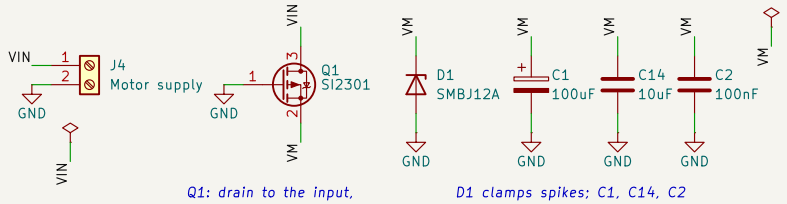
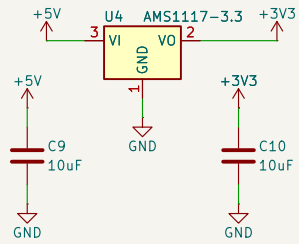
Motor supply in



Q1: drain to the input, source to VM, gate to GND

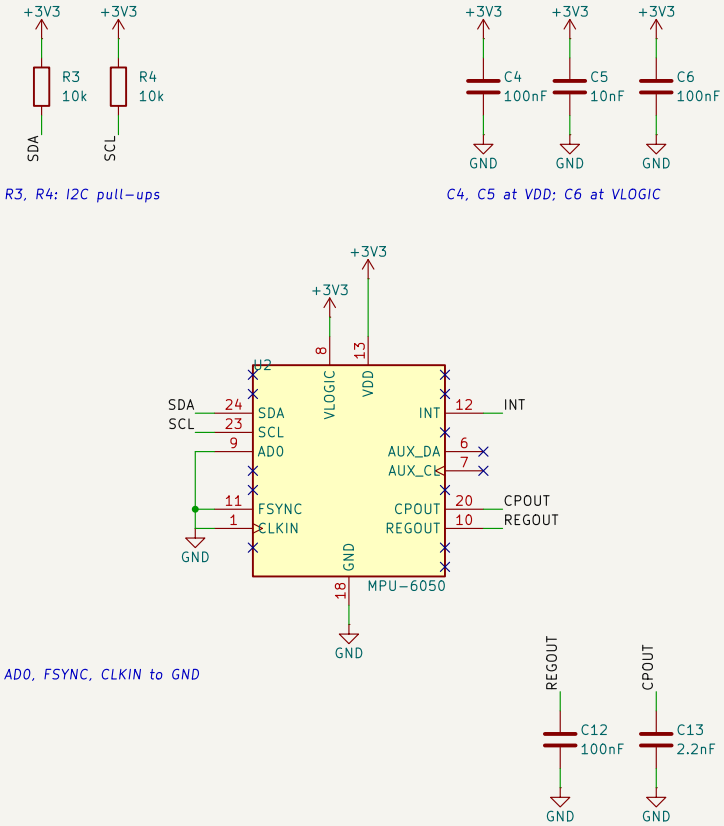
D1 clamps spikes; C1, C14, C2 store charge

3.3 V from 5 V



For the IMU, op-amp, pull-ups

IMU MPU-6050 on I2C, address 0x68



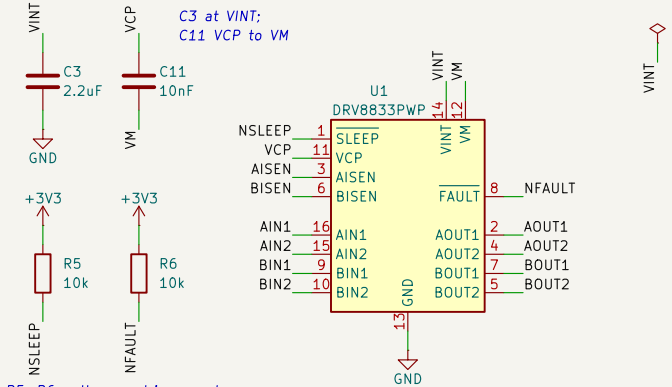
R3, R4: I2C pull-ups

C4, C5 at VDD; C6 at VLOGIC

ADO, FSYNC, CLKIN to GND

Required by the data sheet: REGOUT 0.1 uF, CPOUT 2.2 nF 50 V

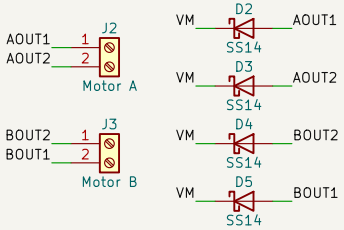
Motor driver DRV8833



C3 at VINT; C11 VCP to VM

R5, R6 pull-ups: driver awake by default; nFAULT open drain

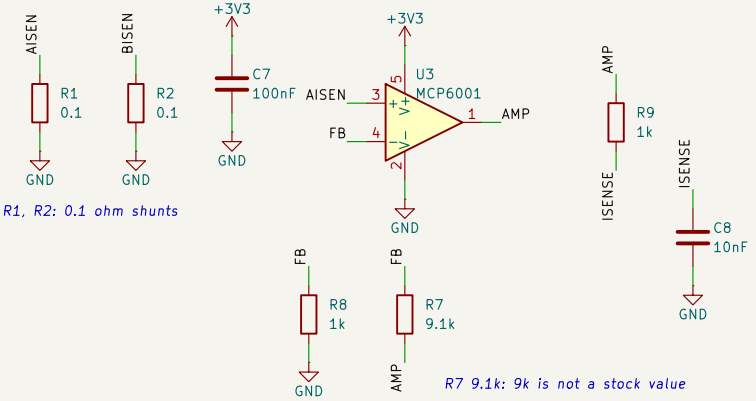
Motor outputs



Flyback diodes: anode on the output, cathode on VM

J3 pin 1 is BOUT2: the driver pin order, so no track crosses

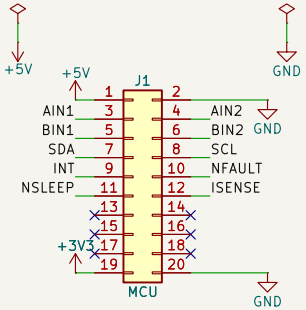
Current sense: gain 1 + R7/R8 = 10.1



R1, R2: 0.1 ohm shunts

R7 9.1k: 9k is not a stock value

MCU header J1, 2 x 10



13 to 18 spare. Pin 19 is 3.3 V OUT: never join it to the MCU's 3.3 V

5 V and GND from the MCU header J1; 3.3 V made on board
Motor supply 2.7 to 8 V with SI2301 (10.8 V with a 20 V gate part)
DRV8833 two H-bridges, MPU-6050 on I2C, current sense on motor A
Created by siwit.co/PCB8 Approved by Dr. Sam Macharia
siliconwit.com

Sheet: /
File: motor-driver-imu.kicad_sch

Title: Motor Driver and Sensor Integration Board

Size: A4	Date: 2026-11-18	**Rev: C**
KiCad E.D.A. 10.0.8		Id: 1/1