
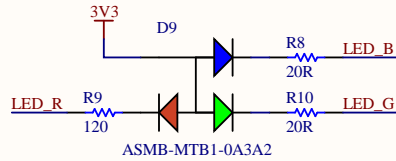




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Test LEDs

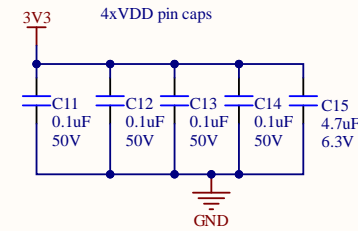


Current Calculations

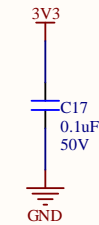
Green LED voltage drop: 2.2V
 $- I = (3.3 - 2.2V) / 120 = 10.83mA$

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

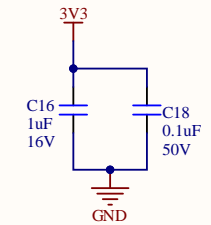
Decoupling Caps



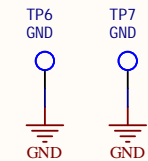
VBAT pin cap



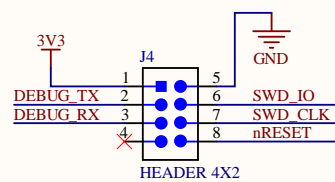
VDDA pin caps



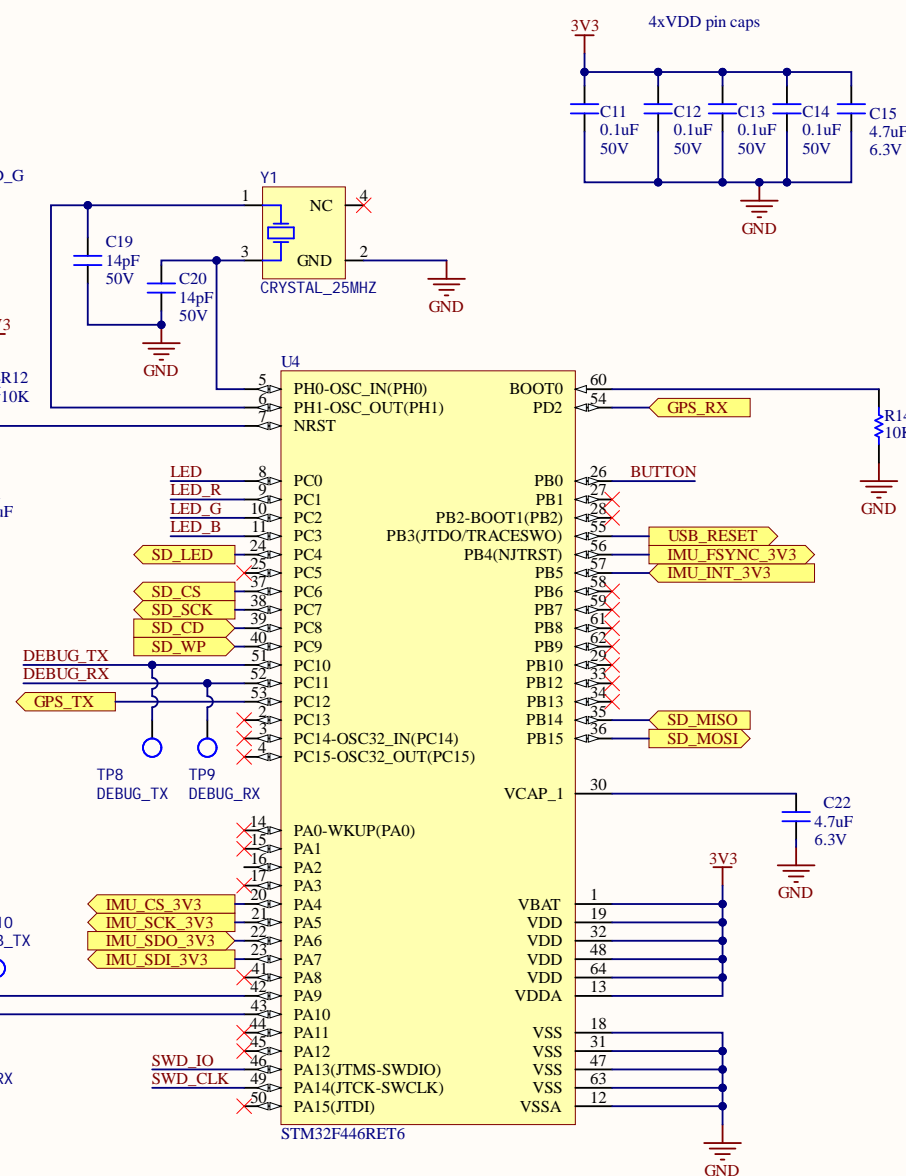
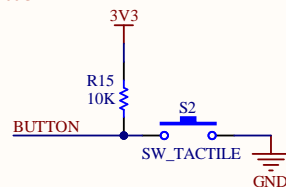
GND Test Points



Debug/Programming



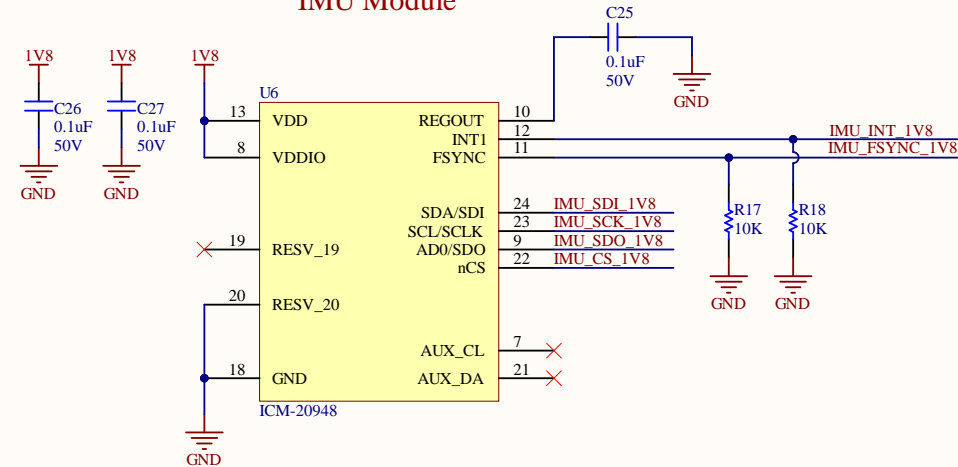
Test Button



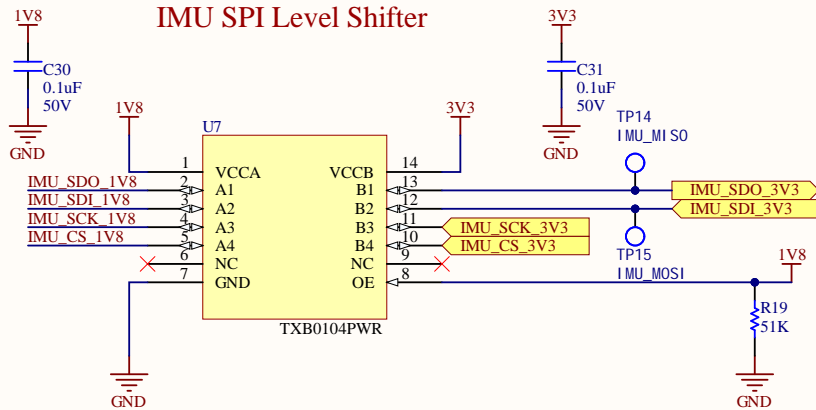
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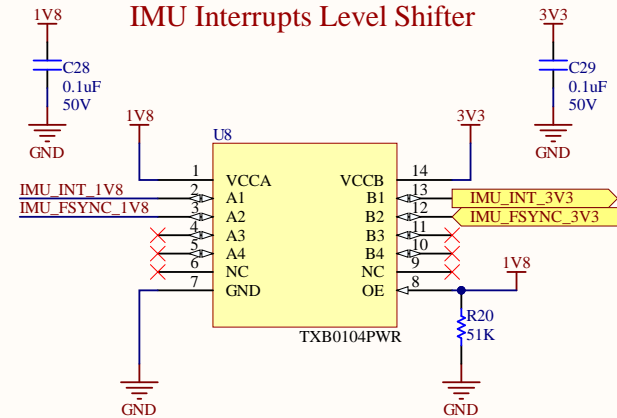
IMU Module



IMU SPI Level Shifter

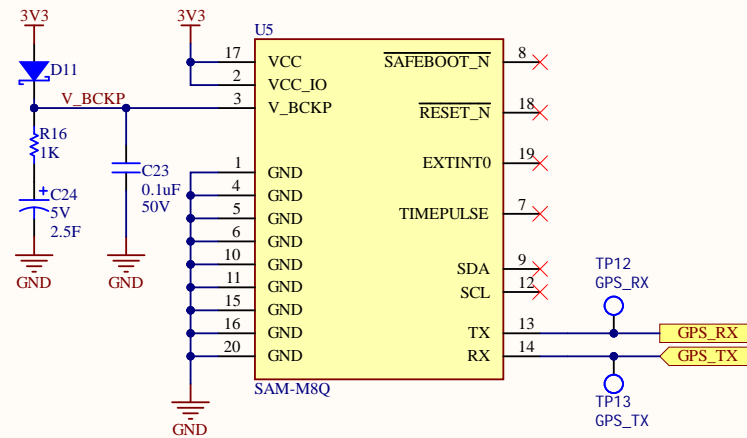


IMU Interrupts Level Shifter




RTC Backup Power

GPS Module

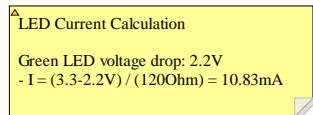



Supercapacitor Calculations

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

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Board Stack Report