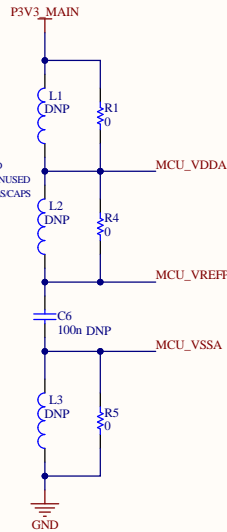


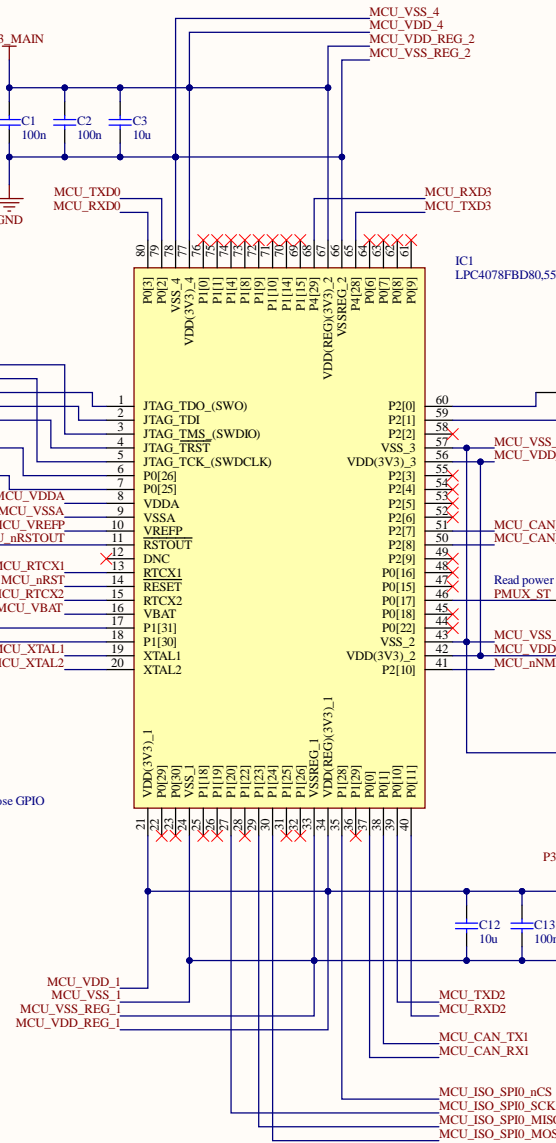
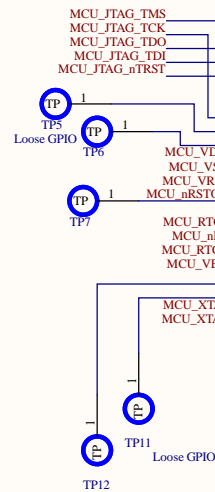
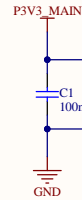
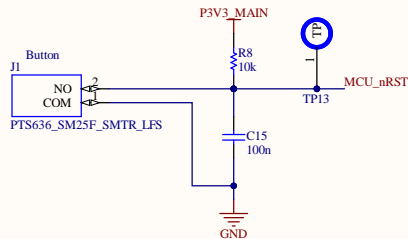
ADC/DAC Analog Supply

ONLY POPULATE 0 OHMS IF ADC/DAC UNUSED
AND DEPOPULATE FERRITE BEADS/CAP IF ADC/DAC UNUSED
0 OHMS SHOULD BE MUTUALLY EXCLUSIVE WITH FERRITE BEADSCAPS



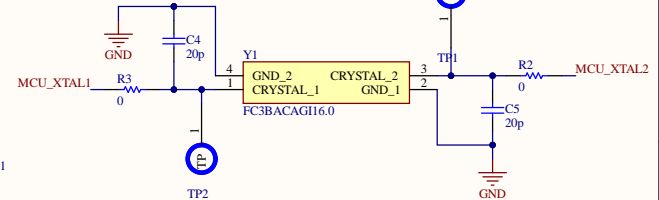
Reset Circuit

Also resettable via USB



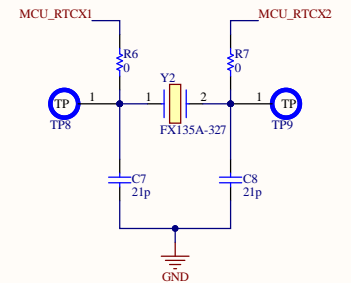
Main Crystal Oscillator

$CL = ((CX1 \times CX1) / (2 \times CX1)) + C_{stray}$
 $CX1 = CX2 = 2(12pF - 2pF) = 20pF$
Crystal $CL=12pF$, assuming $C_{stray}=2pF$

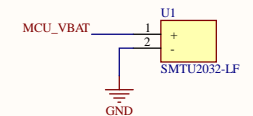


RTC Crystal Oscillator

$CL = ((CX1 \times CX1) / (2 \times CX1)) + C_{stray}$
 $CX1 = CX2 = 2(12.5pF - 2pF) = 21pF$
Crystal $CL=12.5pF$, assuming $C_{stray}=2pF$

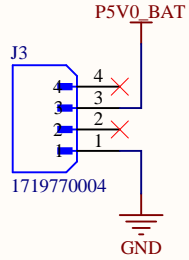


RTC Battery

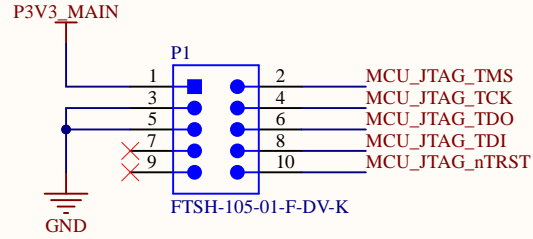


Title Main/MCU Sheet			
Size	Number	Revision	
B			
Date:	5/05/2023	Sheet of	Spartan Racing & SRSU
File:	C:\Users\j.bmsMaster_main\SchDoc	Drawn By:	Vincent Saw

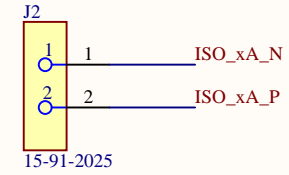
Power Connector



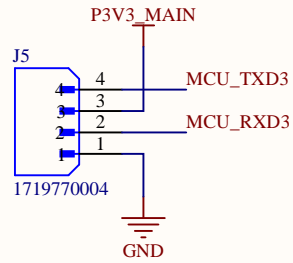
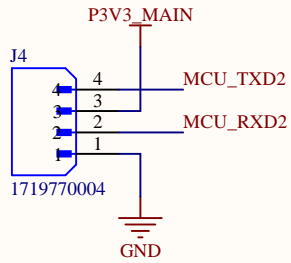
JTAG Debug Connector



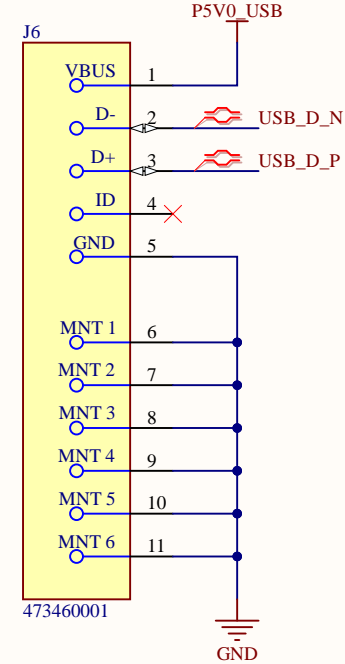
isoSPI Connector (to 1st Slave)



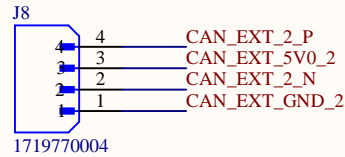
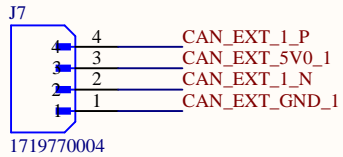
UART/Serial Connectors



microUSB Type B Connector

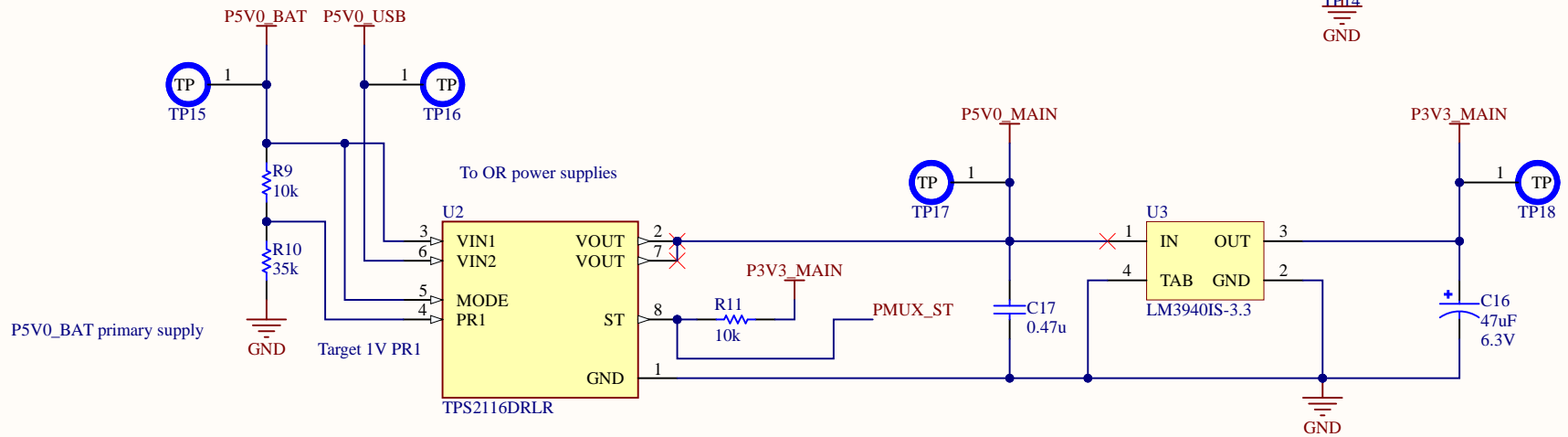


CAN Connectors



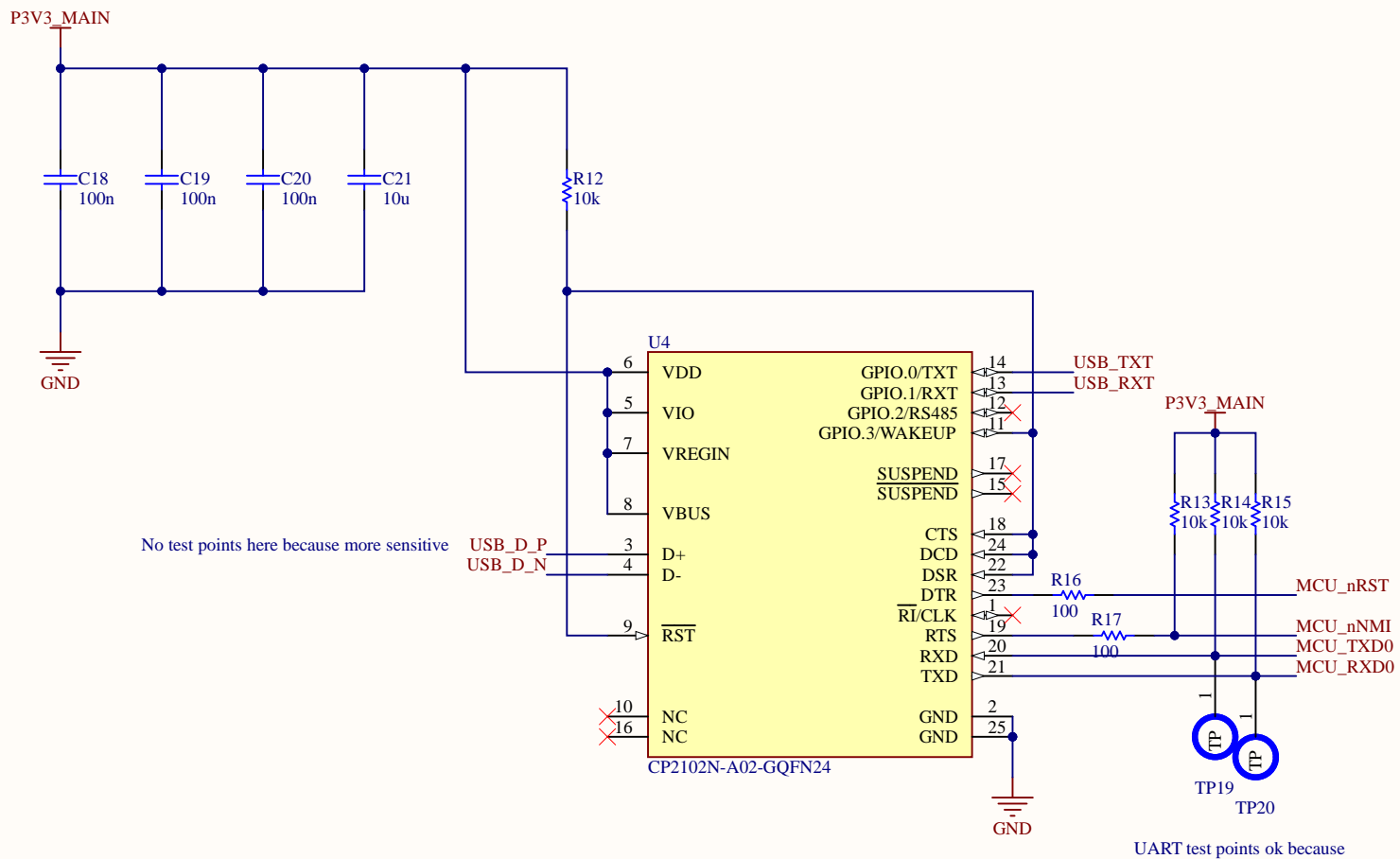
Connector Sheet

Size	Number	Revision
A		
Date:	5/05/2023	Sheet of Spartan Racing & SJSU
File:	C:\Users\...\bmsMaster_conn.SchDoc	Drawn By: Vincent Saw



V _{REF}	PR1 reference voltage	1	-40°C to 105°C	0.92	1	1.08	V
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Title Power Sheet		
Size A	Number	Revision
Date: 5/05/2023	Sheet of Spartan Racing & SJSU	
File: C:\Users\...\bmsMaster_power.SchDoc	Drawn By: Vincent Saw	

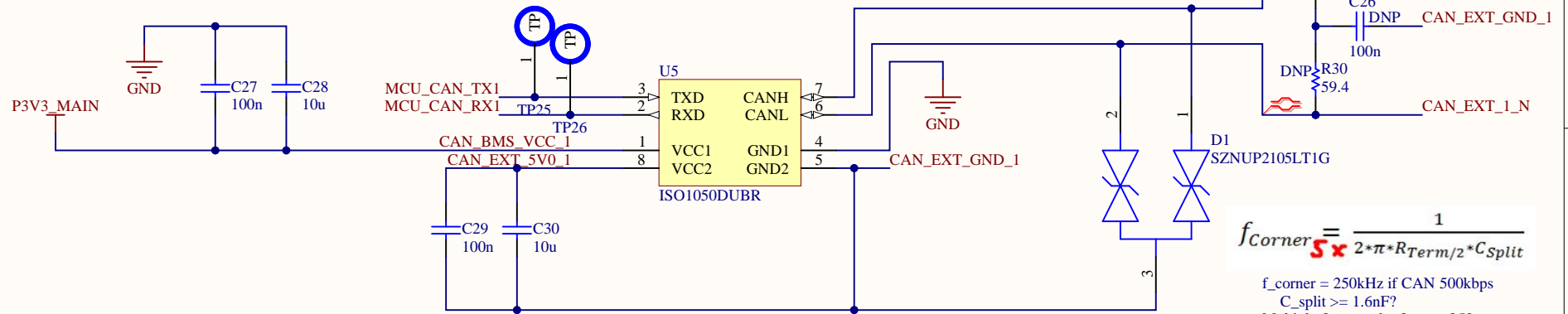


No test points here because more sensitive

Title USB Sheet		
Size A	Number	Revision
Date: 5/05/2023	Sheet of 4	Spartan Racing & SJSU
File: C:\Users\...\bmsMaster_usb.SchDoc	Drawn By: Vincent Saw	

Isolated CAN Transceiver 1

Requires external 5V and GND for isolation purposes
TODO: Add on-board isolated power for VCC2/GND2



$$f_{corner} = \frac{1}{2 * \pi * R_{Term} / 2 * C_{Split}}$$

f_corner = 250kHz if CAN 500kbps

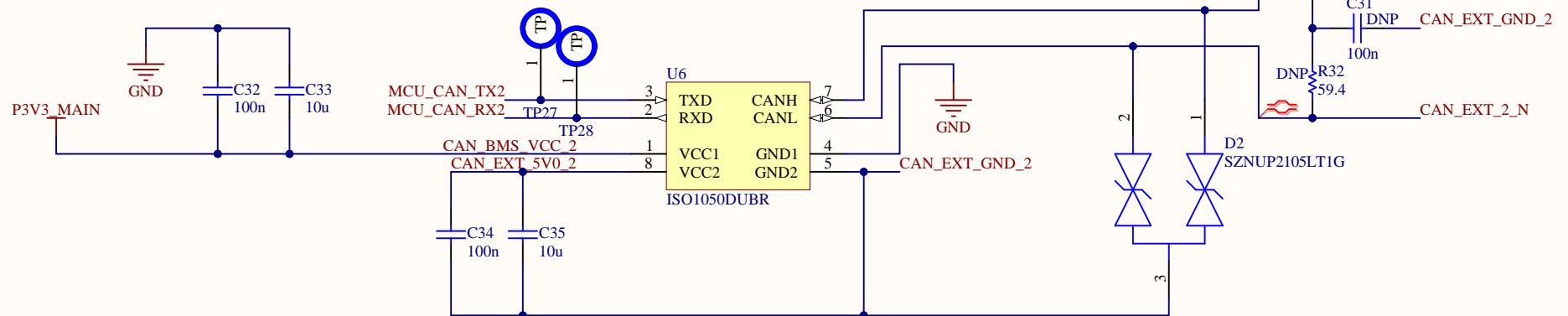
C_split >= 1.6nF?

Multiply f_corner by factor of 5?

Using 100n for now, mega low pass, generous threshold

Isolated CAN Transceiver 2

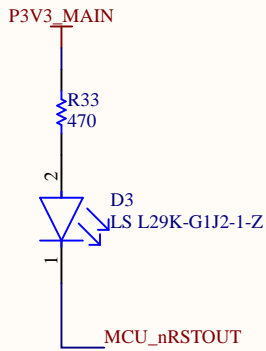
Requires external 5V and GND for isolation purposes
TODO: Add on-board isolated power for VCC2/GND2



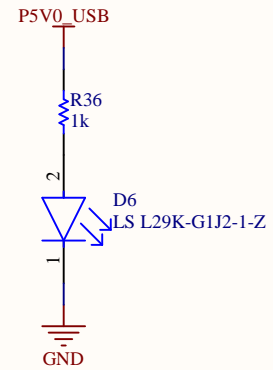
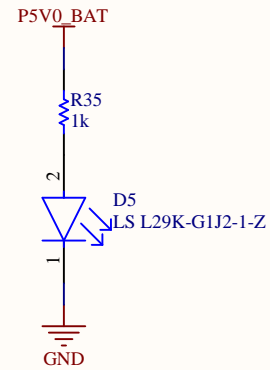
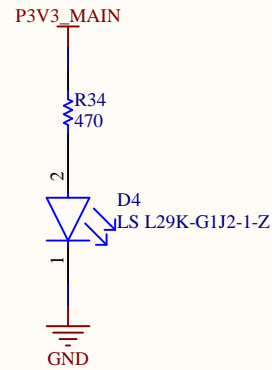
Title CAN Bus Sheet

Size	Number	Revision
A		
Date:	5/05/2023	Sheet of Spartan Racing & SJISU
File:	C:\Users\...\bmsMaster_can.SchDoc	Drawn By: Vincent Saw

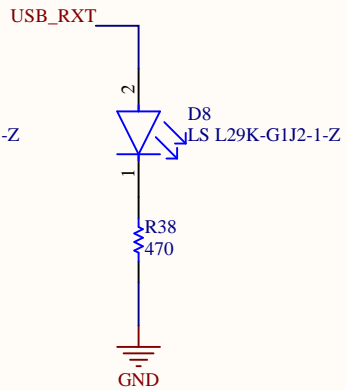
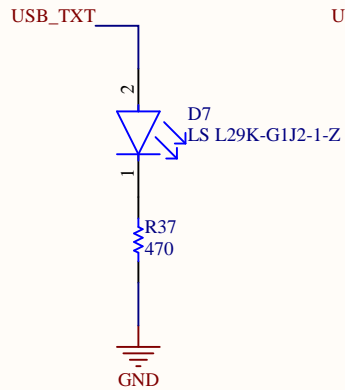
Reset Indicator LED (nRSTOUT)



Power Debug LEDs



USB/UART0 Activity Indication LEDs



Title LED Sheet		
Size A	Number	Revision
Date: 5/05/2023	Sheet of Spartan Racing & SJSU	
File: C:\Users\...\bmsMaster_led.SchDoc	Drawn By: Vincent Saw	

Board Stack Report