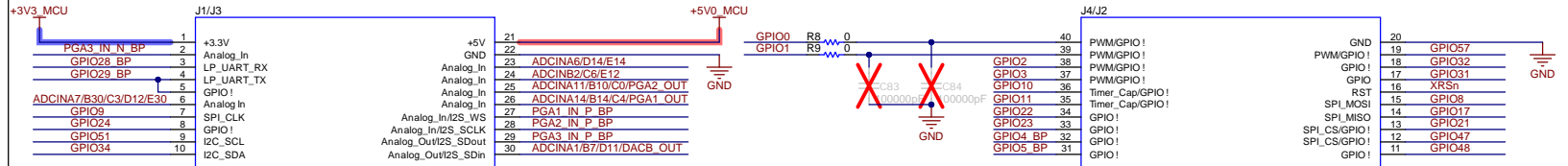


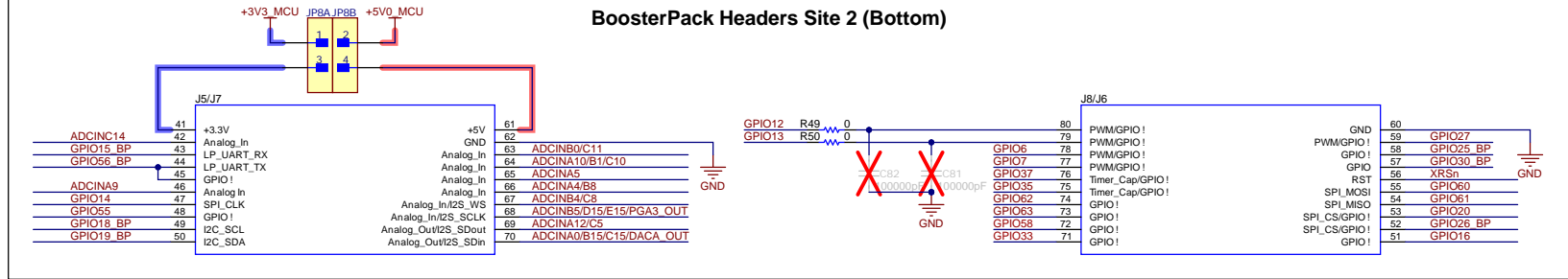
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Orderable: LAUNCHXL-F28P55X	Designed for: Public Release	Mod. Date: 2/20/2024
TID #: N/A	Project Title: LAUNCHXL-F28P55X	
Number: MCU133	Rev: A	
SVN Rev:	Assembly Variant: 001	Sheet: 1 of 8
Drawn By: Stevan Duraskovic	File: MCU133A_Block_Diagram.SchDoc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

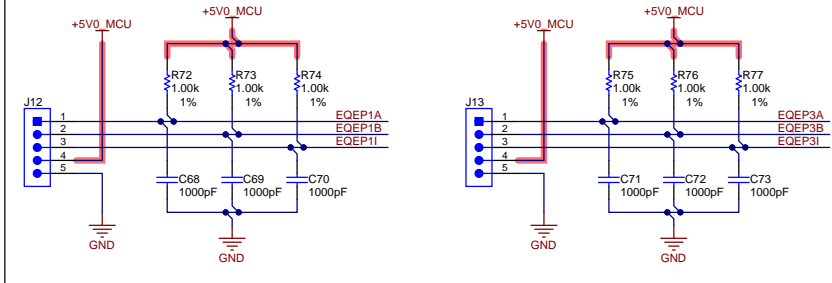
### BoosterPack Headers Site 1 (Top)



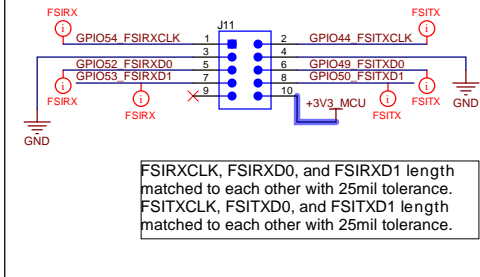
### BoosterPack Headers Site 2 (Bottom)



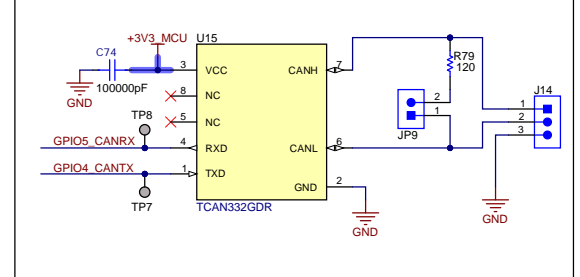
### EQEP Connectors



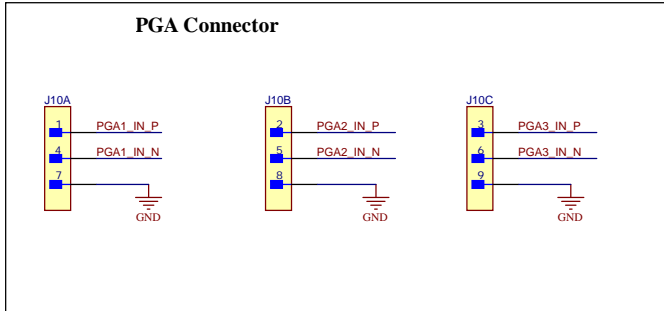
### FSI Connector



### CAN Transceiver & Connector



### PGA Connector

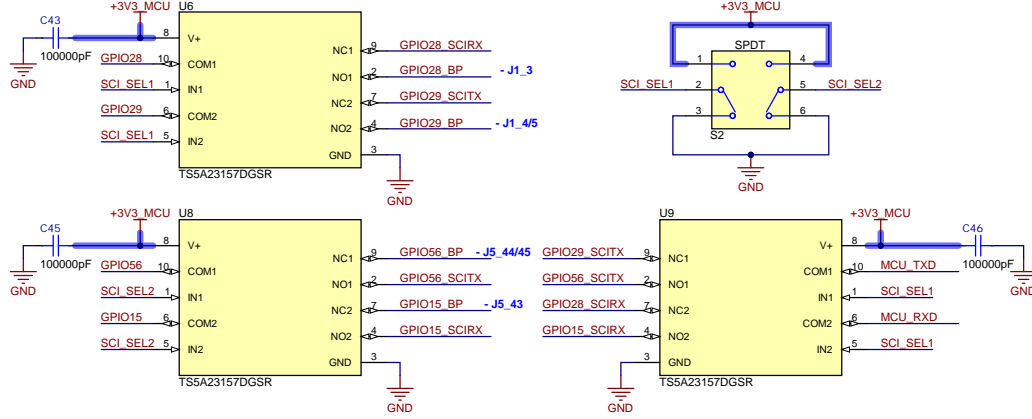


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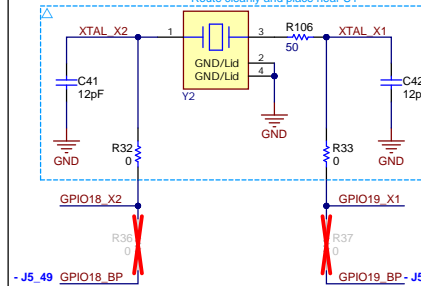
Orderable: LAUNCHXL-F28P55X	Designed for: Public Release	Mod. Date: 2/9/2024
TID #: N/A	Project Title: LAUNCHXL-F28P55X	
Number: MCU133	Rev: A	Sheet Title:
SVN Rev:	Assembly Variant: 001	Sheet 2 of 8
Drawn By: Stevan Duraskovic	File: MCU133A_Connectors_SchDoc	Size: B
Engineer: Stevan Duraskovic	Contact: <a href="http://www.ti.com/support">http://www.ti.com/support</a>	

### UART Routing

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

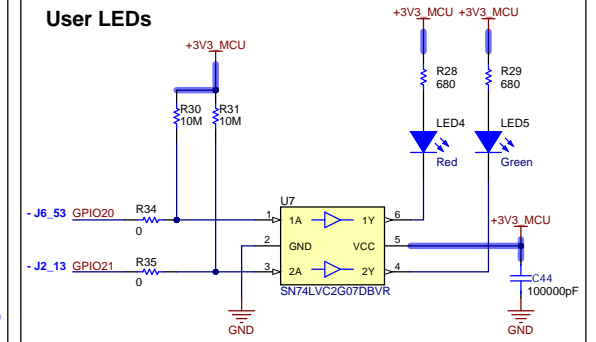


### Oscillator

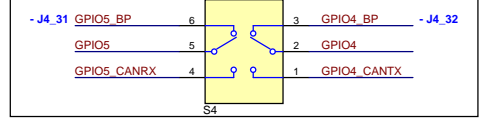


By default:  
 - Crystal Y2 is connected between GPIO18\_X2 and GPIO19\_X1.  
 - It is recommended to connect dampening resistor (R106) to the crystal output (XTAL\_X2).  
 - GPIO18\_BP AND GPIO19\_BP are connected to the BoosterPack headers.  
 If GPIO18 and GPIO 19 are needed at the Boosterpack Headers:  
 - Remove R32 and R33, populate R36 and R37 with 0 ohm resistors  
 - The F28P55x device's internal oscillator will need to be used

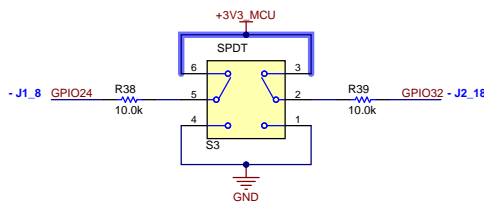
### User LEDs



### CAN Routing



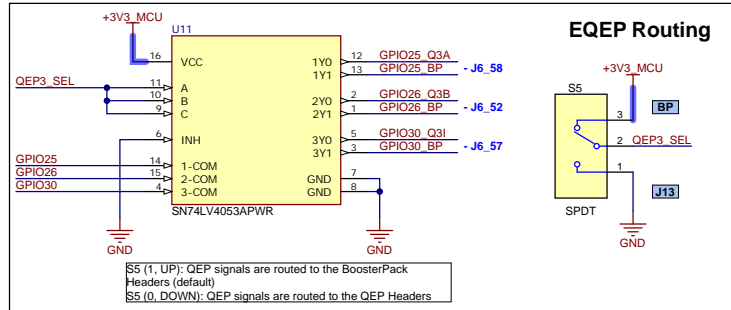
### Boot Mode Select



Selected Boot Mode Chart

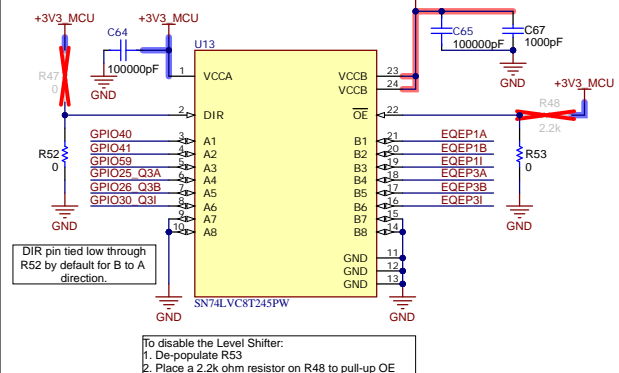
Mode #	GPIO24	GPIO32	Boot Mode
00	0	0	Boot from Parallel GPIO
01	0	1	Boot from SCI / Wait Mode
02	1	0	Boot from CAN
03	1	1	Boot from Flash

### EQEP Routing



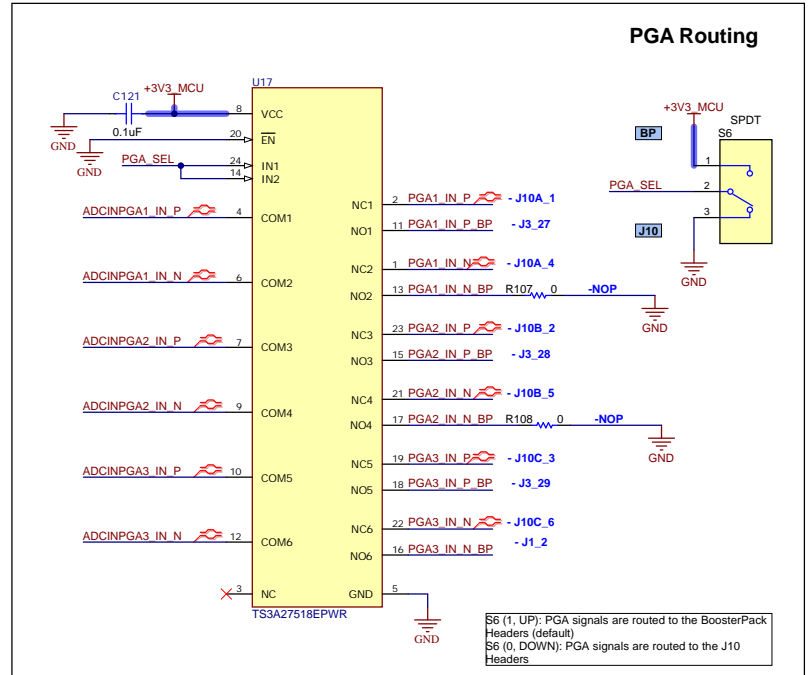
S5 (1, UP): EQEP signals are routed to the BoosterPack Headers (default)  
 S5 (0, DOWN): EQEP signals are routed to the J13 Headers

### 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

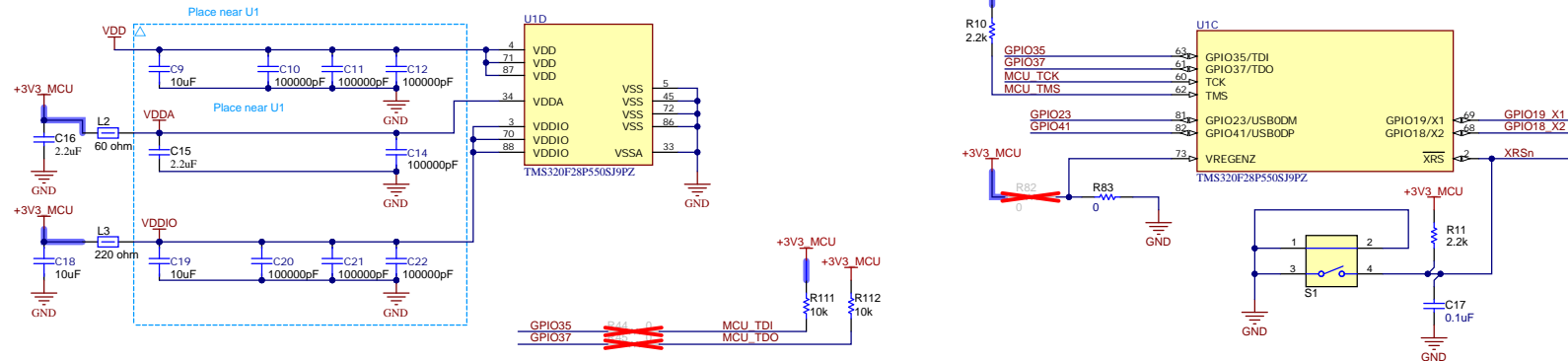
### PGA Routing



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

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# F28P55x Device

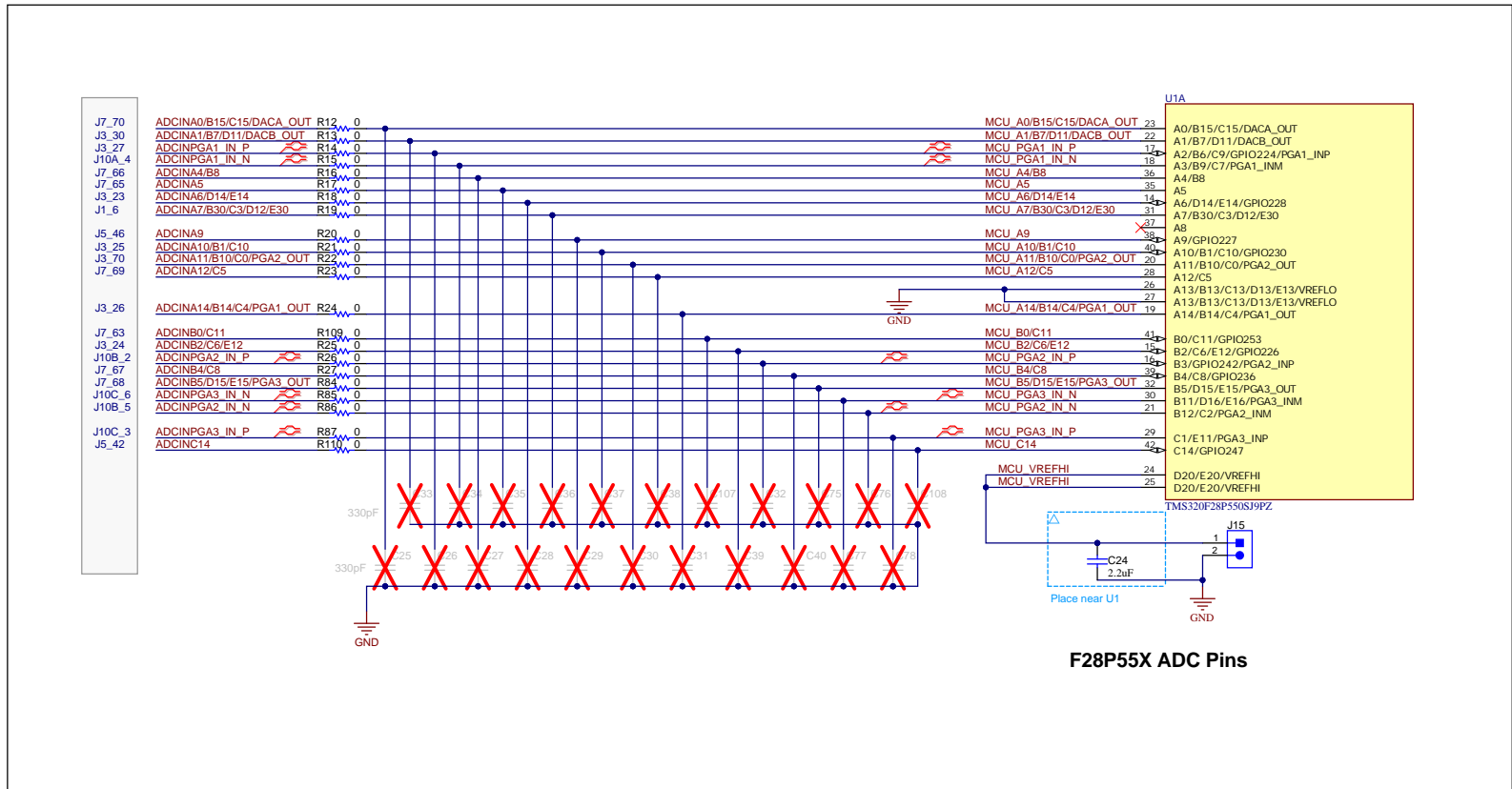


U1B	
EPWM1A	J4_40
EPWM1B	J4_39
EPWM2A	J4_38
EPWM2B	J4_37
CANA_TX	J4_32
CANA_RX	J4_31
EPWM4A	J8_78
EPWM4B	J8_77
SPIA_PICO	J2_15
SPIA_CLK	J1_7
EPWM6A	J4_36
EPWM6B	J4_35
EPWM7A	J8_80
EPWM7B	J8_79
SPIB_CLK	J5_47
SCIB_RX	J5_43
	J6_51
SPIA_POCI	J2_14
LED4	J6_53
LED5	J2_13
LINA_TX	J4_34
BOOT1	J1_8
	J6_58
SPIB_PTE	J6_59
SCIA_RX	J1_3
SCIA_TX	J1_4/5
	J6_57
	J2_17
BOOT2	J2_18
CANB_RX	J8_71
I2CB_SDA	J1_10
EQEP1A	N/A
FSITXA_CLK	J11_2
	J2_12
	J2_11
FSITXA_D0	J11_6
FSITXA_D1	J11_8
I2CB_SCL	J1_9
FSIRXA_D0	J11_5
FSIRXA_D1	J11_7
FSIRXA_CLK	J11_1
	J5_48
SCIA_TX	J5_44/45
SPIA_PTE	J2_19
CANB_TX	J8_72
EQEP11	N/A
SPIB_PICO	J6_55
SPIB_POCI	J6_54
	J8_74
	J8_73
GPIO0	J7_79
GPIO1	J7_78
GPIO2	J7_74
GPIO3	J7_76
GPIO4	J7_75
GPIO5	J8_79
GPIO6	J8_78
GPIO7	J8_77
GPIO8	J7_74
GPIO9	J9_79
GPIO10	J9_78
GPIO11	J9_77
GPIO12	J5_48
GPIO13	J5_49
GPIO14	J9_76
GPIO15	J9_75
GPIO16	J5_47
GPIO17	J5_46
GPIO20	J4_38
GPIO21	J4_37
GPIO22	J8_79
GPIO24	J5_45
GPIO25	J5_44
GPIO26	J5_43
GPIO27	J5_42
GPIO28	J1_3
GPIO29	J10_79
GPIO30	J9_78
GPIO31	J9_77
GPIO32	J6_58
GPIO33	J5_47
GPIO34	J9_76
GPIO40	J8_79
GPIO44 FSITXCLK	J8_78
GPIO47	J4_37
GPIO48	J4_36
GPIO49 FSITXD0	J11_6
GPIO50 FSITXD1	J11_8
GPIO51	J11_9
GPIO52 FSIRXD0	J11_5
GPIO53 FSIRXD1	J11_7
GPIO54 FSIRXCLK	J11_1
GPIO55	J5_48
GPIO56	J5_44/45
GPIO57	J2_19
GPIO58	J8_72
GPIO59	J6_55
GPIO60	J6_54
GPIO61	J8_74
GPIO62	J8_73
GPIO63	J8_72

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: <a href="http://www.ti.com/support">http://www.ti.com/support</a>	

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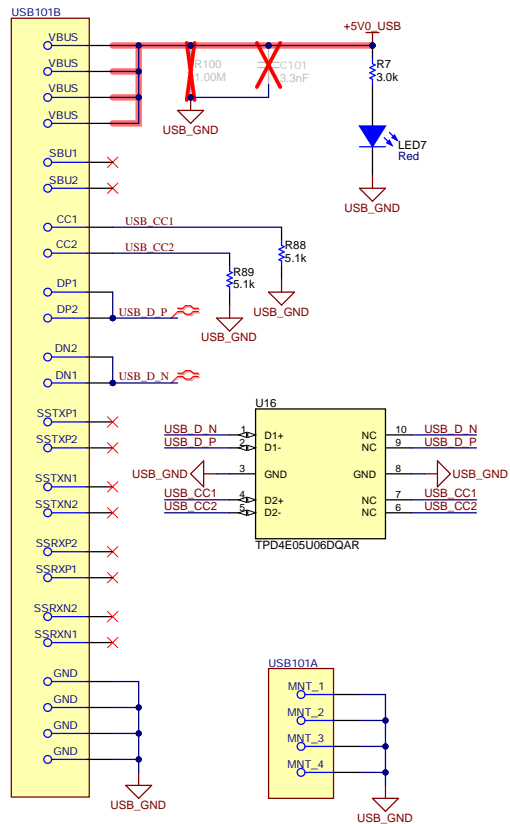
F28P55X ADC Pins

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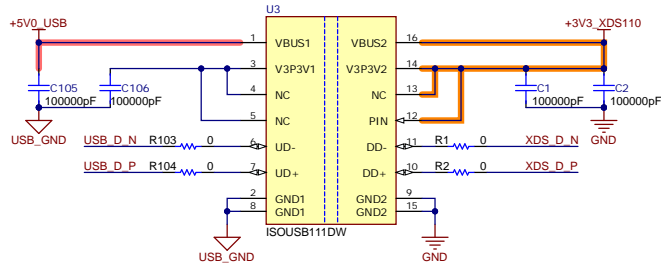
Orderable: LAUNCHXL-F28P55X	Designed for: Public Release	Mod. Date: 2/15/2024
TID #: N/A	Project Title: LAUNCHXL-F28P55X	
Number: MCU133	Rev: A	Sheet Title:
SVN Rev:	Assembly Variant: 001	Sheet 5 of 8
Drawn By: Stevan Duraskovic	File: MCU133A_ADC.SchDoc	Size: B
Engineer: Stevan Duraskovic	Contact: <a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



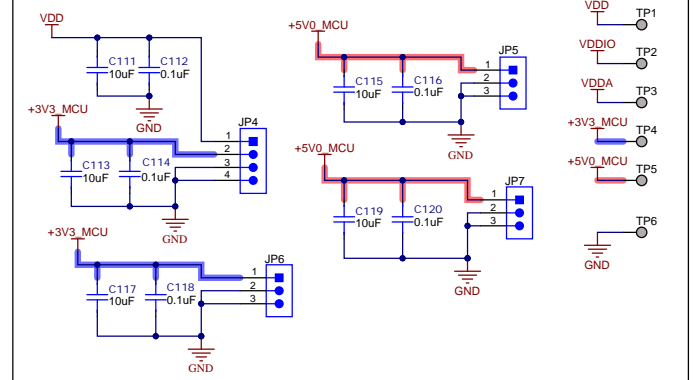
### USB-C Connector



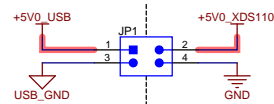
### USB Isolation



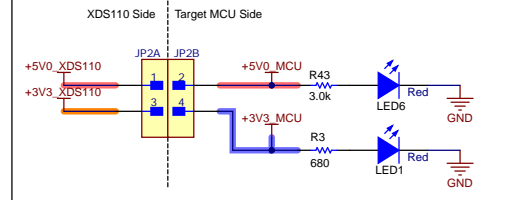
### Power Headers and Test Points



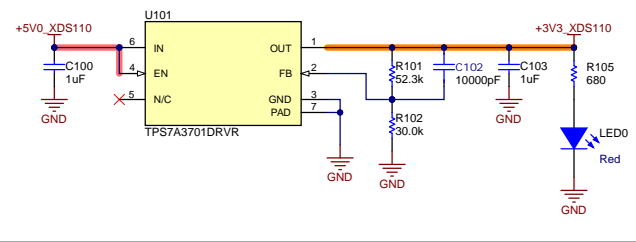
### PWR & GND Isolation Boundary



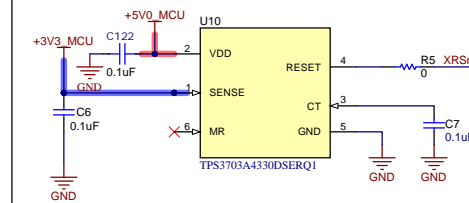
### 5V & 3.3V Isolation Boundary



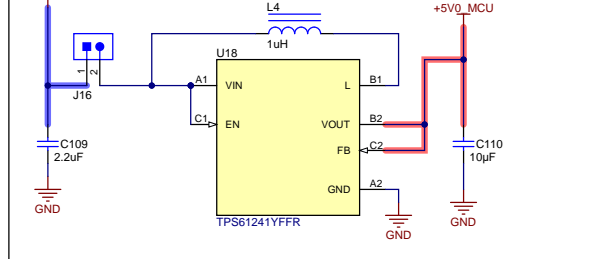
### 5V to 3.3V



### System Supervisory Circuit



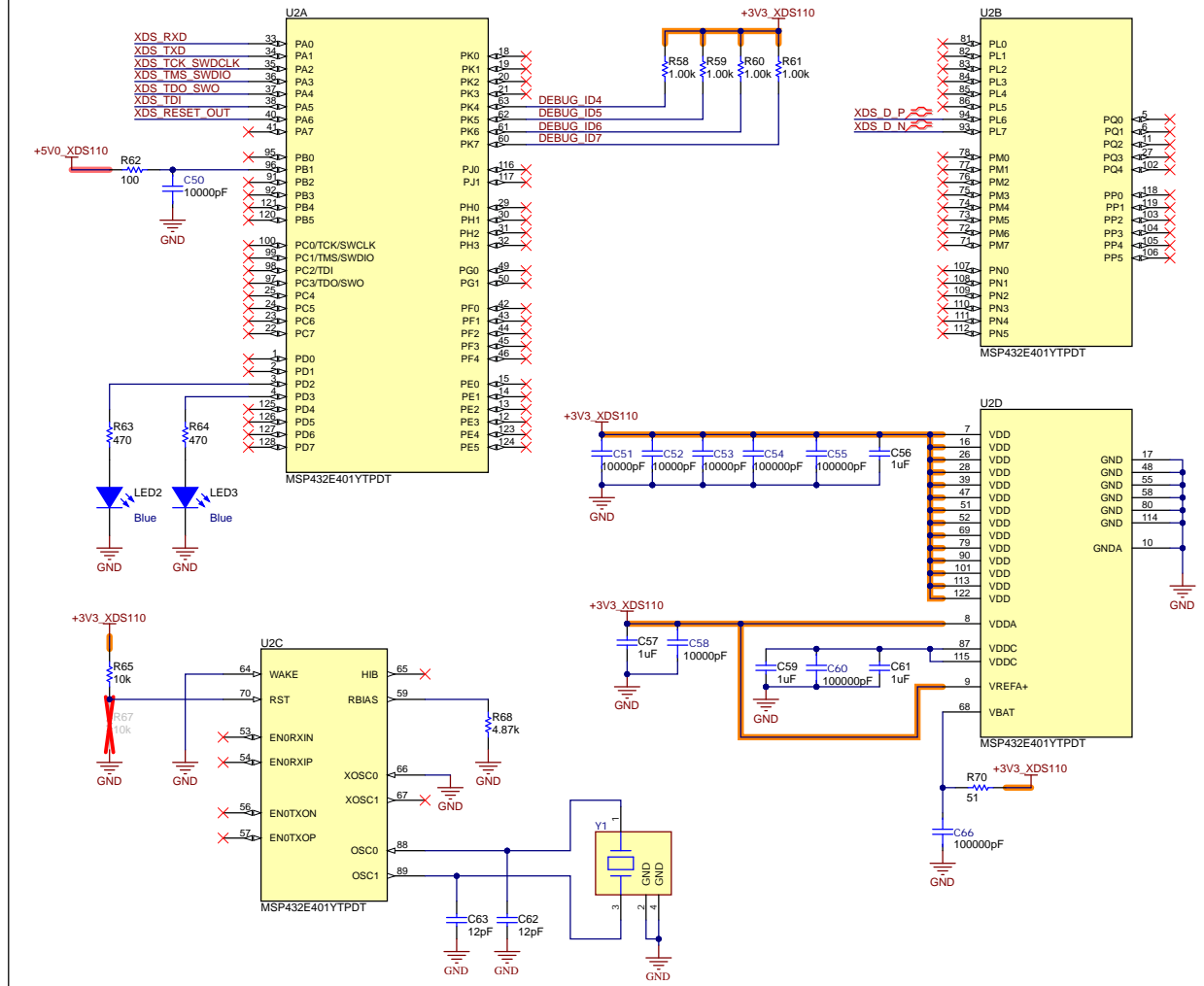
### 3.3V to 5V BOOST



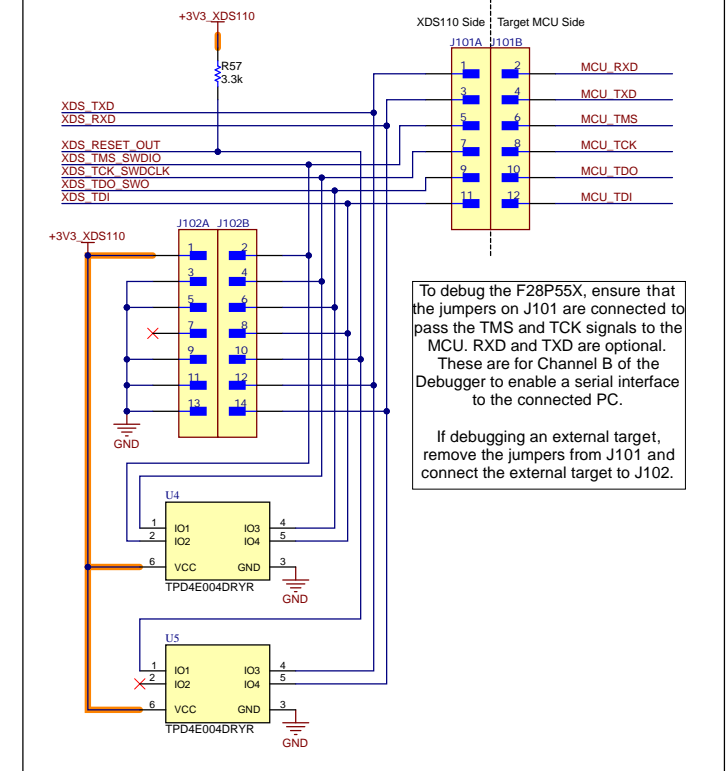
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Orderable: LAUNCHXL-F28P55X	Designed for: Public Release	Mod. Date: 2/10/2024
TID #: N/A	Project Title: LAUNCHXL-F28P55X	
Number: MCU133	Rev: A	Sheet Title:
SVN Rev:	Assembly Variant: 001	Sheet 6 of 7
Drawn By: Stevan Duraskovic	File: MCU133A_USB_and_Power_SchDoc	Size: B
Engineer: Stevan Duraskovic	Contact: <a href="http://www.ti.com/support">http://www.ti.com/support</a>	

### XDS110 Device



### XDS110 Target Interface

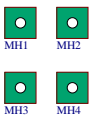


To debug the F28P55X, ensure that the jumpers on J101 are connected to pass the TMS and TCK signals to the MCU. RXD and TXD are optional. These are for Channel B of the Debugger to enable a serial interface to the connected PC.

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

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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: <a href="http://www.ti.com/support">http://www.ti.com/support</a>	



PCB Number: MCU133  
PCB Rev: A

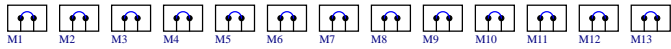
Logo1  
PCB  
LOGO  
Texas Instruments



Logo3  
PCB  
LOGO  
FCC disclaimer

Logo4  
PCB  
LOGO  
WEEE logo

Logo5  
PCB  
LOGO  
Texas Instruments



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.

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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: <a href="http://www.ti.com/support">http://www.ti.com/support</a>	





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