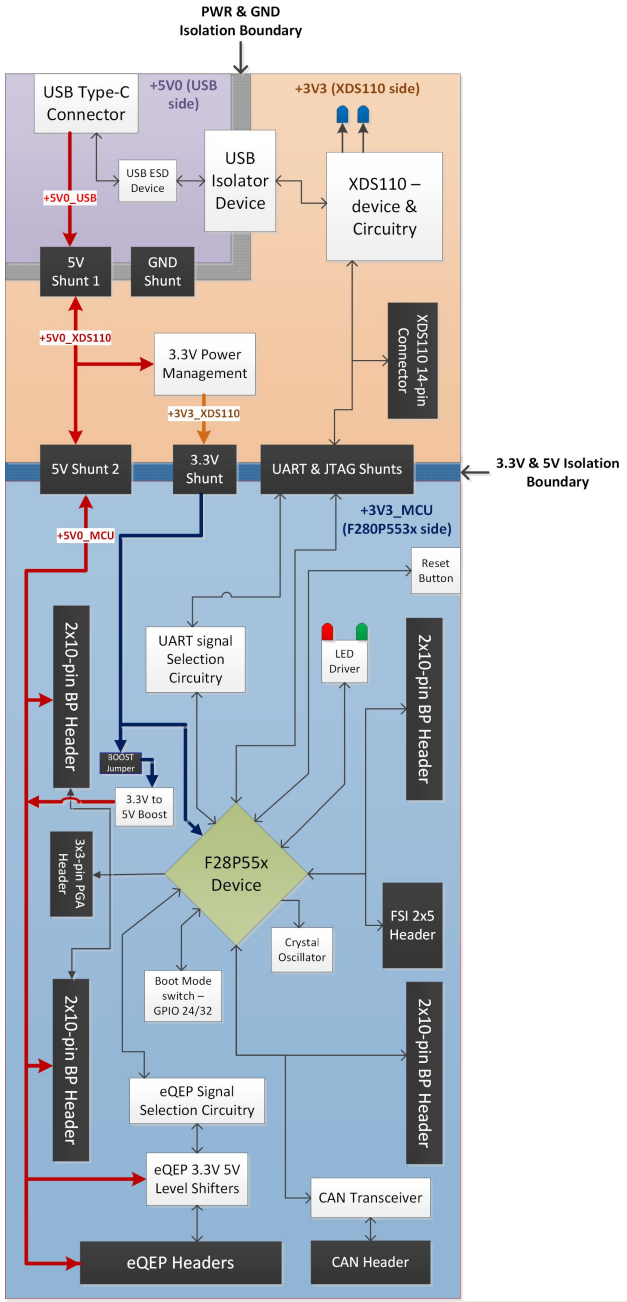




| | | | |
|---|---|---|---|
| Orderable: LAUNCHXL-F28P55X | | Designed for: Public Release | Mod. Date: 2/20/2024 |
| TID #: N/A | | Project Title: LAUNCHXL-F28P55X | |
| Number: MCU133 | Rev: A | Sheet Title: | |
| SVN Rev: | | Assembly Variant: 001 | Sheet: 1 of 8 |
| Drawn By: Stevan Duraskovic | | File: MCU133A_Block_Diagram.SchDoc | Size: B |
| Engineer: Stevan Duraskovic | | Contact: http://www.ti.com/support | |

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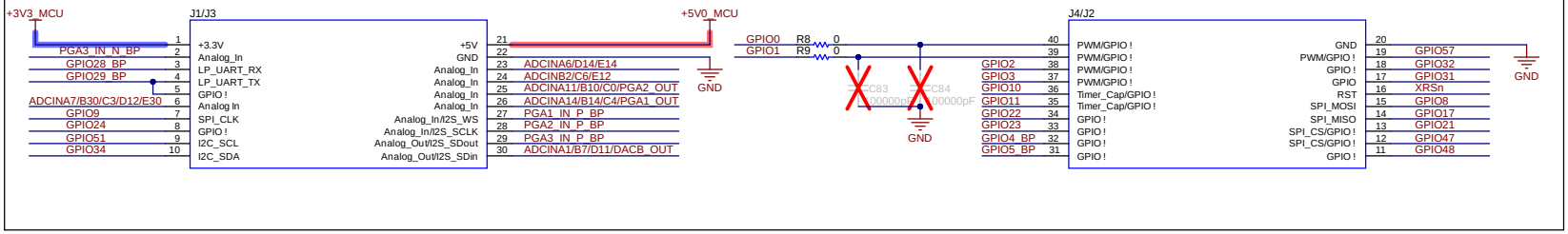
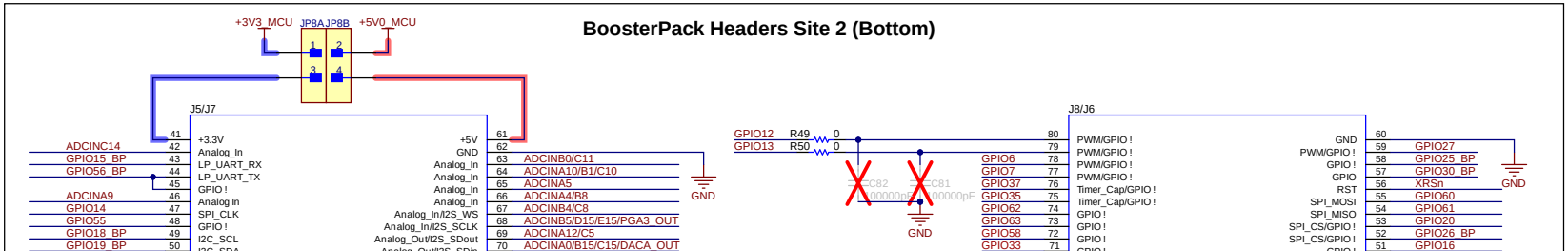
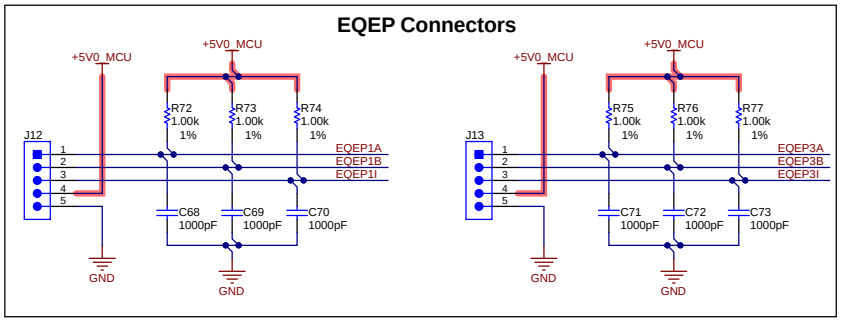
## BoosterPack Headers Site 1 (Top)



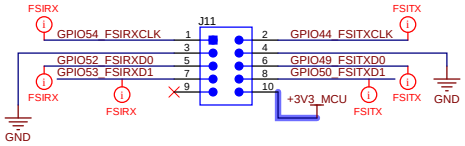

## BoosterPack Headers Site 2 (Bottom)




## EQEP Connectors

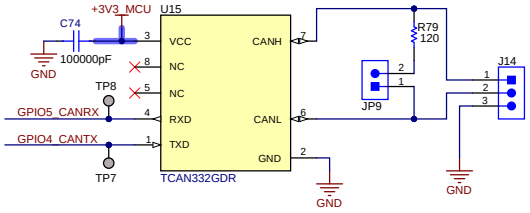



## FSI Connector

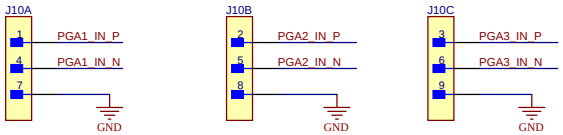



FSIRXCLK, FSIRXD0, and FSIRXD1 length matched to each other with 25mil tolerance. FSITXCLK, FSITXD0, and FSITXD1 length matched to each other with 25mil tolerance.

## CAN Transceiver & Connector




## PGA Connector

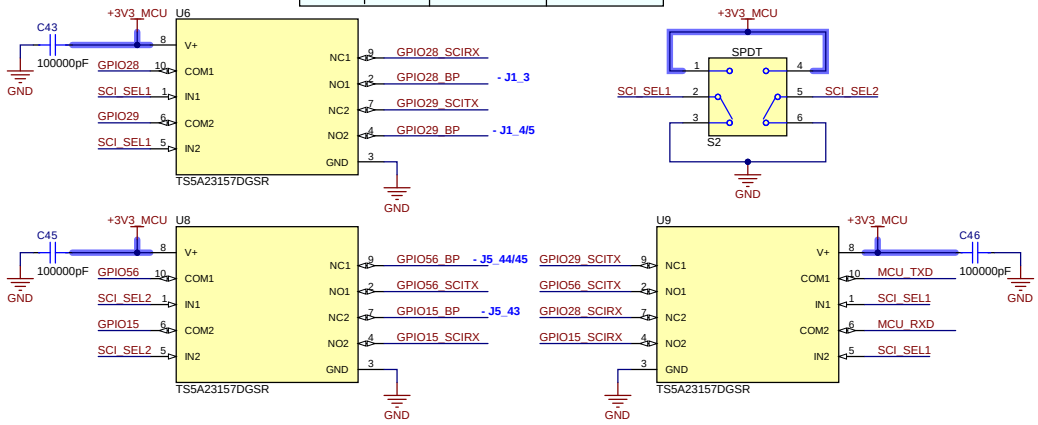



| | | | |
|---|---|---|---|
| Orderable: LAUNCHXL-F28P55X | | Designed for: Public Release | Mod. Date: 2/9/2024 |
| TID #: N/A | | Project Title: LAUNCHXL-F28P55X | |
| Number: MCU133 | Rev: A | Sheet Title: | |
| SVN Rev: | | Assembly Variant: 001 | Sheet: 2 of 8 |
| Drawn By: Stevan Duraskovic | | File: MCU133A_Connectors.SchDoc | Size: B |
| Engineer: Stevan Duraskovic | | Contact: http://www.ti.com/support | |

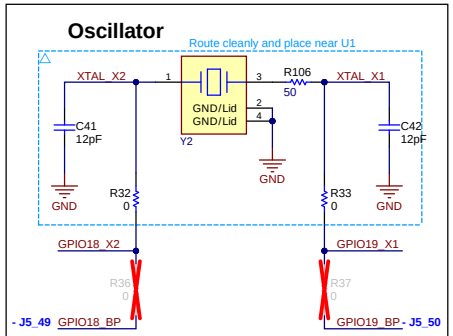
## UART Routing

| SCI_SEL1 | SCI_SEL2 | GPIO28/29 Route | GPIO15/56 Route |
|---|---|---|---|
| 0 | 0 | XDS110 COM Port | BP |
| 0 | 1 | XDS110 COM Port | NC |
| 1 | 0 | BP | BP |
| 1 | 1 | BP | XDS110 COM Port |

- DEFAULT



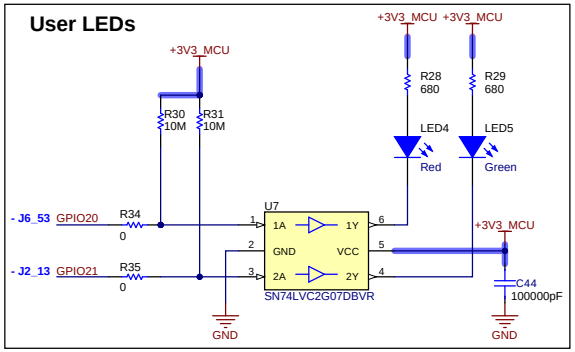

## Oscillator



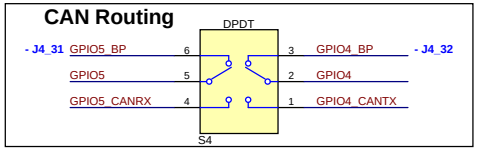

By default:
- Crystal Y2 is connected between GPIO18_X2 and GPIO19_X1.
- It is recommended to connect dampening resistor (R106) to the crystal output (XTAL_X2)
- GPIO18_BP AND GPIO19_BP are connected to the BoosterPack headers.

If GPIO18 and GPIO 19 are needed at the Boosterpack Headers:
- Remove R32 and R33, populate R36 and R37 with 0 ohm resistors
- The F28P55x device's internal oscillator will need to be used

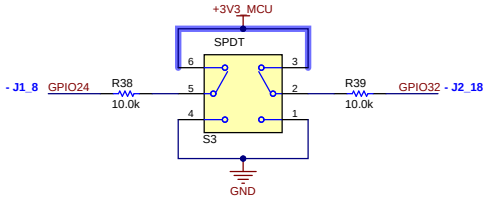
## User LEDs




## CAN Routing



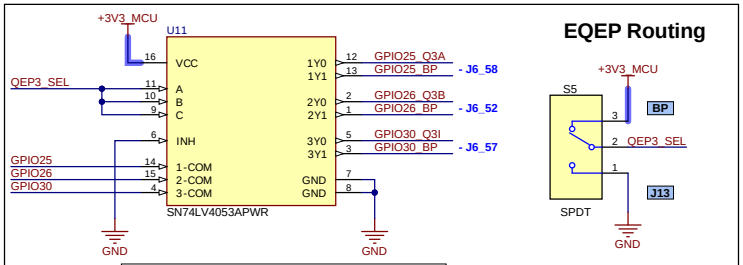

## Boot Mode Select




### Selected Boot Mode Chart

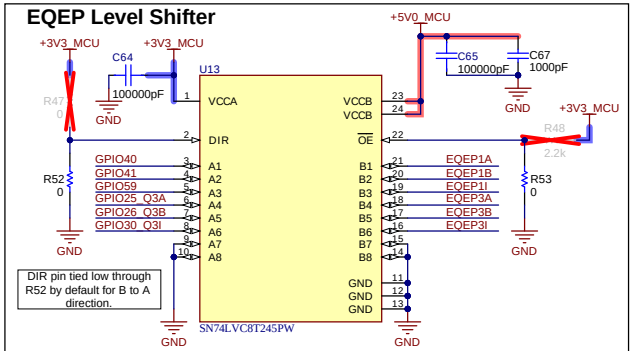
| Mode # | GPIO24 | GPIO32 | Boot Mode |
|---|---|---|---|
| 00 | 0 | 0 | Boot from Parallel GPIO |
| 01 | 0 | 1 | Boot from SCI / Wait Mode |
| 02 | 1 | 0 | Boot from CAN |
| 03 | 1 | 1 | Boot from Flash |

## EQEP Routing




S5 (1, UP): QEP signals are routed to the BoosterPack Headers (default)
S5 (0, DOWN): QEP signals are routed to the QEP Headers

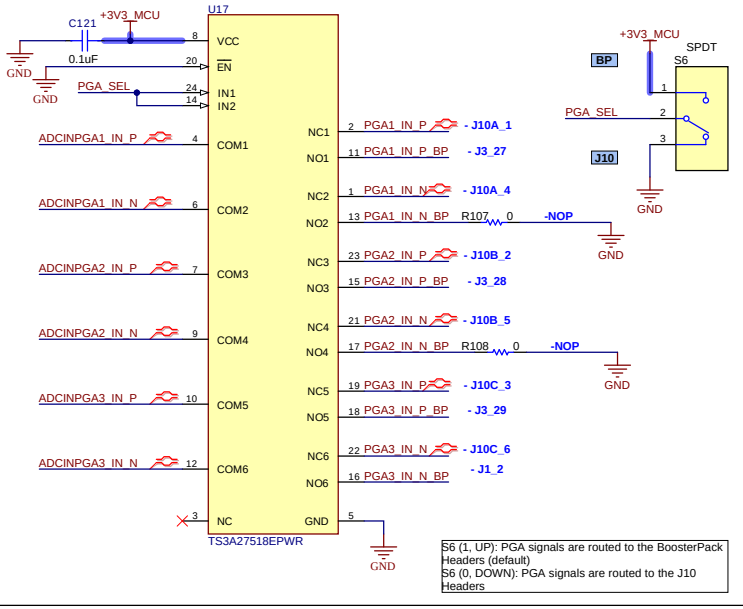
## EQEP Level Shifter




DIR pin tied low through R52 by default for B to A direction.

To disable the Level Shifter:
1. De-populate R53
2. Place a 2.2k ohm resistor on R48 to pull-up OE

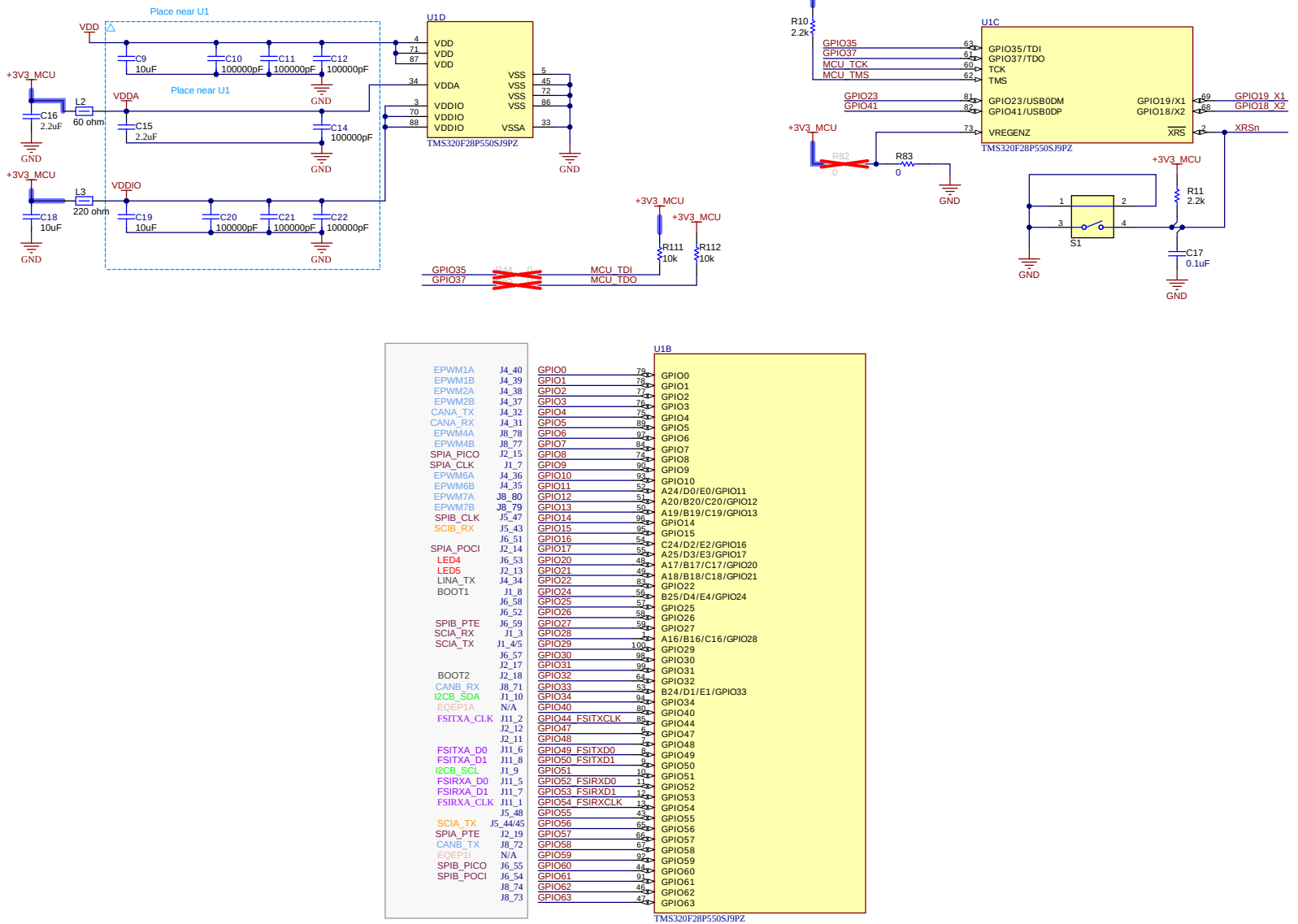
## PGA Routing




S6 (1, UP): PGA signals are routed to the BoosterPack Headers (default)
S6 (0, DOWN): PGA signals are routed to the J10 Headers

| | | | |
|---|---|---|---|
| Orderable: LAUNCHXL-F28P55X | | Designed for: Public Release | Mod. Date: 11/27/2024 |
| TID #: N/A | | Project Title: LAUNCHXL-F28P55X | |
| Number: MCU133 | Rev: A | Sheet Title: | |
| SVN Rev: e31646a0af1c1fffd06e233 | | [Locally Modified] | Sheet: 3 of 8 |
| Drawn By: Stevan Duraskovic | | File: MCU133A_AltRouting_Misc.SchDoc | Size: B |
| Engineer: Stevan Duraskovic | | Contact: http://www.ti.com/support | |

## F28P55x Device






| | | | |
|---|---|---|---|
| Orderable: LAUNCHXL-F28P55X | | Designed for: Public Release | Mod. Date: 2/20/2024 |
| TID #: N/A | | Project Title: LAUNCHXL-F28P55X | |
| Number: MCU133 | Rev: A | Sheet Title: | |
| SVN Rev: | | Assembly Variant: 001 | Sheet: 4 of 8 |
| Drawn By: Stevan Duraskovic | | File: MCU133A_F28P55x_Device.SchDoc | Size: B |
| Engineer: Stevan Duraskovic | | Contact: http://www.ti.com/support | |

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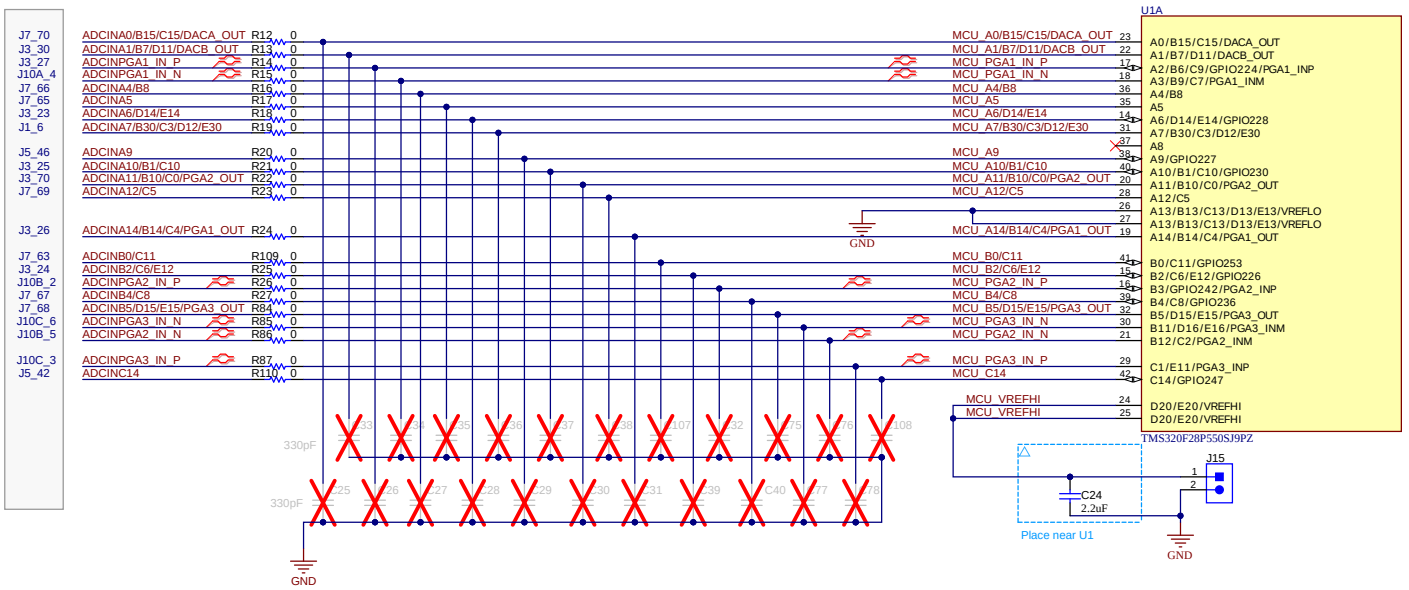


**F28P55X ADC Pins**



| | | | |
|---|---|---|---|
| Orderable: LAUNCHXL-F28P55X | | Designed for: Public Release | Mod. Date: 2/15/2024 |
| TID #: N/A | | Project Title: LAUNCHXL-F28P55X | |
| Number: MCU133 | Rev: A | Sheet Title: | |
| SVN Rev: | | Assembly Variant: 001 | Sheet: 5 of 8 |
| Drawn By: Stevan Duraskovic | | File: MCU133A_ADC.SchDoc | Size: B |
| Engineer: Stevan Duraskovic | | Contact: http://www.ti.com/support | |

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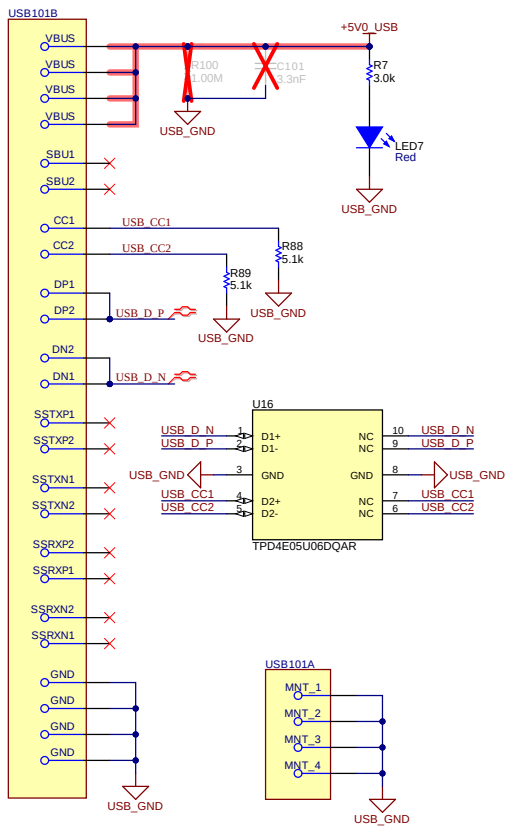
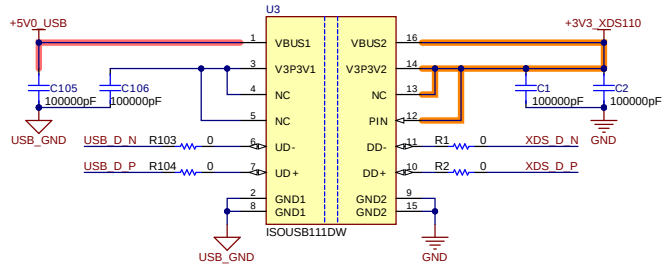
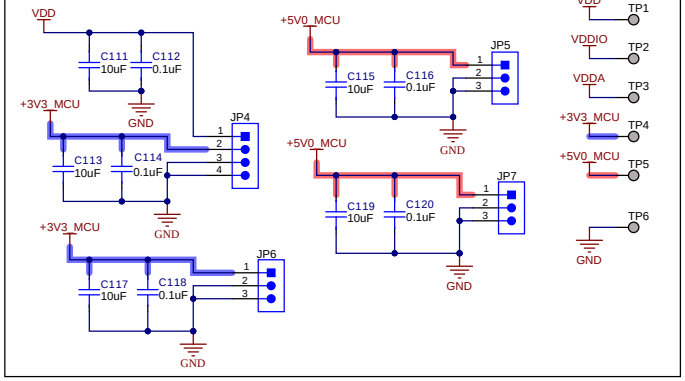
## USB-C Connector



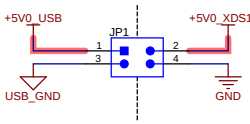

## USB Isolation



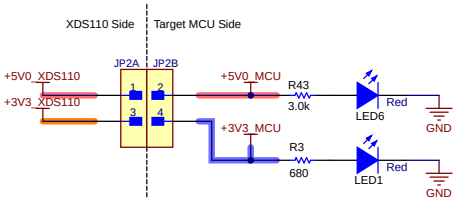

## Power Headers and Test Points



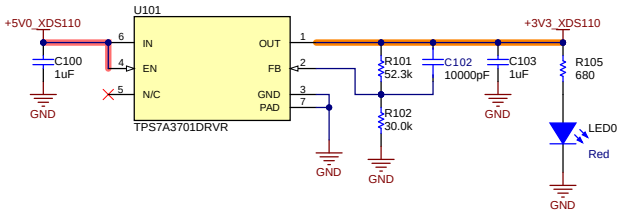

## PWR & GND Isolation Boundary



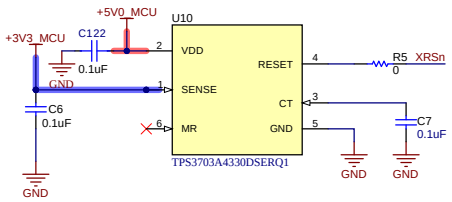

## 5V & 3.3V Isolation Boundary



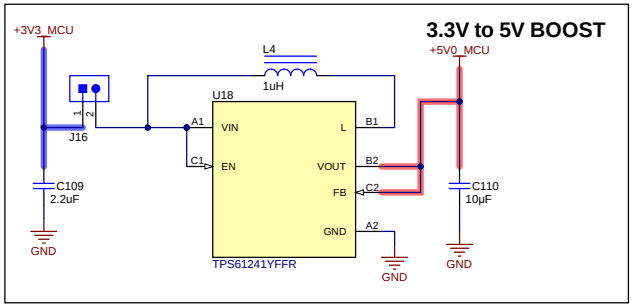

## 5V to 3.3V




## System Supervisory Circuit




## 3.3V to 5V BOOST






| | | | |
|---|---|---|---|
| Orderable: LAUNCHXL-F28P55X | | Designed for: Public Release | Mod. Date: 2/10/2024 |
| TID #: N/A | | Project Title: LAUNCHXL-F28P55X | |
| Number: MCU133 | Rev: A | Sheet Title: | |
| SVN Rev: | | Assembly Variant: 001 | Sheet: 6 of 7 |
| Drawn By: Stevan Duraskovic | | File: MCU133A_USB_and_Power.SchDoc | Size: B |
| Engineer: Stevan Duraskovic | | Contact: http://www.ti.com/support | |

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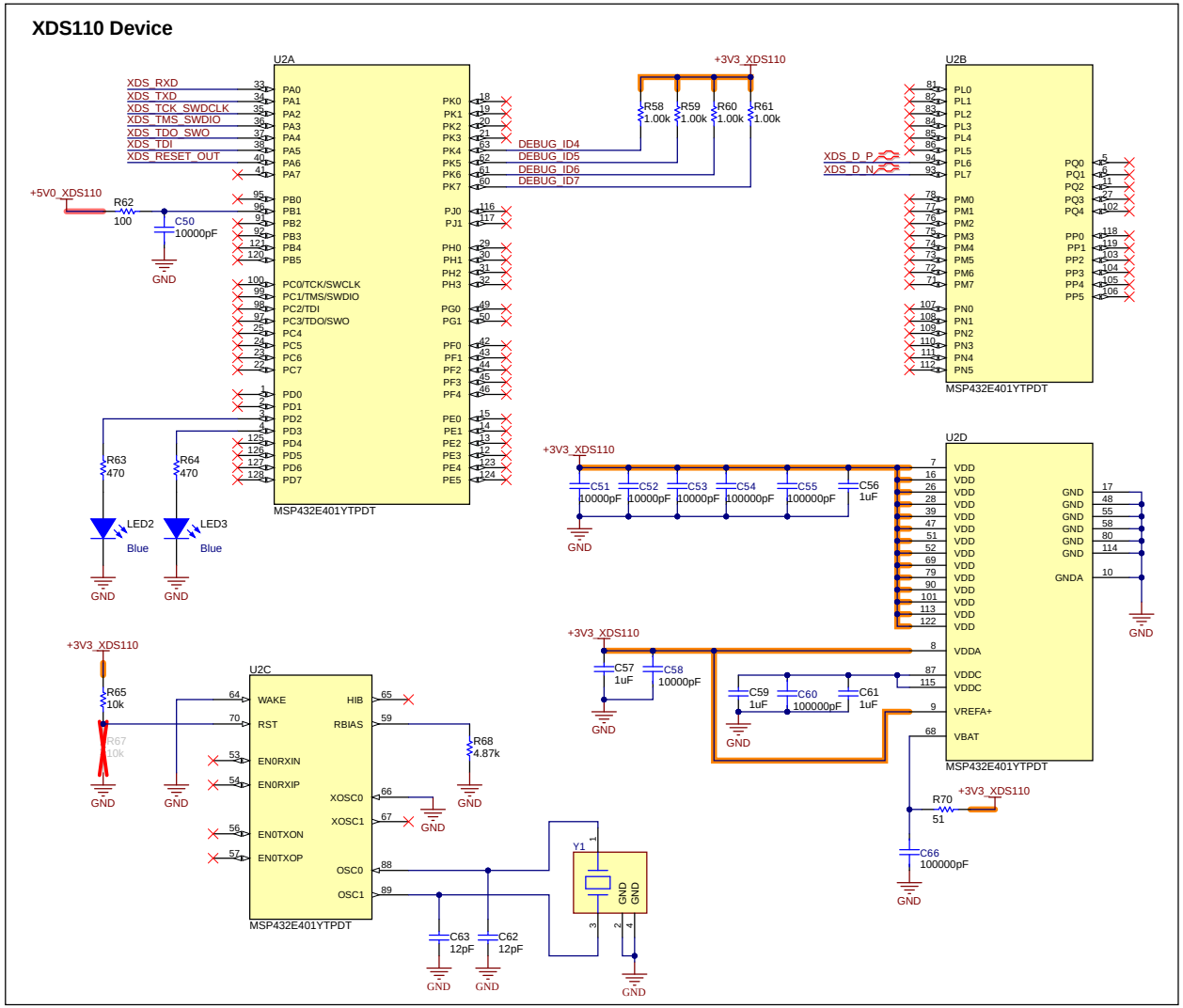
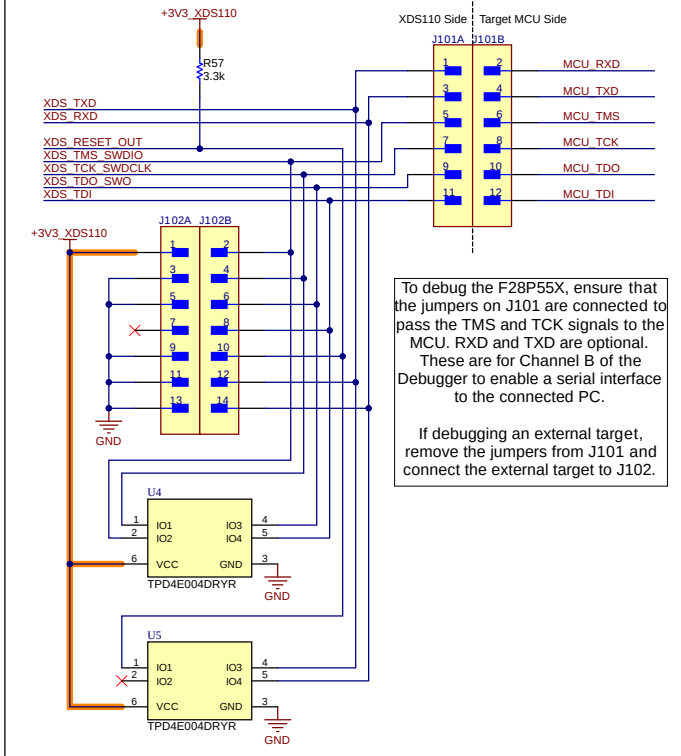
## XDS110 Device




## XDS110 Target Interface




To debug the F28P55X, ensure that the jumpers on J101 are connected to pass the TMS and TCK signals to the MCU. RXD and TXD are optional. These are for Channel B of the Debugger to enable a serial interface to the connected PC.

If debugging an external target, remove the jumpers from J101 and connect the external target to J102.



| | | | |
|---|---|---|---|
| Orderable: LAUNCHXL-F28P55X | | Designed for: Public Release | Mod. Date: 1/11/2024 |
| TID #: N/A | | Project Title: LAUNCHXL-F28P55X | |
| Number: MCU133 | Rev: A | Sheet Title: | |
| SVN Rev: | | Assembly Variant: 001 | Sheet: 7 of 8 |
| Drawn By: Stevan Duraskovic | | File: MCU133A_XDS110_MCU.SchDoc | Size: B |
| Engineer: Stevan Duraskovic | | Contact: http://www.ti.com/support | |

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FID1 FID2 FID3

FID4 FID5 FID6

MH1 MH2

MH3 MH4

PCB Number: MCU133
PCB Rev: A

Logo1
PCB
LOGO
Texas Instruments

CE Logo1

Logo3
PCB
LOGO
FCC disclaimer

Logo4
PCB
LOGO
WEEE logo

Logo5
PCB
LOGO
Texas Instruments

M1 M2 M3 M4 M5 M6 M7 M8 M9 M10 M11 M12 M13

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.



| | | | |
|---|---|---|---|
| Orderable: LAUNCHXL-F28P55X | | Designed for: Public Release | Mod. Date: 2/3/2024 |
| TID #: N/A | | Project Title: LAUNCHXL-F28P55X | |
| Number: MCU133 | Rev: A | Sheet Title: | |
| SVN Rev: | | Assembly Variant: 001 | Sheet: 8 of 8 |
| Drawn By: Stevan Duraskovic | | File: MCU133A_Hardware.SchDoc | Size: B |
| Engineer: Stevan Duraskovic | | Contact: http://www.ti.com/support | |

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