

5V - 3.3V Buck Converter

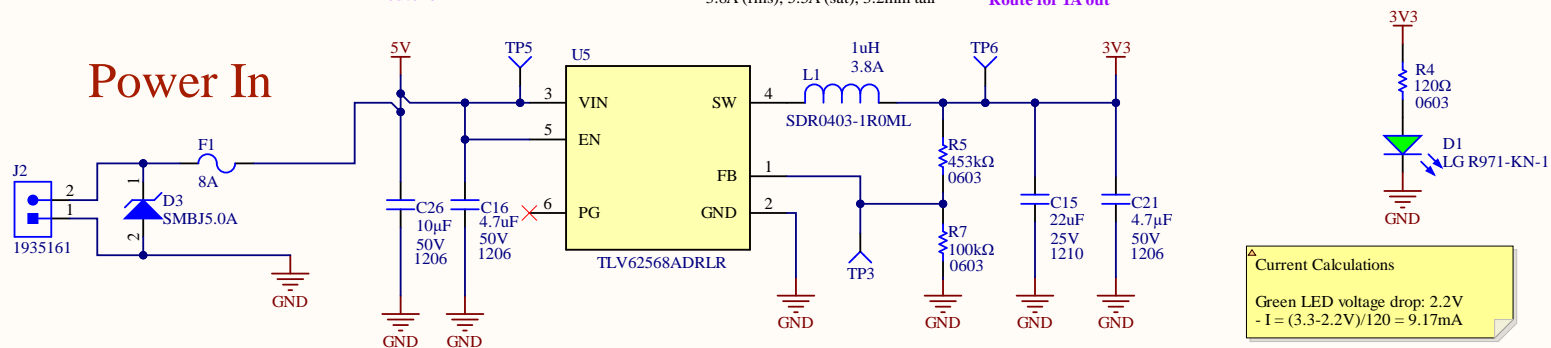
Designed for 3.3V - 5V input

Route for 1A in

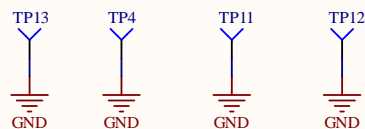
Inductor: SDR0403-1R0ML
1uH, 20%, 33mOhm DCR (max)
3.8A (rms), 5.5A (sat), 3.2mm tall


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

Route for 1A out

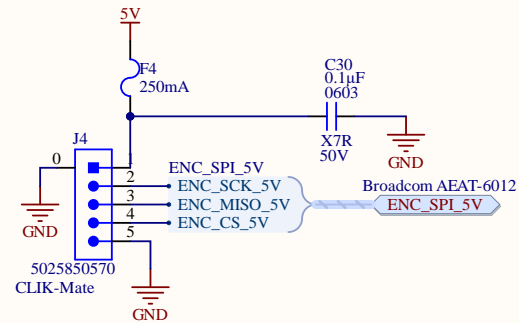


GND Test Points

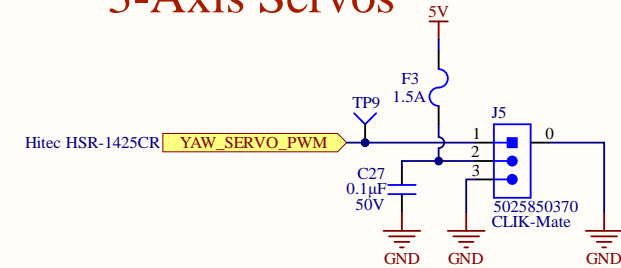


Title Gimbal - Power		UW Robotics 200 University Avenue Waterloo Ontario Canada N2L 3G6		
Size: Letter	Drawn By: Aidan Gratton			
Date: 2020-10-14	Sheet 1 of 6			
File: C:\Users\gratt\Documents\University\Design Teams\UW Mars Rover\Electrical\MarsRover2021-hardware\Project				

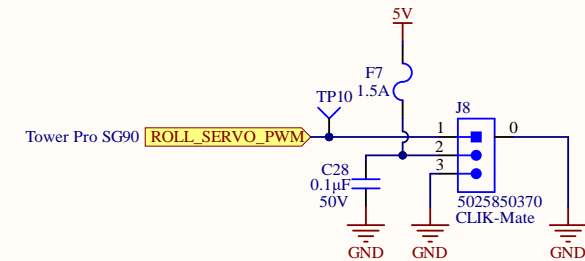
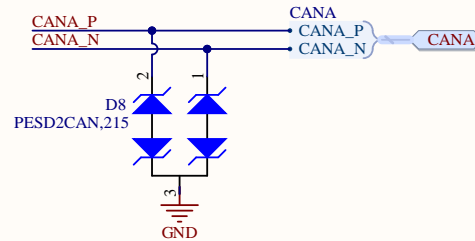
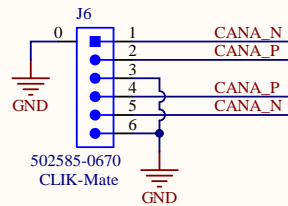
Encoder



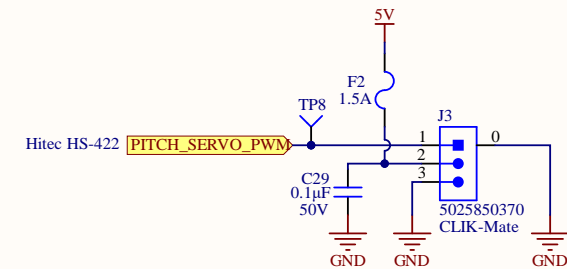
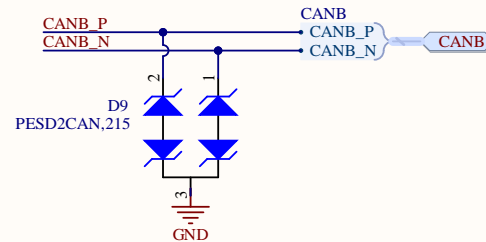
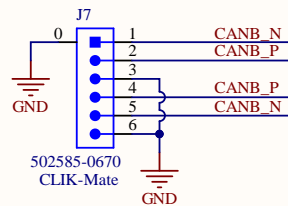
3-Axis Servos



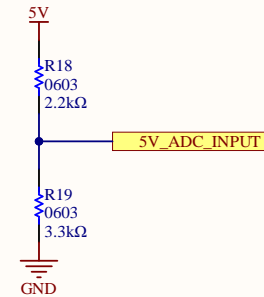
CAN BUS A



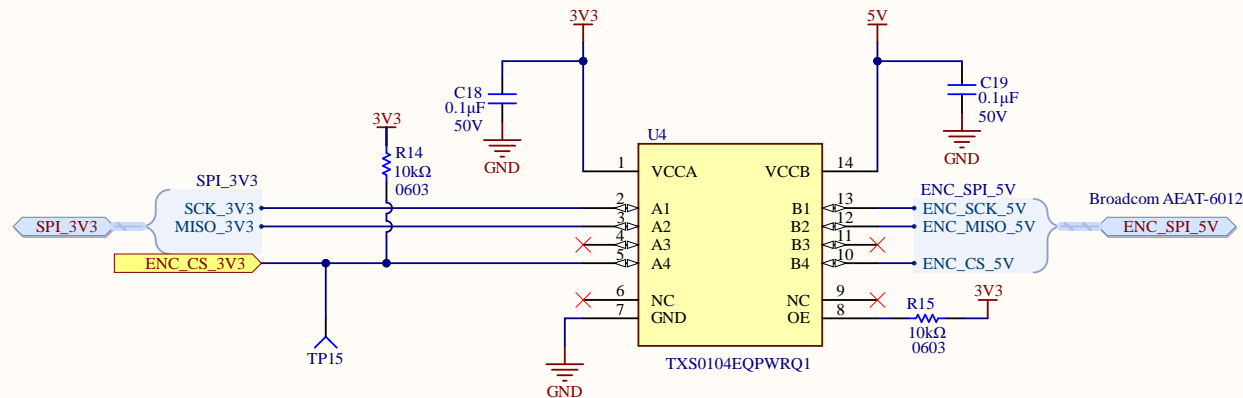
CAN BUS B



5V ADC Monitoring Voltage Divider



SPI Encoder Level Shifter



A

B

C

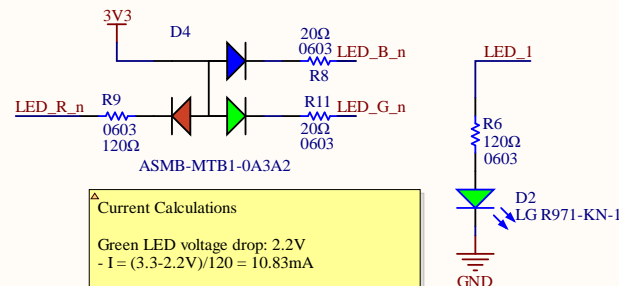
D

A

B

C

D



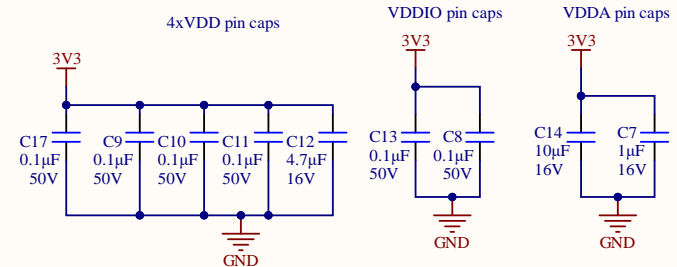
Current Calculations

Green LED voltage drop: 2.2V
 $I = (3.3 - 2.2V) / 120 = 10.83mA$

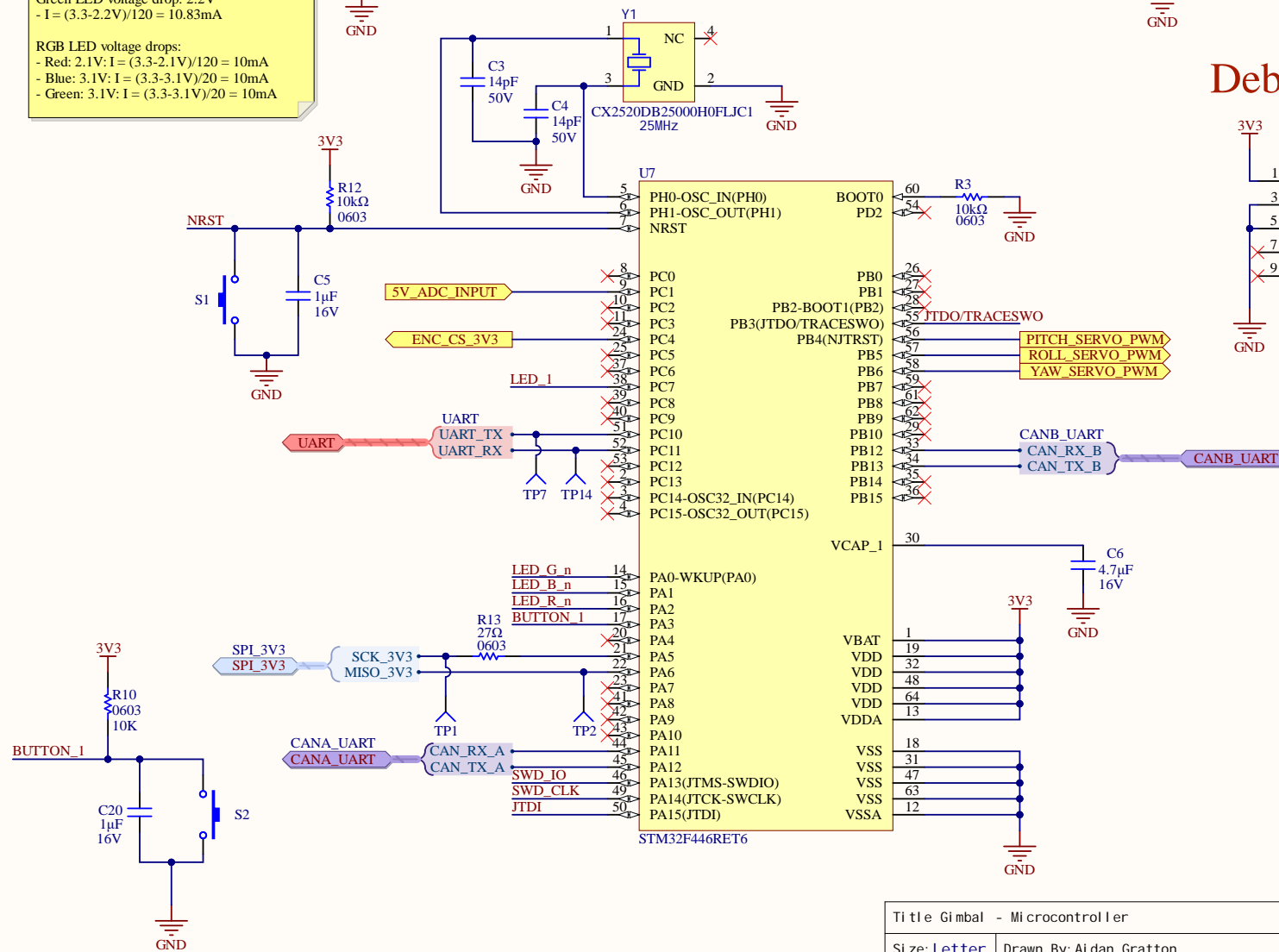
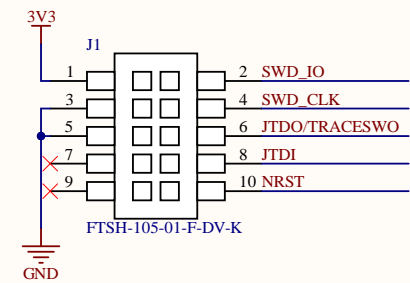
RGB LED voltage drops:
 - Red: 2.1V: $I = (3.3 - 2.1V) / 120 = 10mA$
 - Blue: 3.1V: $I = (3.3 - 3.1V) / 20 = 10mA$
 - Green: 3.1V: $I = (3.3 - 3.1V) / 20 = 10mA$

STM32F446RET6

Decoupling Caps



Debug/Programming



MOUNTING_HOLES

CAN Transceivers

