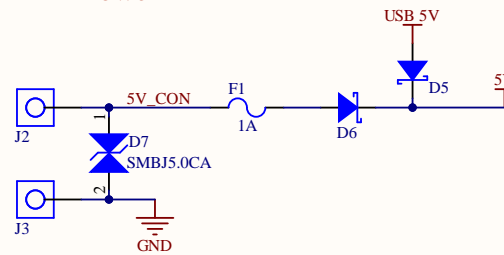
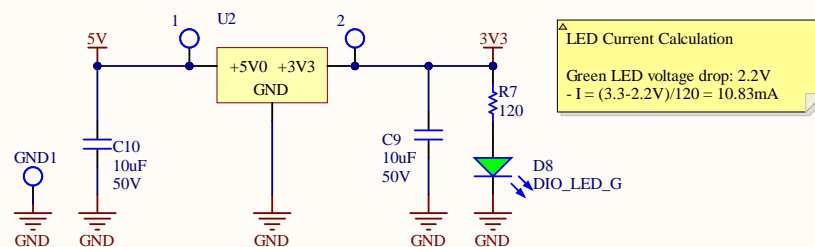


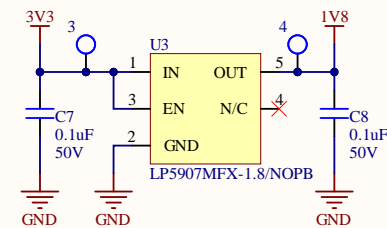
Power In



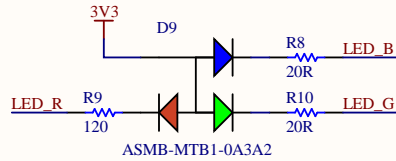
5V to 3.3V LDO



3.3V to 1.8V LDO



Test LEDs

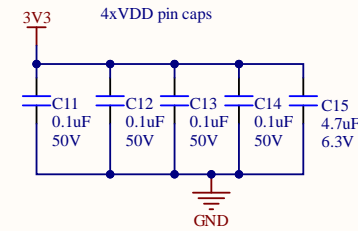


Current Calculations

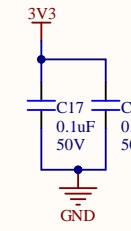
Green LED voltage drop: 2.2V
 $- I = (3.3 - 2.2V) / 120 = 10.83mA$

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: $I = (3.3 - 3.1V) / 20 = 10mA$

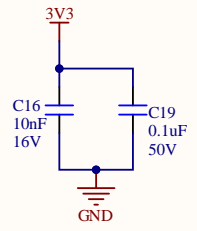
Decoupling Caps



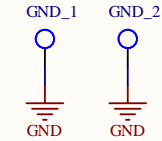
VDDIO pin caps



VDDA pin caps

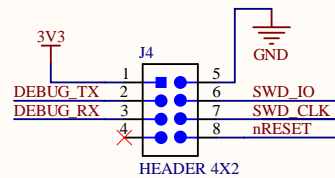


GND Test Points

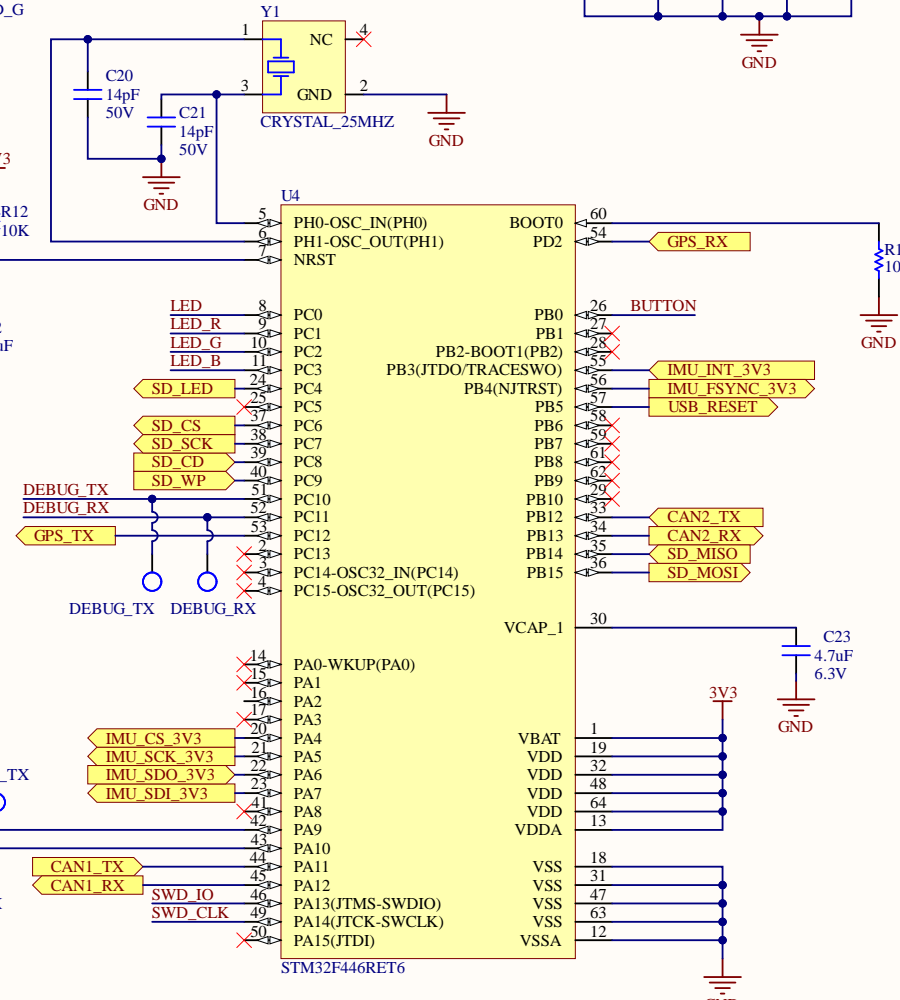
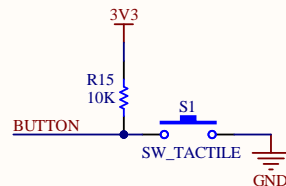


Note: Check CubeMX configuration

Debug/Programming



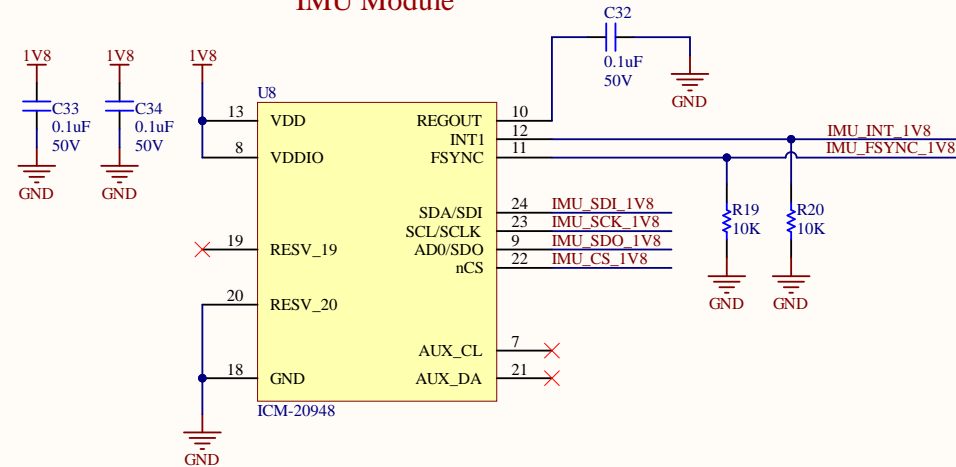
Test Button



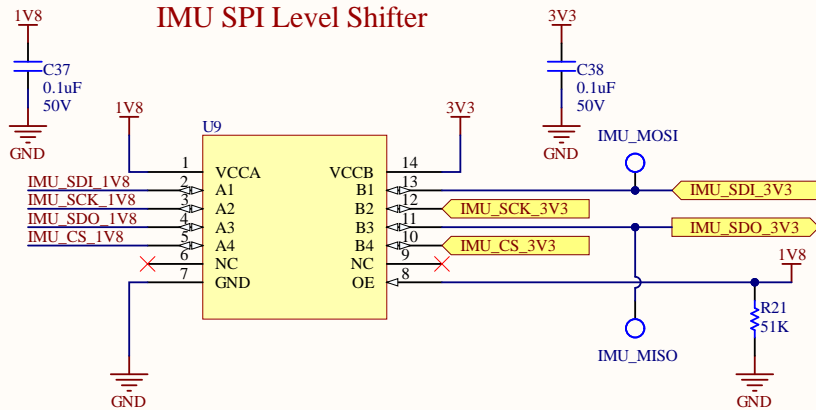
Title	Localization	Altium Limited L3, 12a Rodborough Rd Frenchs Forest NSW Australia 2086
Size:	Letter	Drawn By: Alaina Hansen, Cindy Li
Date:	2020-05-03	Sheet 8 of 7
File:	C:\UWRT\MarsRover2020-PCB\Projects\Localization\Rev1\sch\MCU_SchDoc	



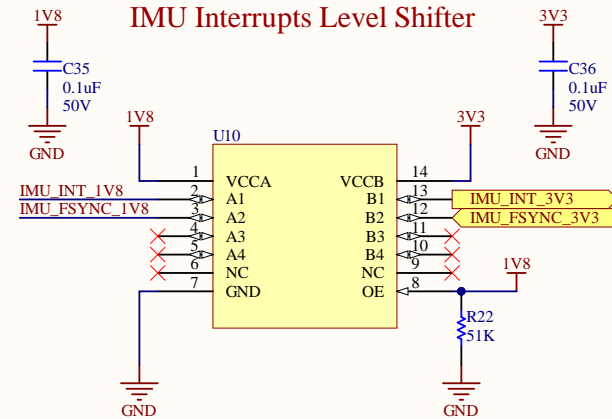
IMU Module



IMU SPI Level Shifter

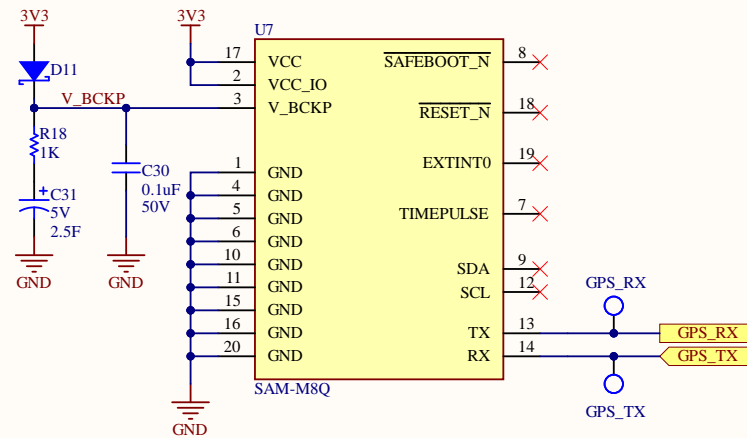


IMU Interrupts Level Shifter




RTC Backup Power

GPS Module



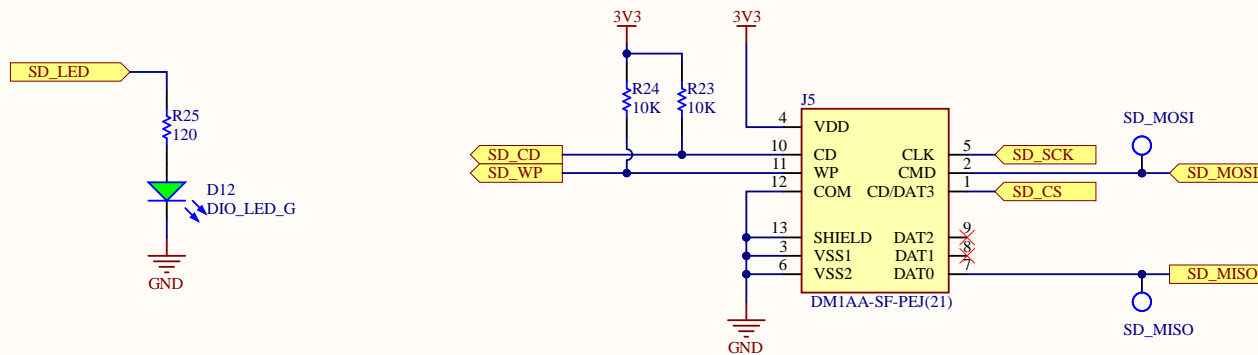
Supercapacitor Calculations

$V_{cc} = 3.3V$, $V_f = 0.22V$, $V_{min} = 1.4V$, $I_{bkp} = 15\mu A$, $C = 2.5F$
 $t_{bkp} = (2.5F) * (3.3V - 0.22V - 1.4V) / (15\mu A) = 280,000s = 3.241 \text{ days}$
 Capacitor tolerance: -0%, +100%

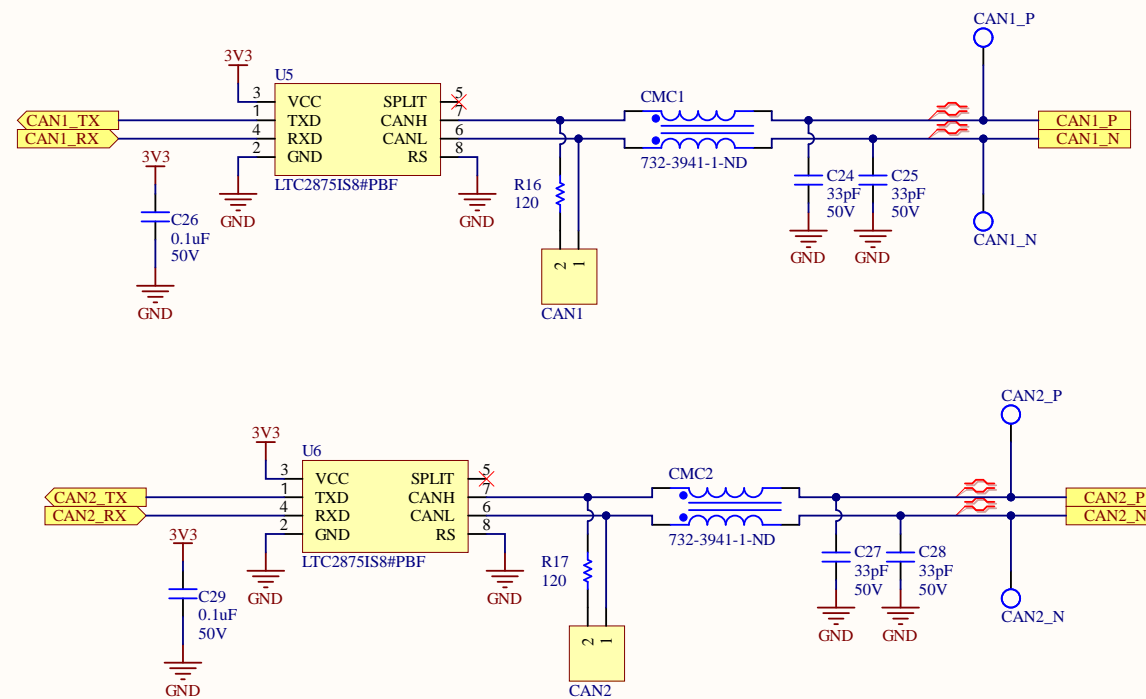
Title Localization		Altium Limited L3, 12a Rodborough Rd Frenchs Forest NSW Australia 2086		
Size: Letter	Drawn By: Alaina Hansen, Cindy Li			
Date: 2020-05-03	Sheet 6 of 7			
File: C:\UWRT\MarsRover2020-PCB\Projects\Localization\Rev1\sch\GPS_SchDoc				



SD Card Connector



LED Current Calculation
 Green LED voltage drop: 2.2V
 $I = (3.3 - 2.2V) / (120\Omega) = 10.83\text{mA}$



Board Stack Report