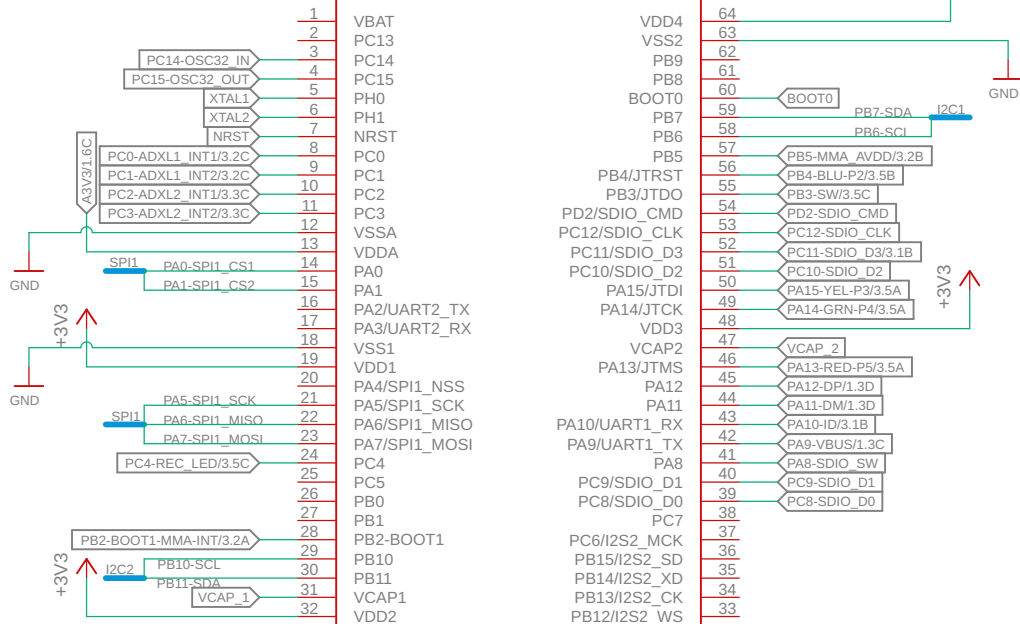
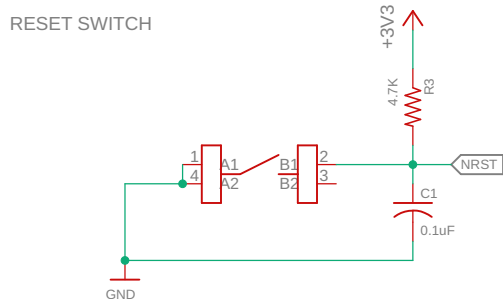


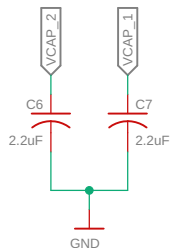
STM32F405RGT6



STM32F405RGT6



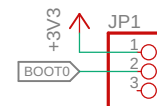
STABILIZING CAPACITORS



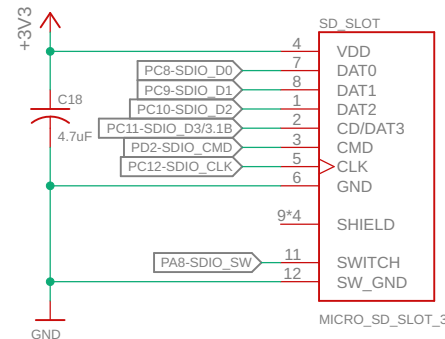
BOOT0 PULL-DOWN RESISTOR



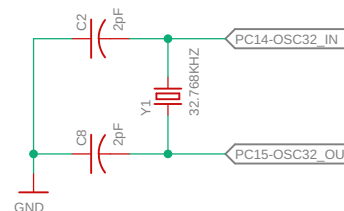
DFU PROGRAMMING ENABLE HEADER



MICRO SD SLOT



LOW SPEED CRYSTAL OSCILLATOR
(FOR RTC)



$$CL = [(C8 \times C2) / (C8 + C2)] + C_STRAY$$

*C_STRAY ~ 2pF - 10pF (IT IS DERIVED FROM THE CAPACITANCE OF THE INPUT PINS AND THE TRACES)

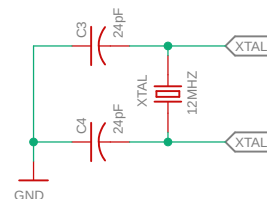
ACCORDING TO DATASHEET, CL IS 6pF. THEREFORE, CHOOSE C2 AND C8 SUCH THAT CL IS 6pF. IF C2=C8, THEN THE EQUATION REDUCES TO:

$$\begin{aligned} CL &= C8/2 + C_STRAY \\ C8 &= 2(CL - C_STRAY) \end{aligned}$$

IF $C_{STRAY} = 5\text{pF}$ (GUESS?), THEN

$$C8 = 2(6\text{pF} - 5\text{pF}) = 2\text{pF}$$

HIGH SPEED CRYSTAL OSCILLATOR



$$CL = [(C3 \times C4) / (C3 + C4)] + C_STRAY$$

*C_STRAY ~ 2pF - 10pF (IT IS DERIVED FROM THE CAPACITANCE OF THE INPUT PINS AND THE TRACES)

ACCORDING TO DATASHEET, CL IS 18pF. THEREFORE, CHOOSE C3 AND C4 SUCH THAT CL IS 18pF. IF C3=C4, THEN THE EQUATION REDUCES TO:

$$\begin{aligned}CL &= C3/2 + C_STRAY \\ C3 &= 2(CL - C_STRAY)\end{aligned}$$

IF C_STRAY = 6pF (GUESS?), THEN

$$C3 = 2(18\text{pF} - 6\text{pF}) = 24\text{pF}$$

Notes:

Project: MTB DAQ

Title: MAIN BOARD

Drawn By: STEVEN WAAL

Date: 7/23/20 17:19

Rev: 2.2

Sheet: 2/3

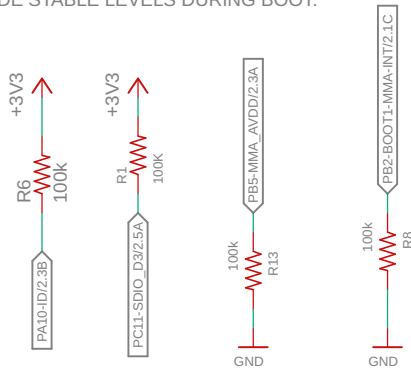
Document Number: 01

ME599

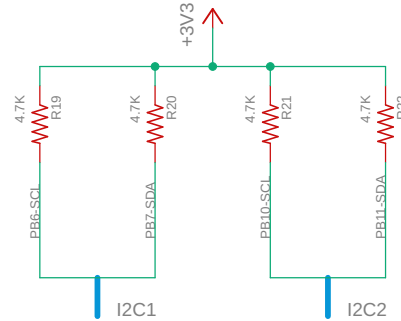
Cal Poly
Mechanical Engineering
San Luis Obispo, CA

MAIN BOARD .sch

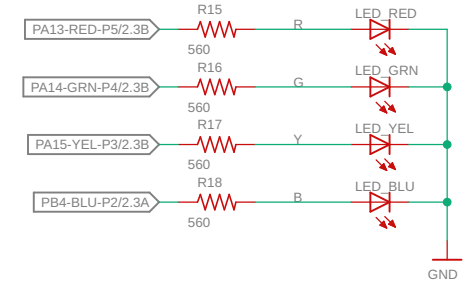
USB DFU REQUIRES STABLE LEVELS ON PA10, PB5, PB11, & PC11. PB2 MUST BE LOW DURING BOOT. PULL-UP RESISTORS PROVIDE STABLE LEVELS DURING BOOT.



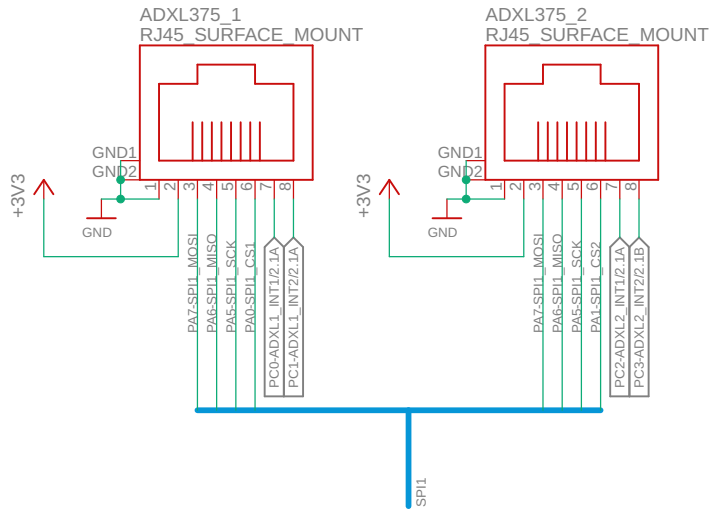
I2C PULL-UPS



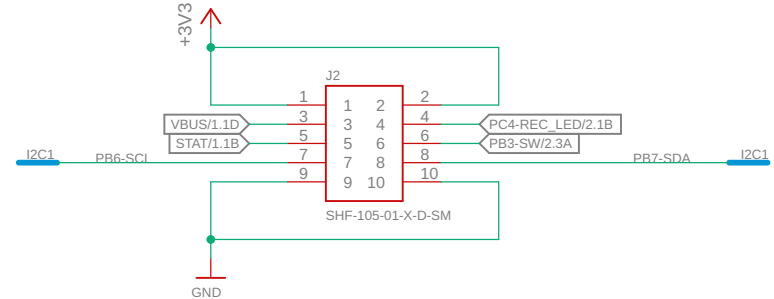
INDICATOR LEDS



ADXL375 RJ45 PORTS



IO PANEL RIBBON CABLE CONNECTOR



Notes:

Project: MTB DAQ

Title: MAIN BOARD

Drawn By: STEVEN WAAL

Date: 7/23/20 17:19

Rev: 2.2

Sheet: 3/3

Document Number: 01

ME599

Cal Poly
Mechanical Engineering
San Luis Obispo, CA

MAIN_BOARD .sch