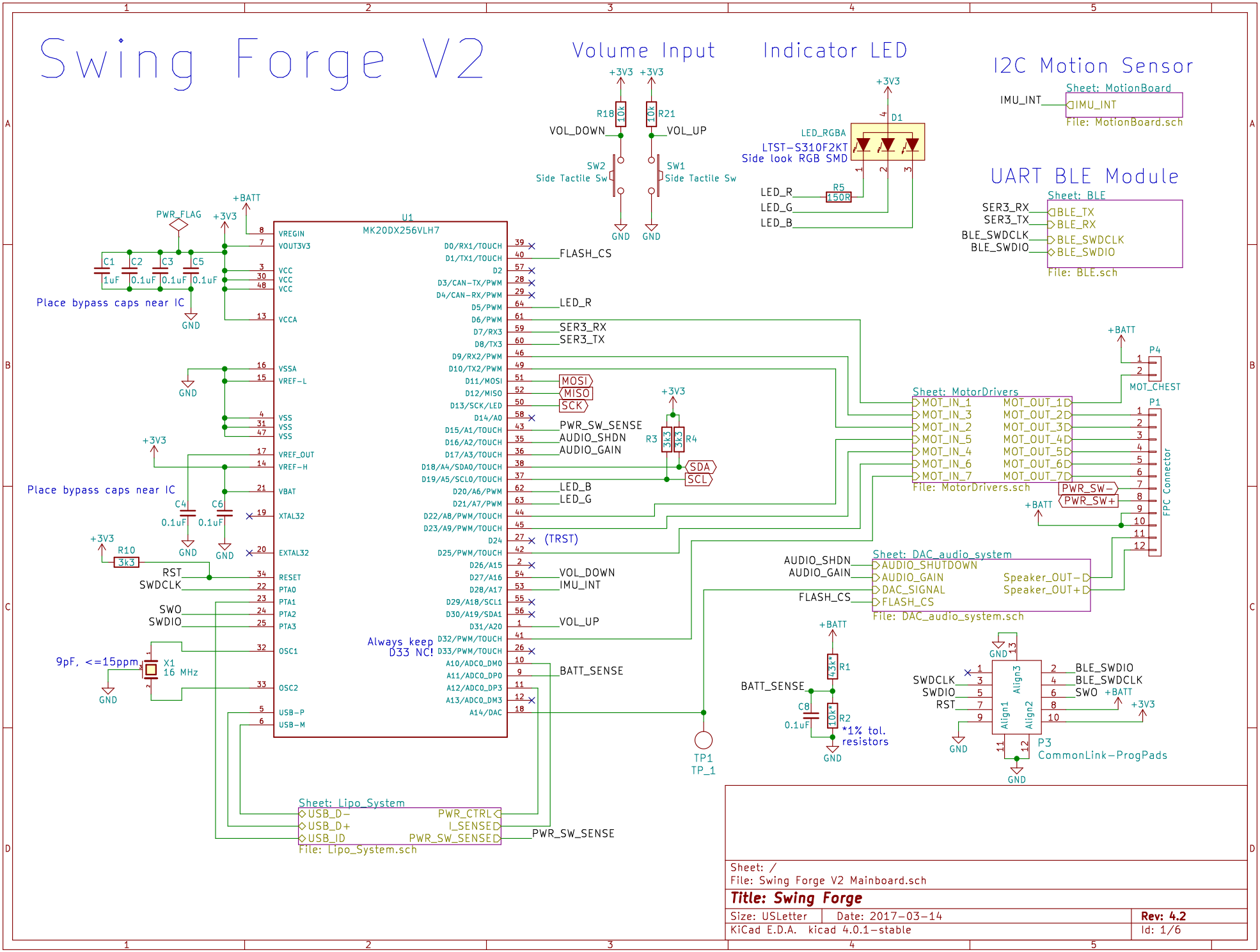
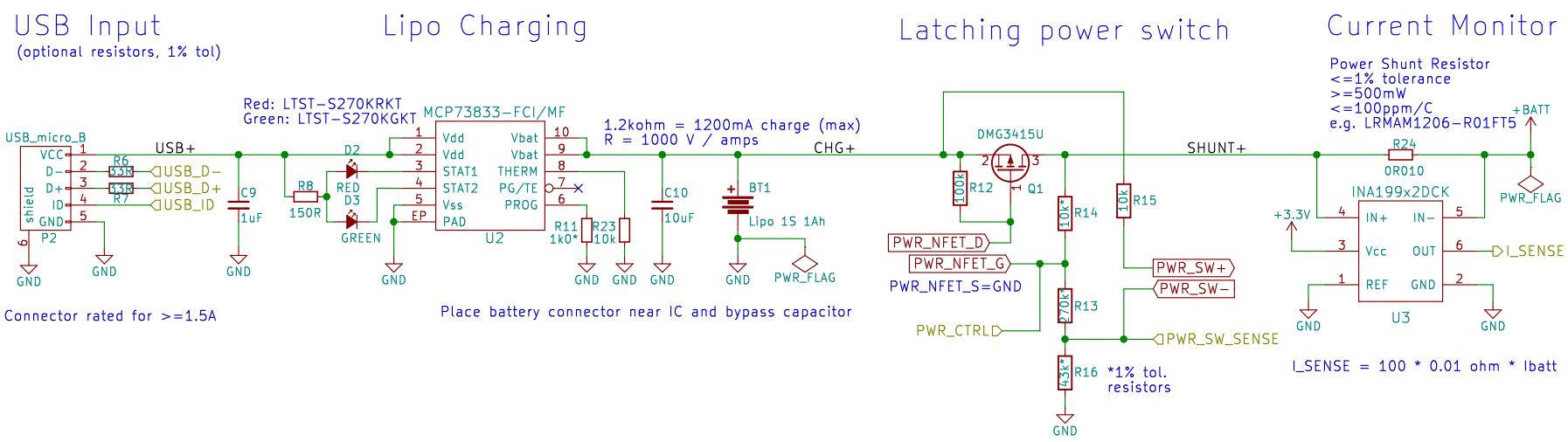

Swing Forge V2
Volume Input
Indicator LED
I2C Motion Sensor
UART BLE Module
Sheet: MotionBoard
IMU_INT
File: MotionBoard.sch
Sheet: BLE
File: BLE.sch
U1
MK20DX256VLH7
Place bypass caps near IC
Sheet: MotorDrivers
File: MotorDrivers.sch
Sheet: DAC_audio_system
File: DAC_audio_system.sch
Sheet: Lipo_System
File: Lipo_System.sch
Always keep D33 NC!
*1% tol. resistors
CommonLink-ProgPads
FPC Connector
Sheet: /
File: Swing Forge V2 Mainboard.sch
Title: Swing Forge
Size: USLetter
Date: 2017-03-14
Rev: 4.2
KiCad E.D.A. kicad 4.0.1-stable
Id: 1/6

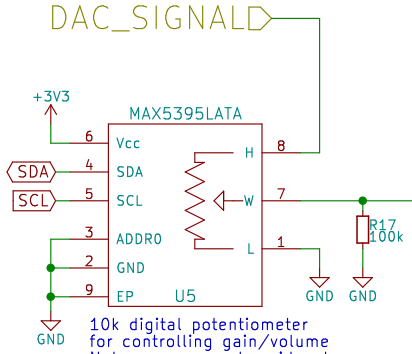
Power Circuitry



Sheet: /Lipo_System/		
File: Lipo_System.sch		
Title: Swing Forge		
Size: USLetter	Date: 2016-11-28	**Rev: 4.1**
KiCad E.D.A. kicad 4.0.1-stable		Id: 2/6

Audio System

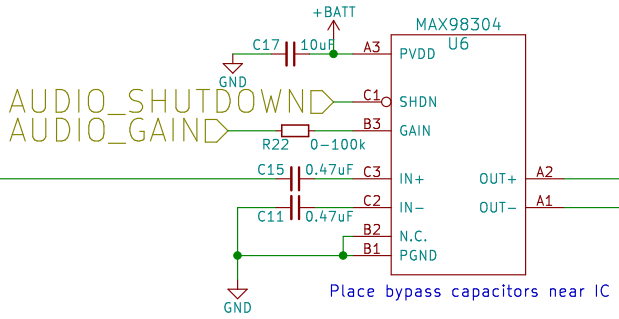
Digital Volume Control



10k digital potentiometer
for controlling gain/volume
Note: powers on to midscale

ADDR0 State = Address
LOW = 0x28
N.C. = 0x29
HIGH = 0x2B

Class D 3.2W Audio Amplifier



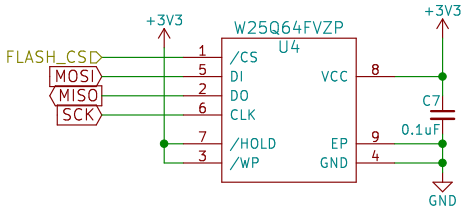
Place bypass capacitors near IC

Gain resistor:
AUDIO_GAIN Low:
R = 0 ohms: gain = 12 dB
R = 100 kohms: gain = 9 dB
AUDIO_GAIN High:
R = 0 ohms: gain = 6 dB
R = 100 kohms: gain = 3 dB
AUDIO_GAIN Tri-state: gain = 0 dB

Two parallel 8 ohm speakers
1.5W, >20uH inductance each

Speaker_OUT+
Speaker_OUT-

Flash Memory



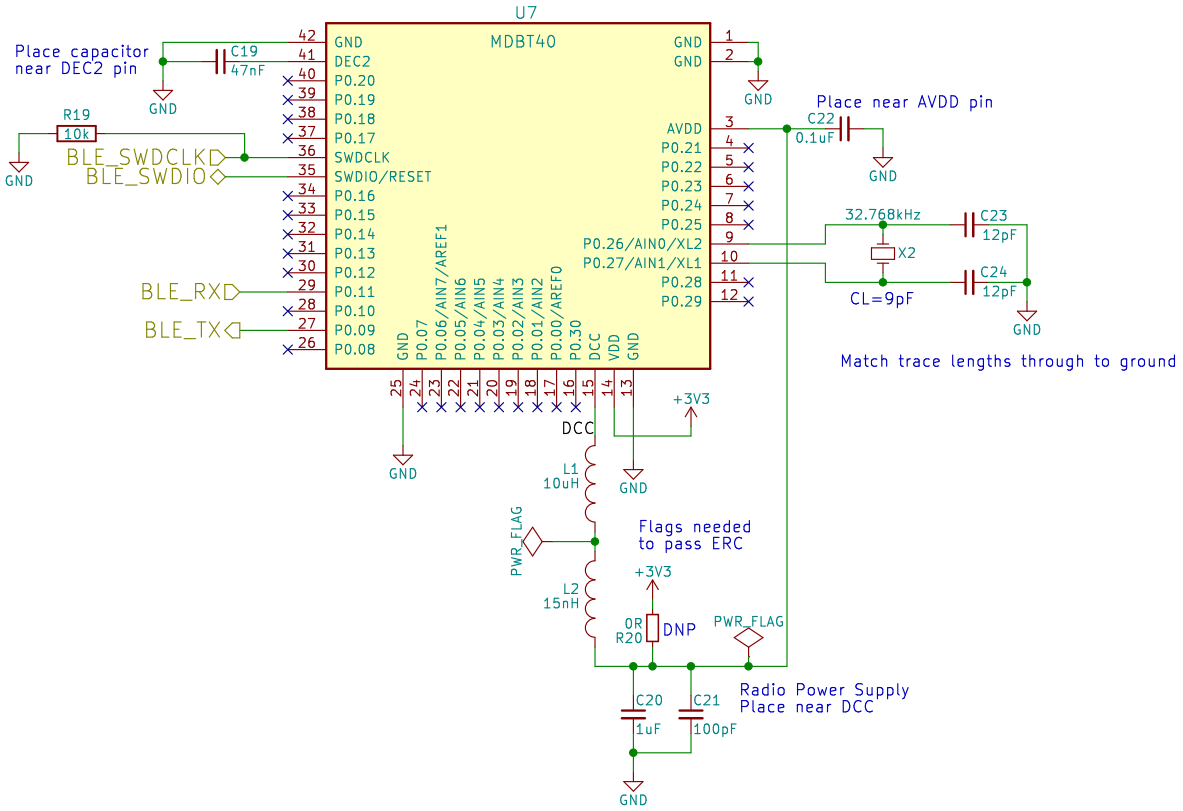
Place bypass caps near IC

Sheet: /DAC_audio_system/		
File: DAC_audio_system.sch		
Title: Swing Forge		
Size: USLetter	Date: 2016-11-28	**Rev: 4.1**
KiCad E.D.A. kicad 4.0.1-stable		Id: 3/6

BLE Communication

based on NRF51822

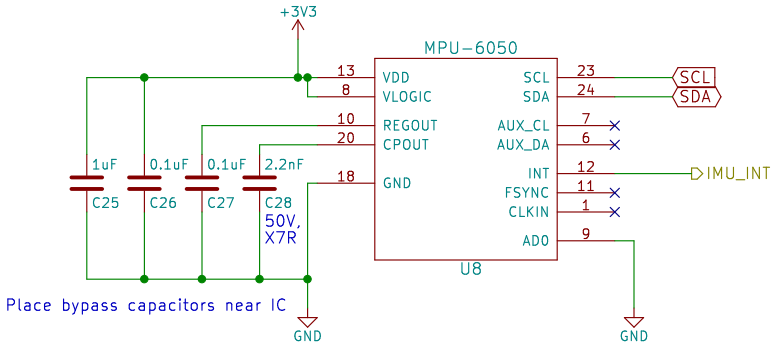
BLE 5.0 Module



Sheet: /BLE/		
File: BLE.sch		
Title: Swing Forge		
Size: USLetter	Date: 2016-11-28	**Rev: 4.1**
KiCad E.D.A. kicad 4.0.1-stable		Id: 4/6

Motion Sensors

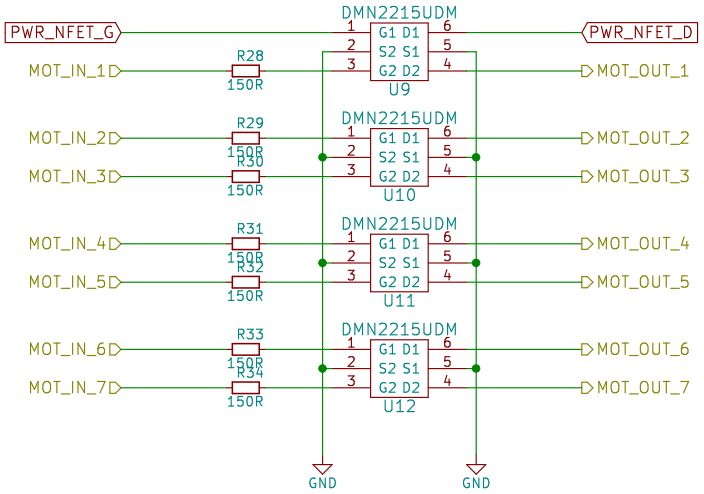
6-axis IMU



Sheet: /MotionBoard/		
File: MotionBoard.sch		
Title: Swing Forge		
Size: USLetter	Date: 2016-11-28	**Rev: 4.1**
KiCad E.D.A. kicad 4.0.1-stable		Id: 5/6

Motor Drivers

Dual Power-MOSFETs



Sheet: /MotorDrivers/		
File: MotorDrivers.sch		
Title: Swing Forge		
Size: USLetter	Date: 2016-11-28	**Rev: 4.1**
KiCad E.D.A. kicad 4.0.1-stable		Id: 6/6