5V - 3.3V Buck Converter

Power In

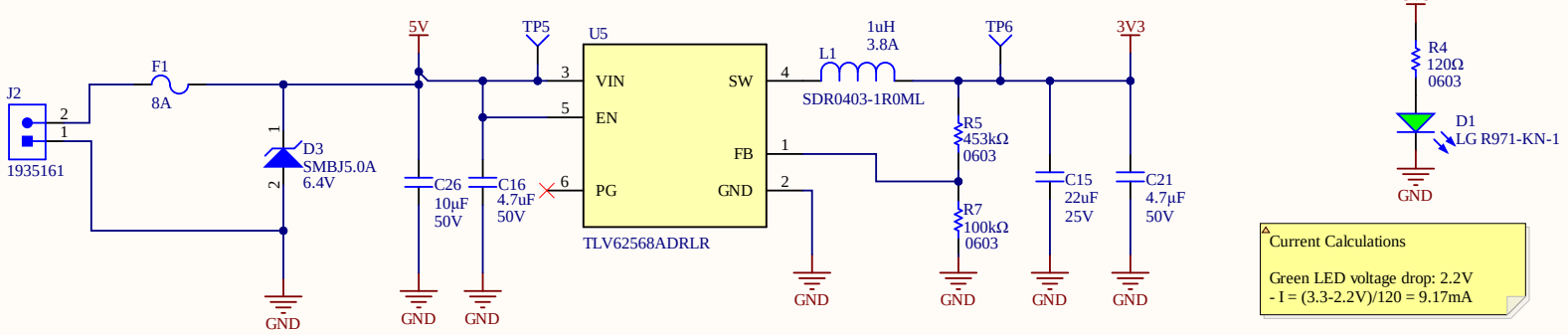
Designed for 3.3V - 5.5V input

Route for 1A in

Inductor: SDR0403-1R0ML
1uH, 20%, 33mOhm DCR (max)
3.8A (rms), 5.5A (sat), 3.2mm tall

Maximum output current = 2A
Maximum output power = 6.6W
Expected efficiency at 1A = 94.3%

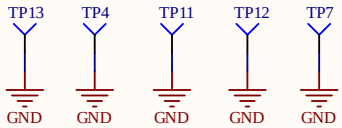
Route for 1A out



Current Calculations

Green LED voltage drop: 2.2V
- I = (3.3-2.2V)/120 = 9.17mA

GND Test Points



Title Gimbal - Power		UW Robotics 200 University Avenue Waterloo Ontario Canada N2L 3G6	UW ROBOTICS TEAM
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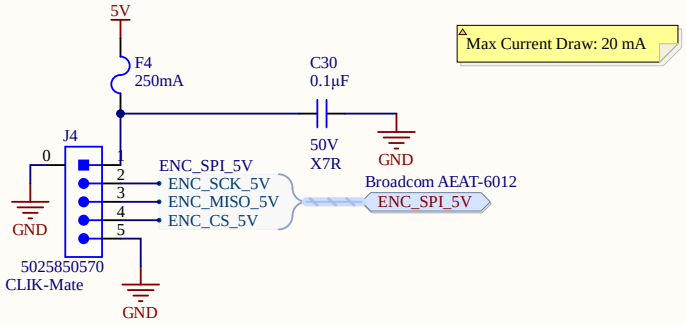
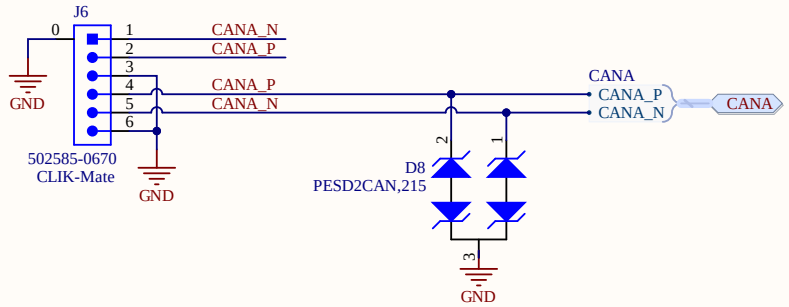
Date: 2020-11-02	Sheet 1 of 6		
File: C:\Users\lance\Github\MarsRover2020-PCB\Projects\Gimbal\Rev2\SH1 - POWER.SchDoc			

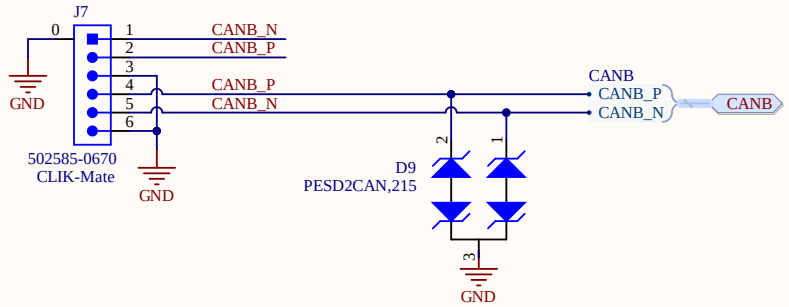
Broadcom AEAT-6012 Encoder



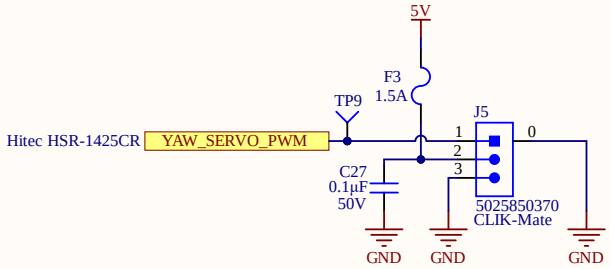
CAN Bus A

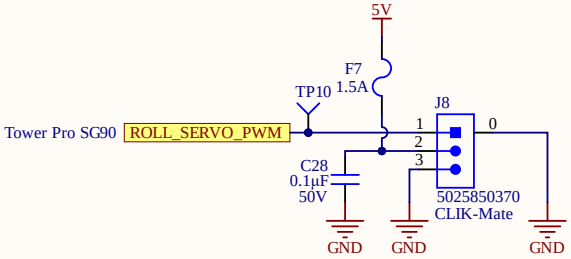


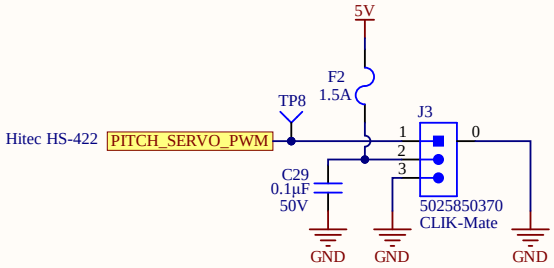
CAN Bus B



Servos

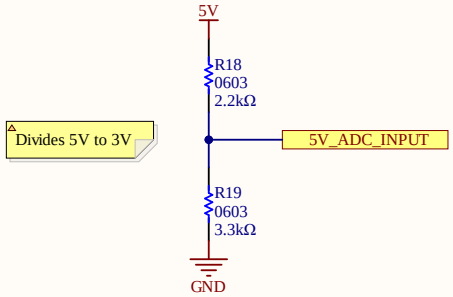




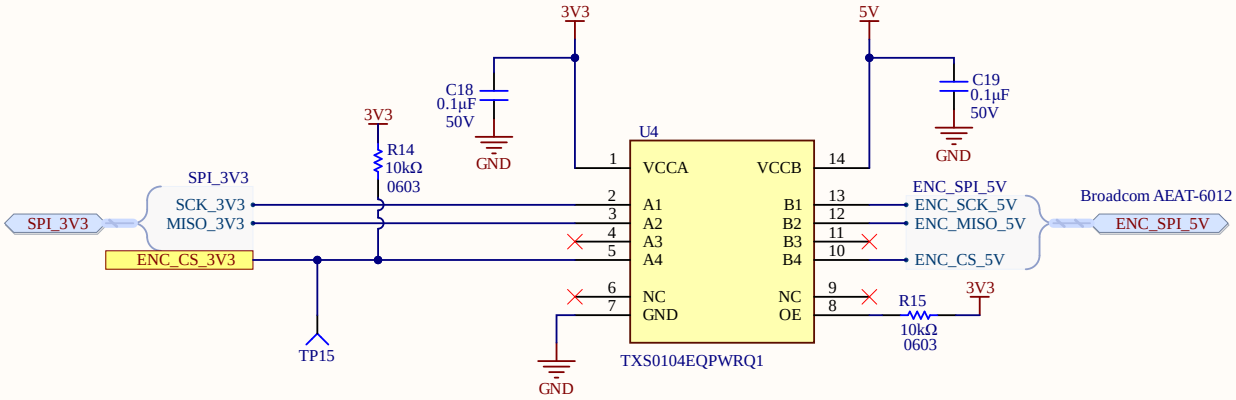


Title Gimbal - Connectors		UW Robotics 200 University Avenue Waterloo Ontario Canada N2L 3G6
Size: Letter	Drawn By: Aidan Gratton	
Date: 2020-11-02	Sheet 2 of 6	
File: C:\Users\lance\Github\MarsRover2020-PCB\Projects\Gimbal\Rev2\SH2 - CONNECTORS.SchDoc		

5V Rail Monitoring



SPI Encoder Level Shifter



Title Gimbal - Sensors		UW Robotics 200 University Avenue Waterloo Ontario Canada N2L 3G6	UW ROBOTICS TEAM
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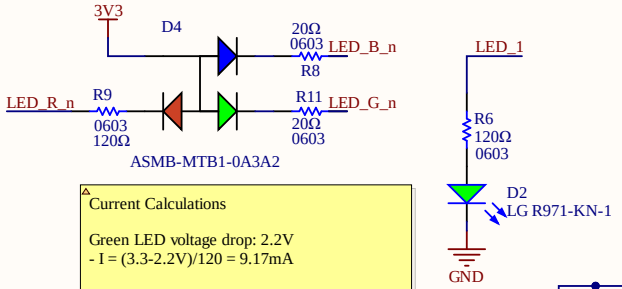
Date: 2020-11-02	Sheet 3 of 6		
File: C:\Users\lance\Github\MarsRover2020-PCB\Projects\Gimbal\Rev2\SH3 - SENSORS.SchDoc			

Status/Debug LEDs

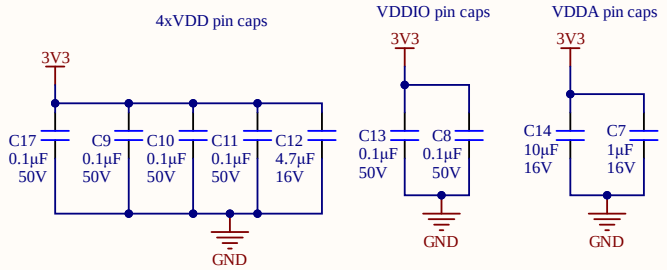


Current Calculations

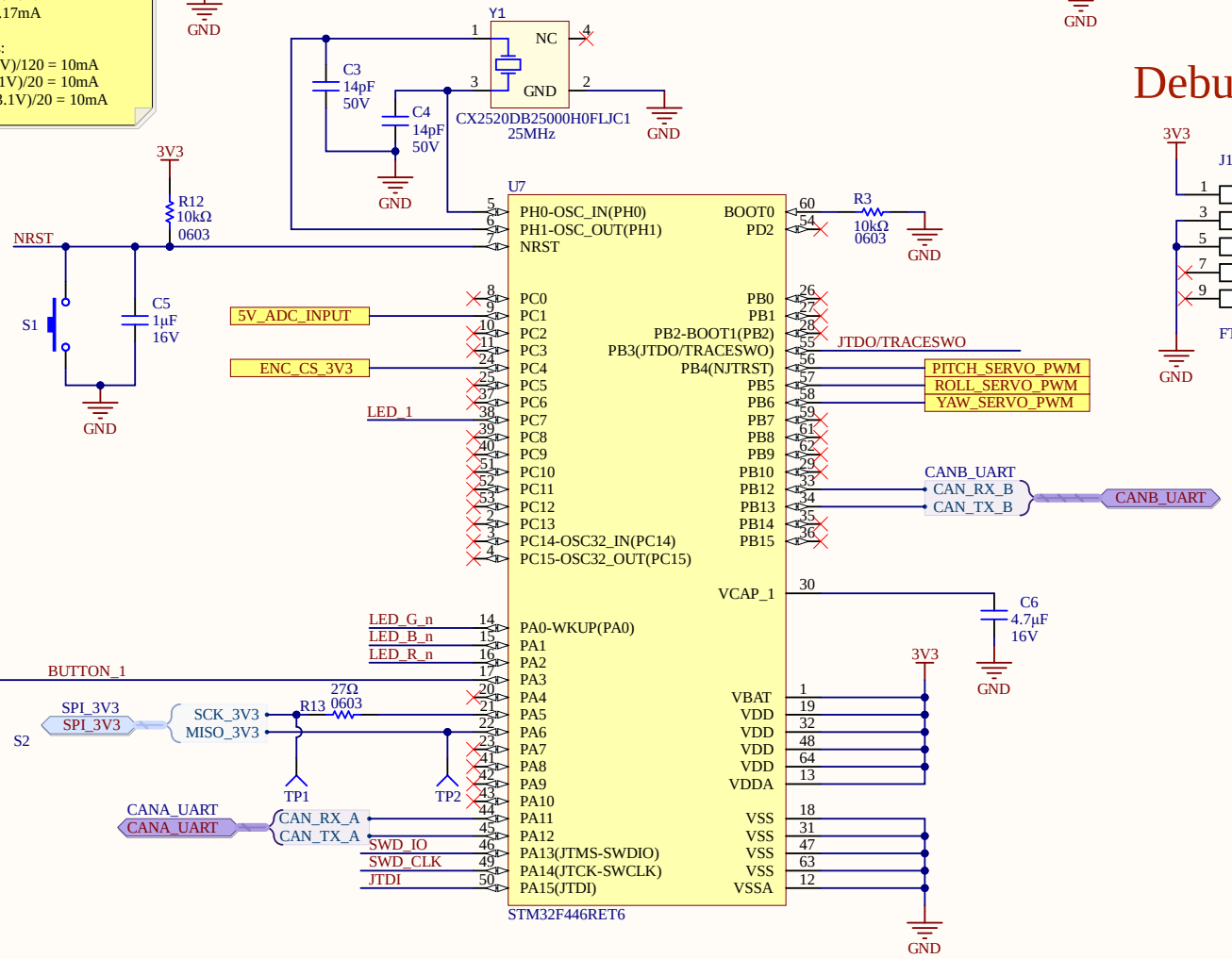
Green LED voltage drop: 2.2V
- I = (3.3-2.2V)/120 = 9.17mA

RGB LED voltage drops:
- Red: 2.1V: I = (3.3-2.1V)/120 = 10mA
- Blue: 3.1V: I = (3.3-3.1V)/20 = 10mA
- Green: 3.1V: I = (3.3-3.1V)/20 = 10mA

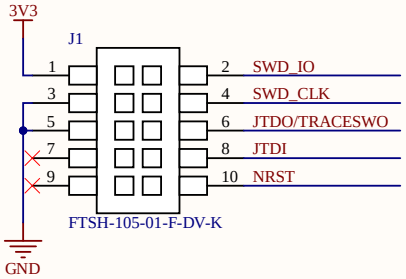
Decoupling Caps



STM32F446RET6



Debug/Programming



MOUNTING_HOLE_M3

Title Gimbal - Microcontroller		UW Robotics 200 University Avenue Waterloo Ontario Canada N2L 3G6
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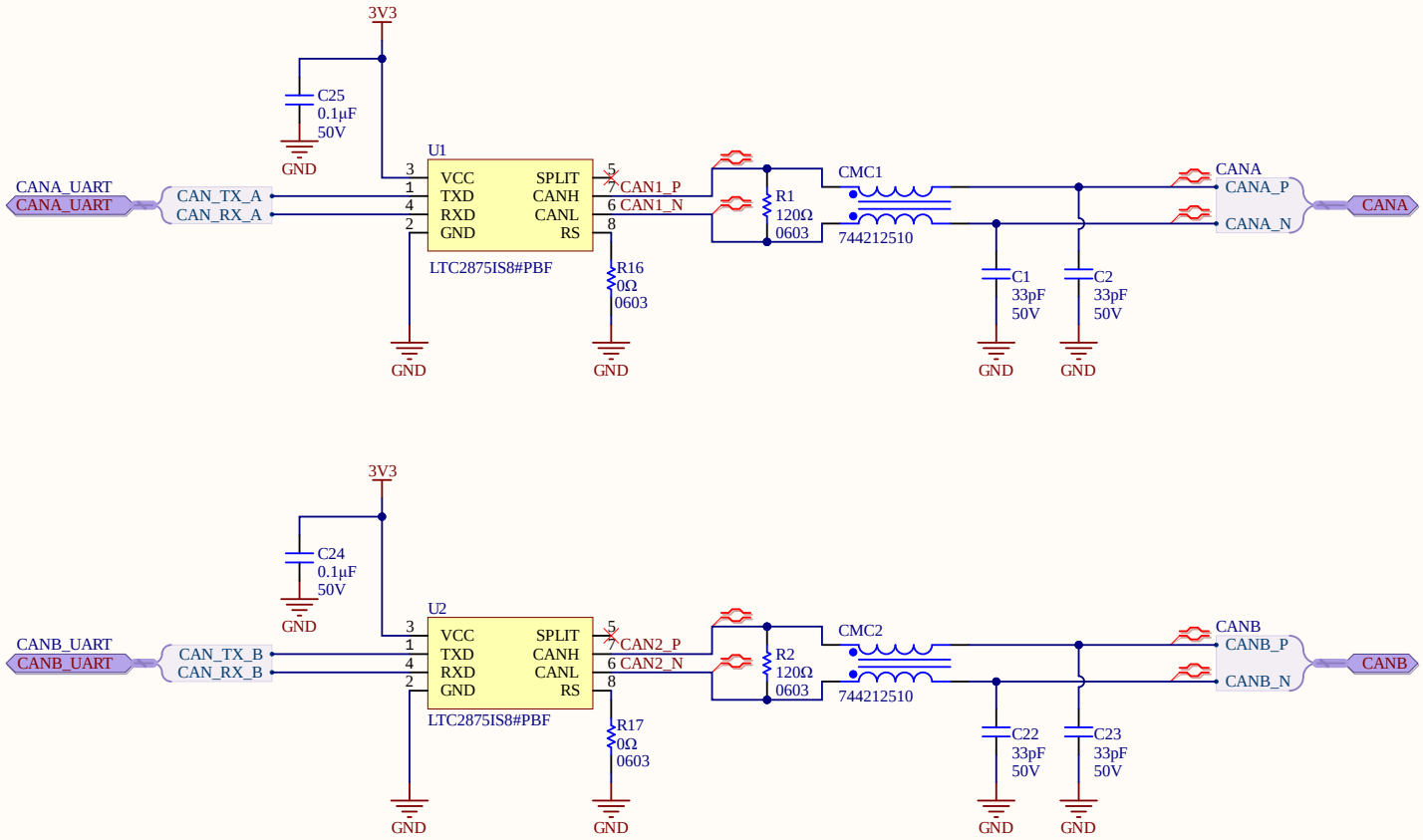
CAN Transceivers



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