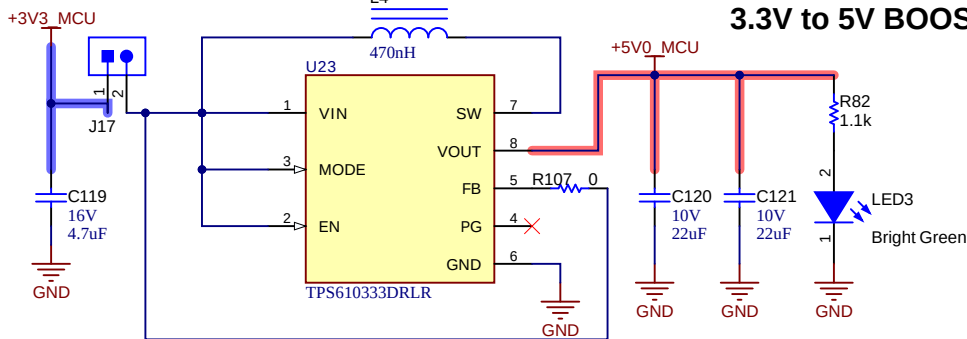
5V to 3.3V (XDS)



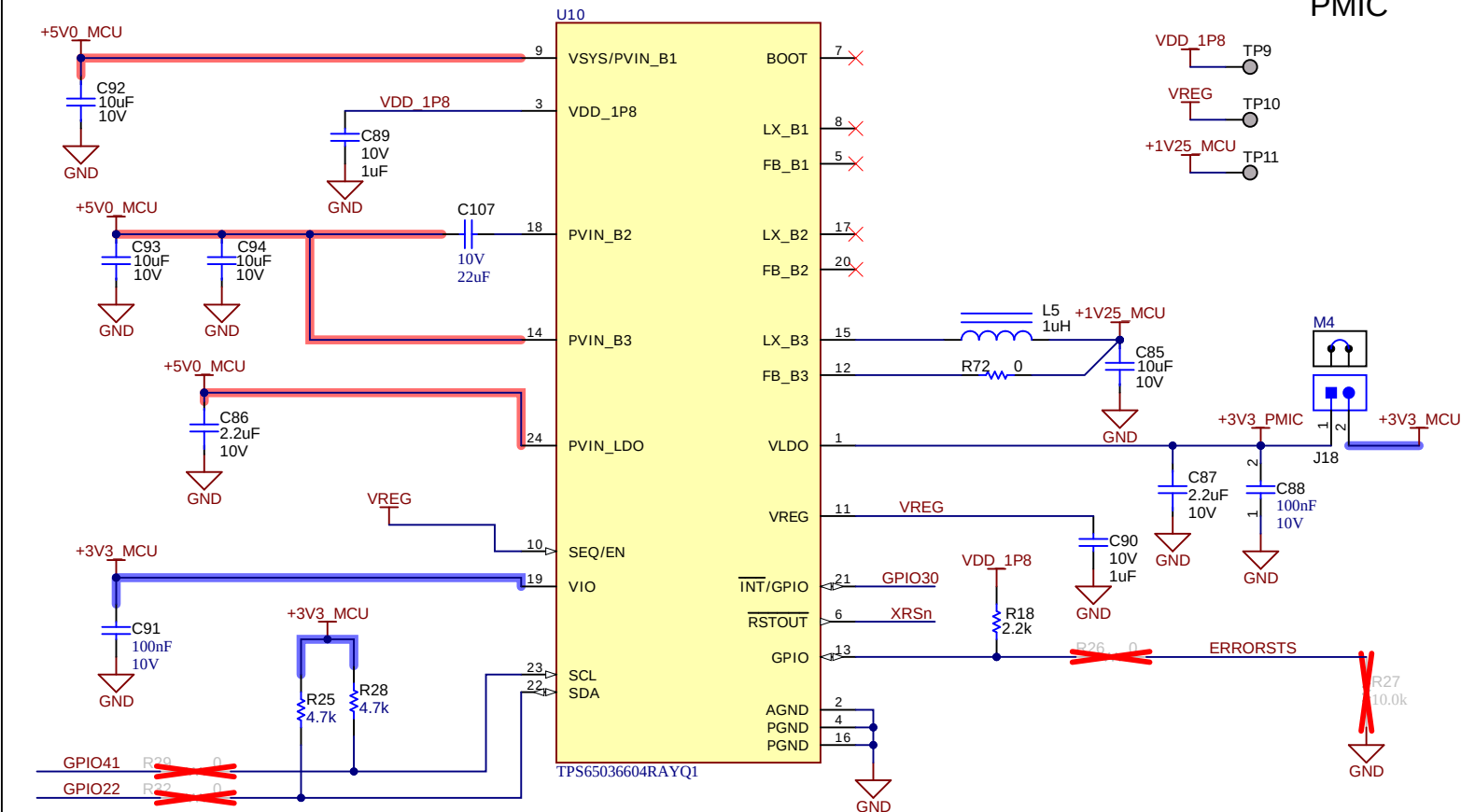
PWR & GND Isolation Boundary



3.3V to 5V BOOST

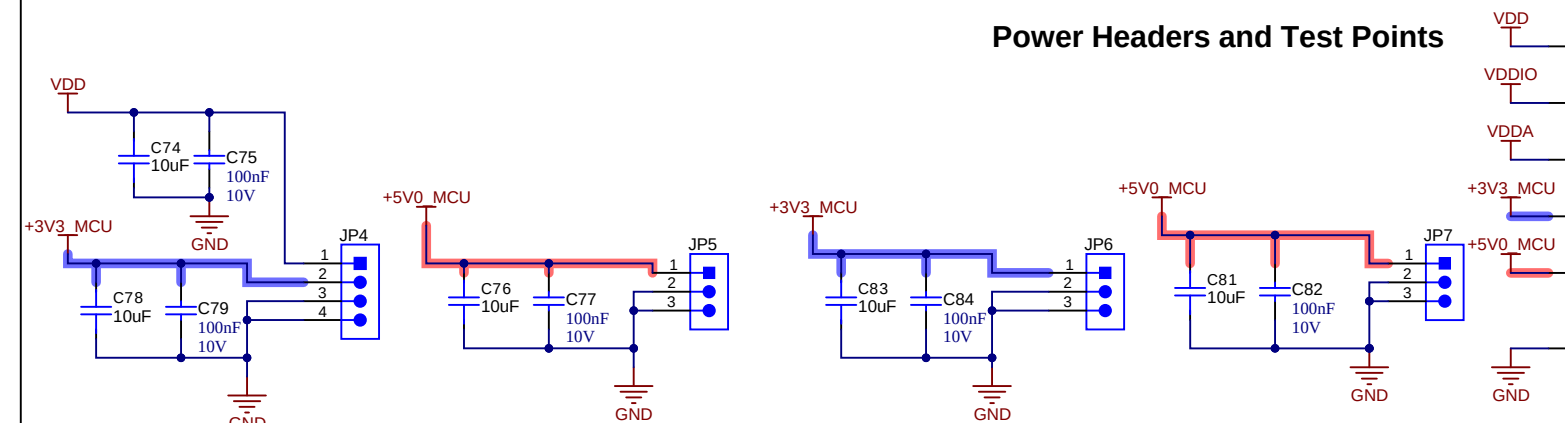


C2000 Side



PMIC

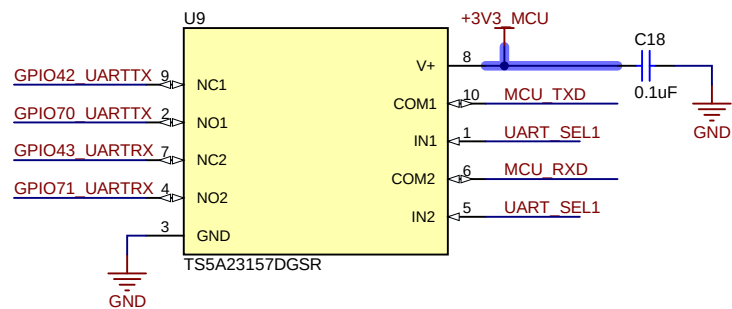
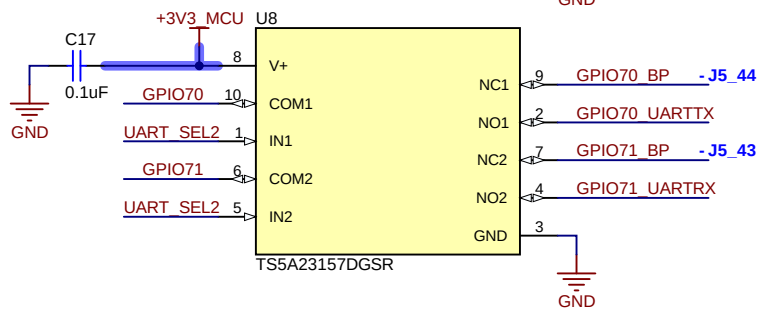
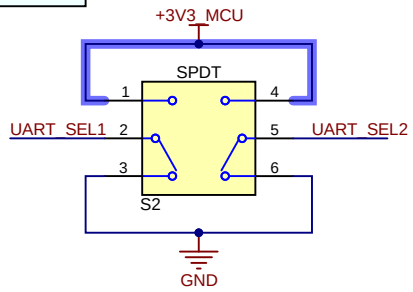
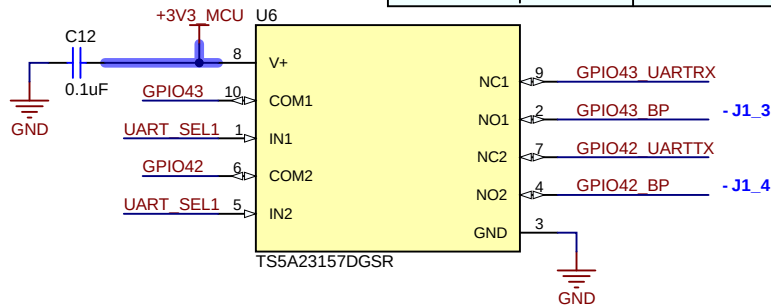
Power Headers and Test Points



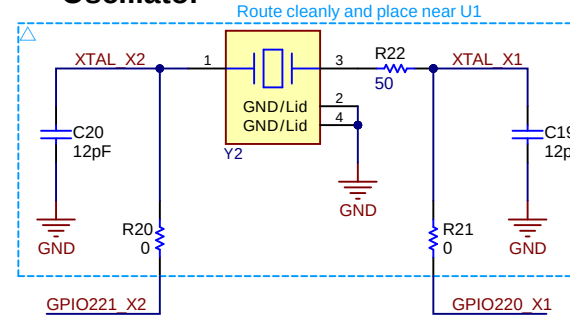
UART Routing

UART_SEL1	UART_SEL2	GPIO42/43 Route	GPIO70/71 Route
0	0	XDS110 COM Port	BP
0	1	XDS110 COM Port	NC
1	0	BP	BP
1	1	BP	XDS110 COM Port

- DEFAULT

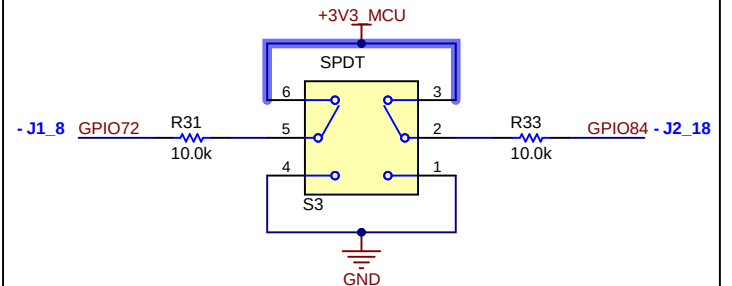


Oscillator



By default:
- Crystal Y2 is connected between GPIO221_X2 and GPIO220_X1.

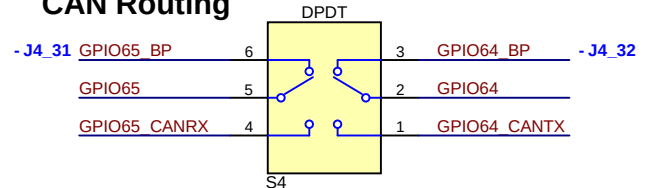
Boot Mode Select



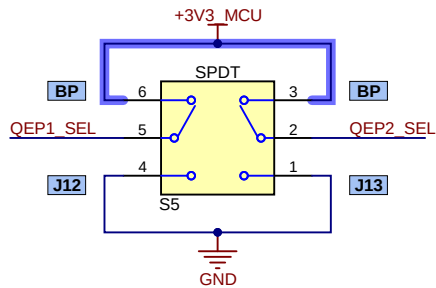
Selected Boot Mode Chart

Mode #	GPIO72	GPIO84	Boot Mode
00	0	0	Boot from Parallel GPIO
01	0	1	Boot from SCI / Wait Mode
02	1	0	Boot from CAN
03	1	1	Boot from Flash

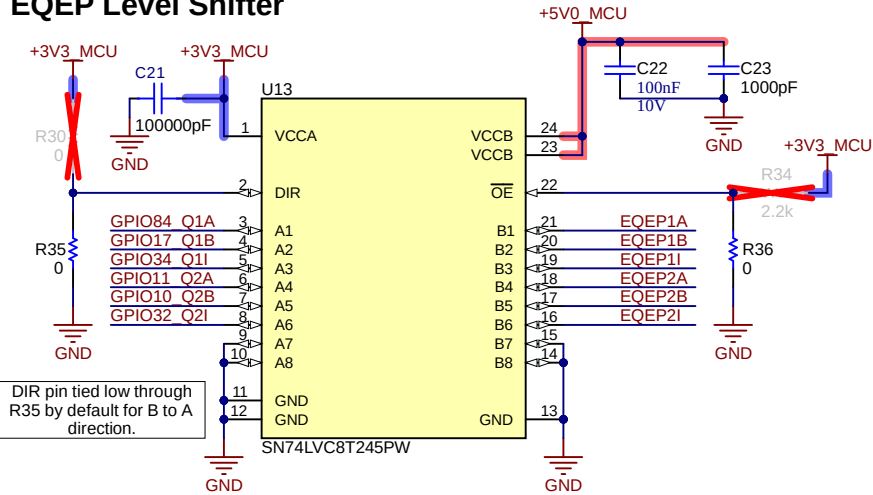
CAN Routing



EQEP Routing



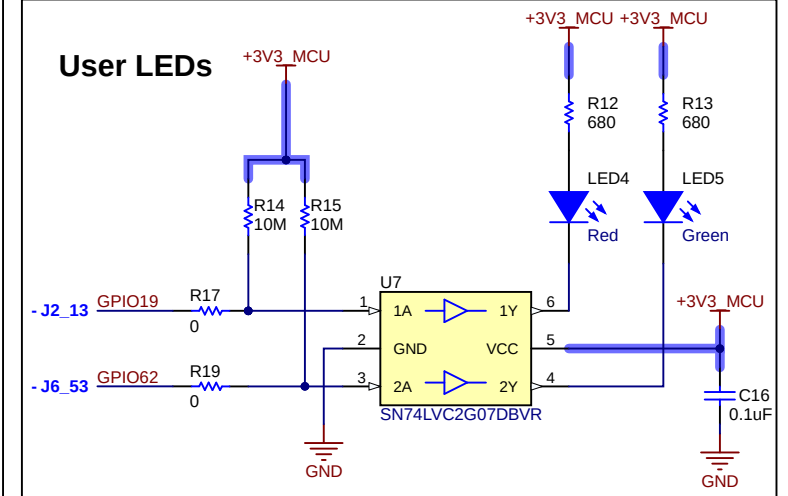
EQEP Level Shifter



To disable the Level Shifter:

1. De-populate R36
2. Place a 2.2k ohm resistor on R34 to pull-up OE

User LEDs





MH1 MH2

MH3 MH4

PCB Number: MCU119
PCB Rev: A

Logo1
PCB
LOGO
Texas Instruments



Logo3
PCB
LOGO
FCC disclaimer

Logo4
PCB
LOGO
WEEE logo

Logo5
PCB
LOGO
Texas Instruments

Logo6
PCB
LOGO
ETHERCAT LABEL

ZZ1

Assembly Note

These assemblies are ESD sensitive, ESD precautions shall be observed.

ZZ2

Assembly Note

These assemblies must be clean and free from flux and all contaminants. Use of no clean flux is not acceptable.

ZZ3

Assembly Note

These assemblies must comply with workmanship standards IPC-A-610 Class 2, unless otherwise specified.

Texas Instruments and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Texas Instruments and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular purpose, or will operate in an implementation. Texas Instruments and/or its licensors do not warrant that the design is production worthy. You should completely validate and test your design implementation to confirm the system functionality for your application.

Orderable: LAUNCHXL-F29H85X	Designed for: Public Release	Mod. Date: 2/27/2025	 http://www.ti.com © Texas Instruments 2024
TID #: N/A	Project Title: LAUNCHXL-F29H85X		
Number: MCU119	Rev: A	Sheet Title:	
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 8 of 8	
Drawn By: Susmitha Bumadi	File: MCU119A_Hardware_SchDoc	Size: B	
Engineer: Susmitha Bumadi	Contact: http://www.ti.com/support		

IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATA SHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, regulatory or other requirements.

These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you will fully indemnify TI and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI's products are provided subject to [TI's Terms of Sale](#) or other applicable terms available either on [ti.com](https://www.ti.com) or provided in conjunction with such TI products. TI's provision of these resources does not expand or otherwise alter TI's applicable warranties or warranty disclaimers for TI products.

TI objects to and rejects any additional or different terms you may have proposed.

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2025, Texas Instruments Incorporated