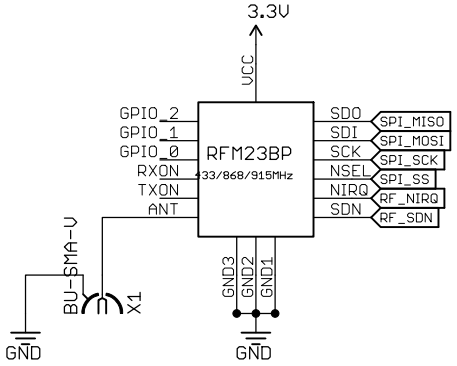
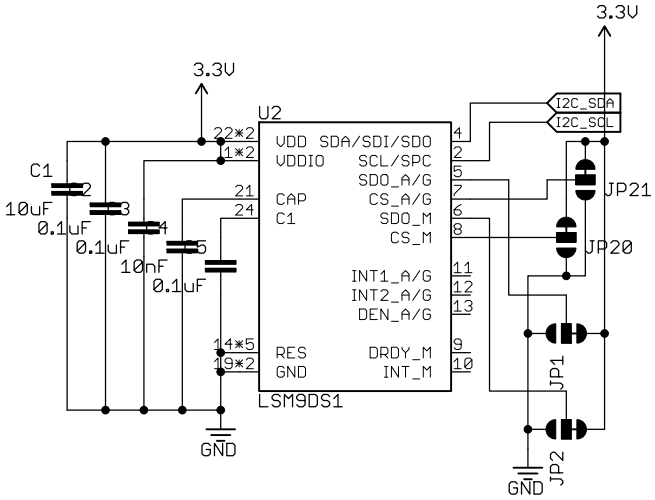
HopeRF RFM23B module at 3.3V

Modifications are currently needed to the module for radiation tolerance

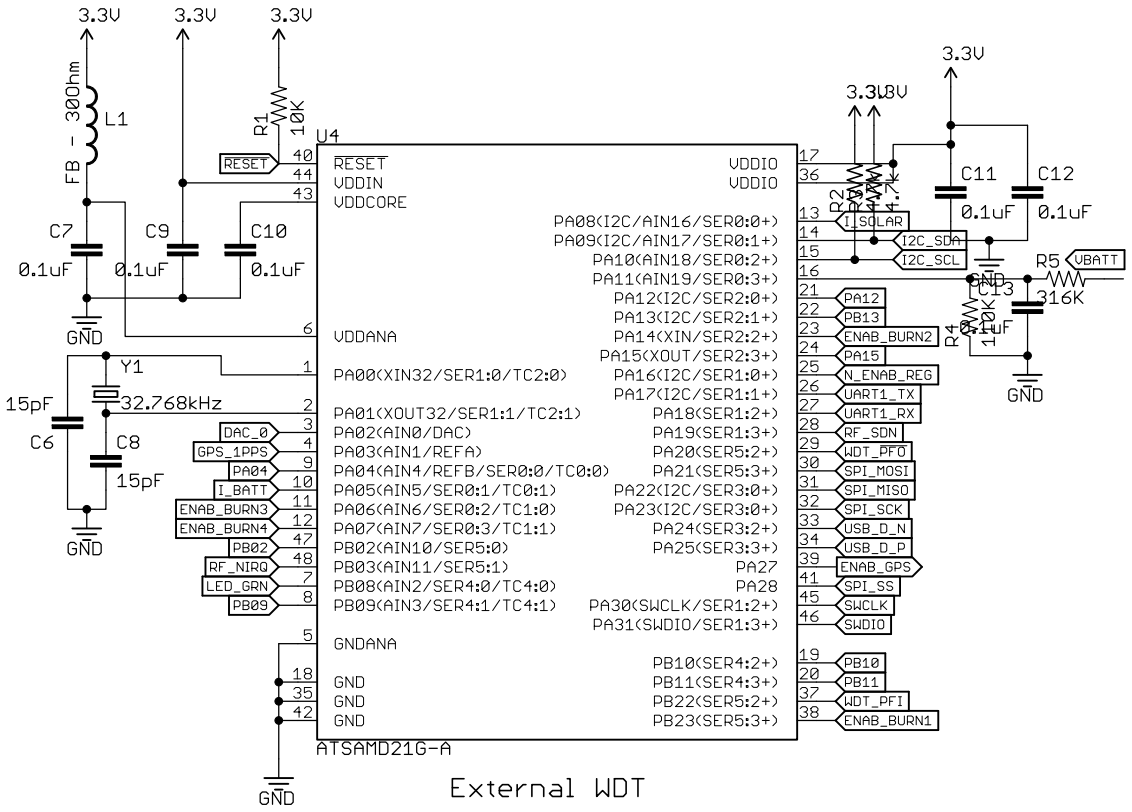


IMU - LSM9DS1

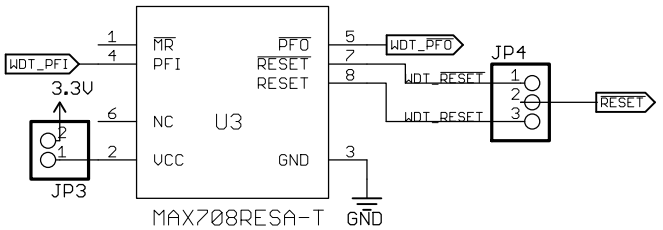


ATSAMD21G18 32-bit ARM Microprocessor

VDD Range: 1.62-3.63V



External WDT



To Do:
XLab Mez board design

Stretch Goals:
Ultracap Power Supply
Max GFET sensor

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KickSat

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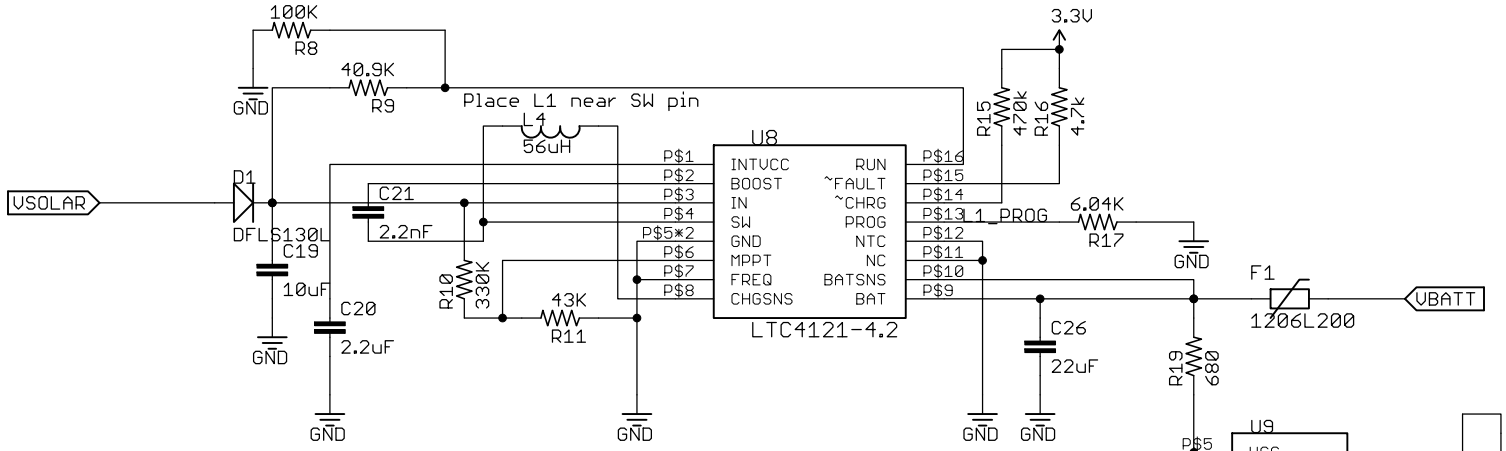
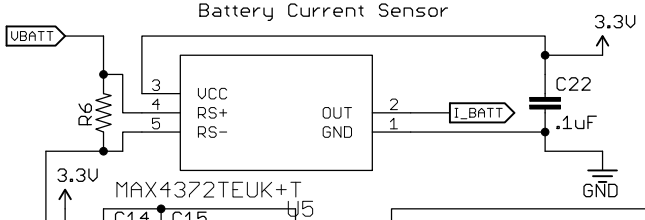
Run pulled up to ensure charging on startup
NTC tied to GND b/c no NTC sensor
FREQ tied to GND to select 750kHz switching frequency
LTC4121 can handle several amps of inrush current upon battery connection
NC tied to ground prevent charge buildup, approved by LT.
R28 & R29 set Vmp=9V
Ven threshold is 2.45V. Resistor divider sets RUN high when Solar Panel Voltage is >=6V.

2s2P Li-Ion Battery Charging Circuit

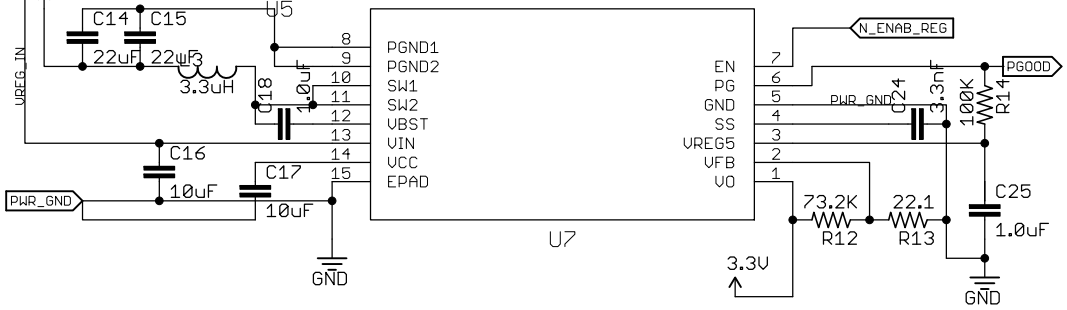


Battery Current Sensor

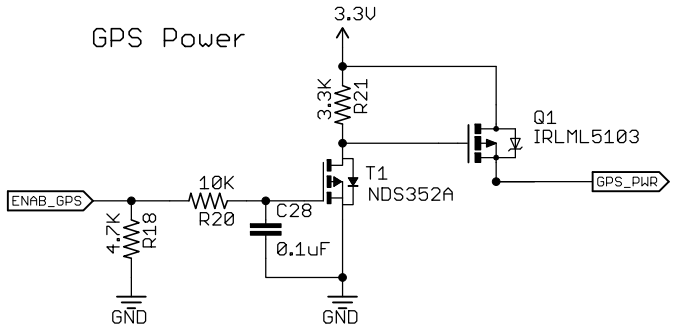


Buck Converter - 3.3V OUT

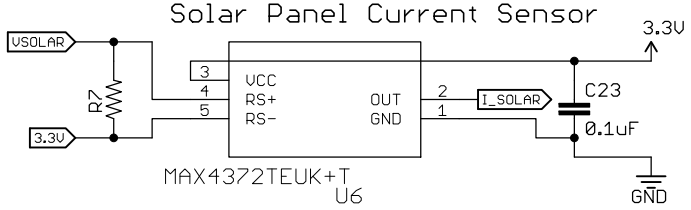
TPS54226PWPRPWP14_2P31X2P46-L



GPS Power



Solar Panel Current Sensor



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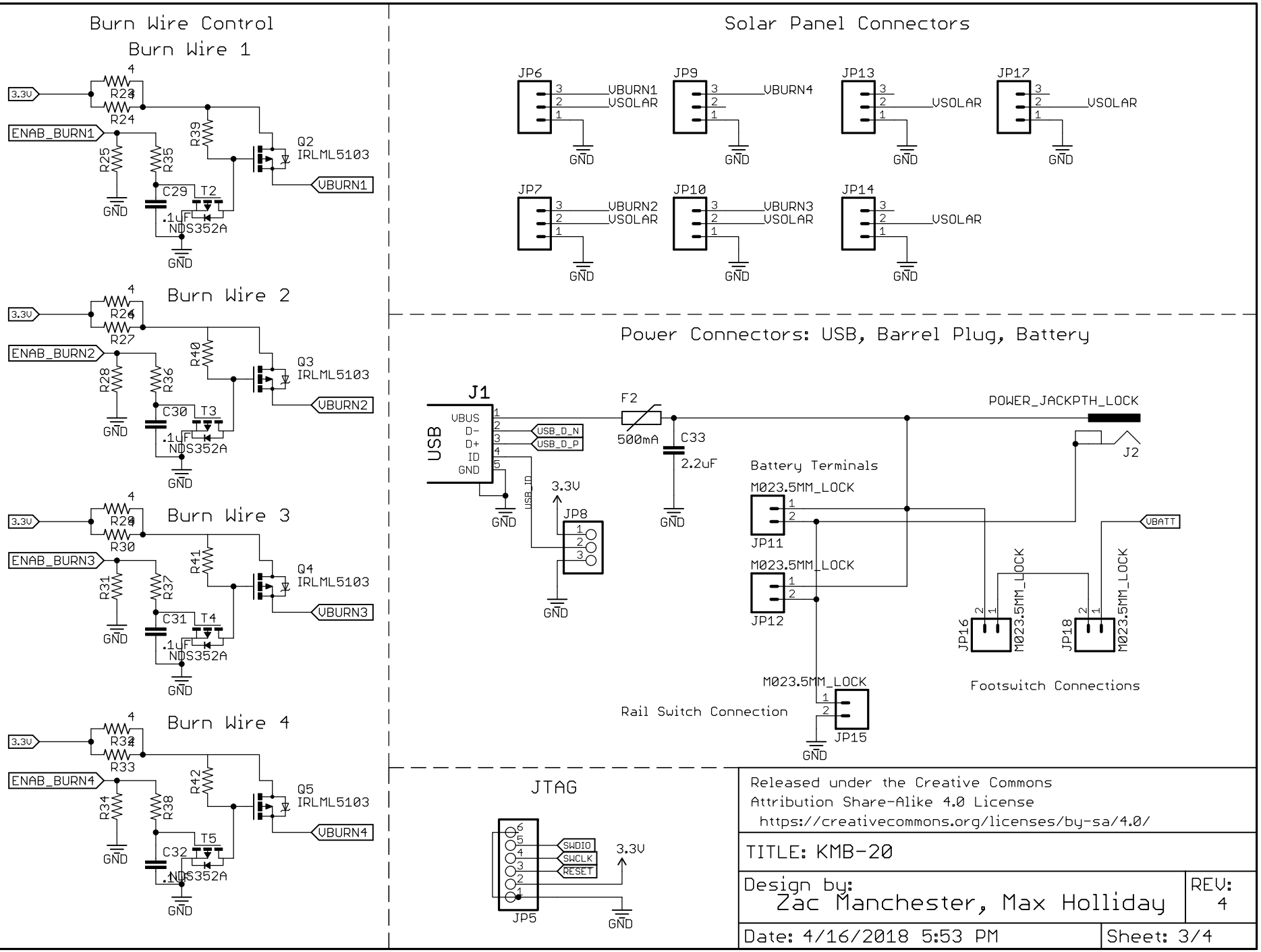
Burn Wire Control
Burn Wire 1
3.3V
R23
R24
ENAB_BURN1
R25
R35
R39
Q2
IRLML5103
VBURN1
C29
T2
.1uF
NDS352A
GND
Burn Wire 2
R26
R27
ENAB_BURN2
R28
R36
R40
Q3
IRLML5103
VBURN2
C30
T3
Burn Wire 3
R29
R30
ENAB_BURN3
R31
R37
R41
Q4
IRLML5103
VBURN3
C31
T4
Burn Wire 4
R32
R33
ENAB_BURN4
R34
R38
R42
Q5
IRLML5103
VBURN4
C32
T5
Solar Panel Connectors
JP6
JP9
JP13
JP17
JP7
JP10
JP14
VBURN1
VBURN2
VBURN3
VBURN4
VSOLAR
Power Connectors: USB, Barrel Plug, Battery
J1
USB
VBUS
D-
D+
ID
GND
USB_D_N
USB_D_P
USB_ID
F2
500mA
C33
2.2uF
POWER_JACKPTH_LOCK
J2
Battery Terminals
M023.5MM_LOCK
JP11
JP12
JP8
JP15
JP16
JP18
VBATT
Footswitch Connections
Rail Switch Connection
JTAG
JP5
SWDIO
SWCLK
RESET
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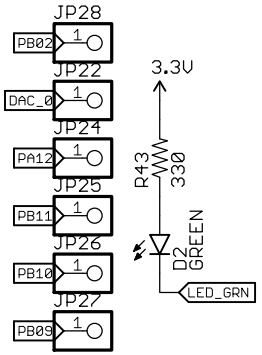
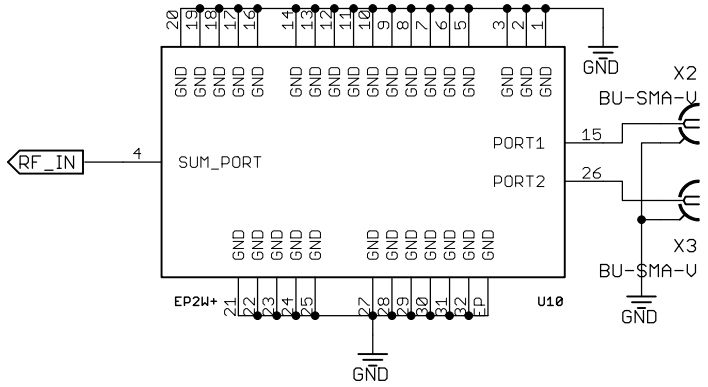
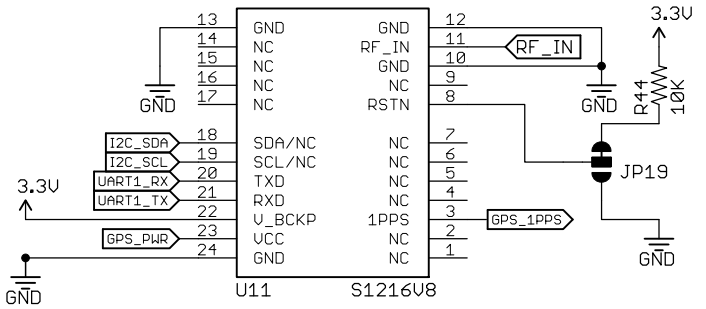
Spare IO breakout



RF Splitter - 2 Way, 0deg DC-Pass



GPS Module



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