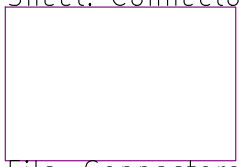
Sheet: Avionics

File: Avionics.sch

Sheet: Power

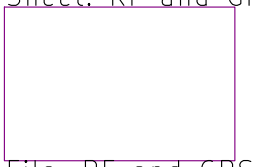
File: Power.sch

Sheet: Connectors



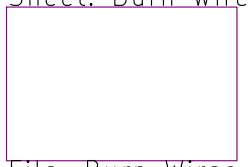
File: Connectors.sch

Sheet: RF and GPS



File: RF_and_GPS.sch

Sheet: Burn Wires



File: Burn_Wires.sch

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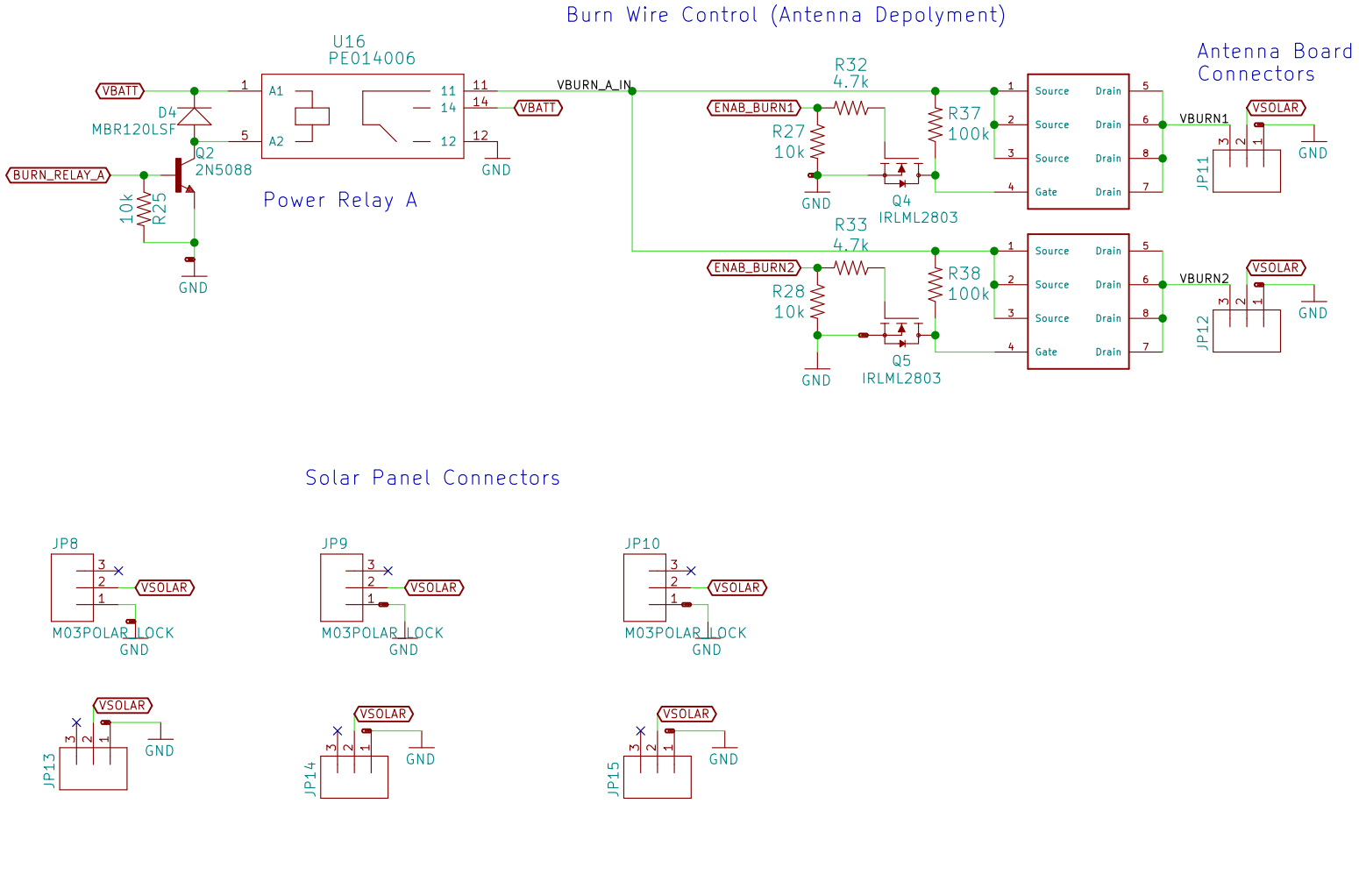
Sheet: /
File: mainboard.sch

Title: PyCubed Mainboard

Size: A4	Date:	**Rev: v03**
KiCad E.D.A. eeschema (5.1.4)-1		Id: 1/6



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Burn Wires

Sheet: /Burn Wires/
File: Burn_Wires.sch

Title: PyCubed Mainboard

Size: User	Date:	**Rev: v03**
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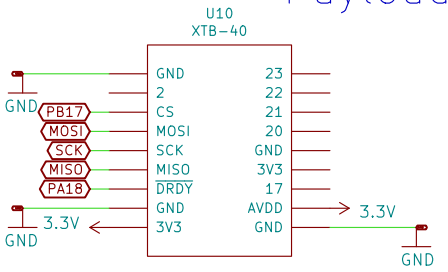
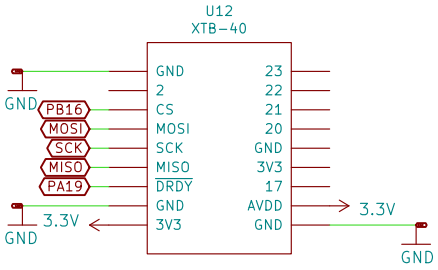
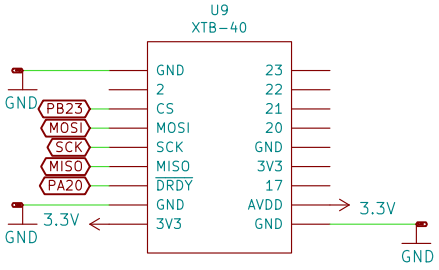
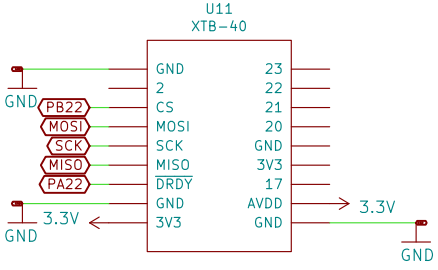
Payload Modules

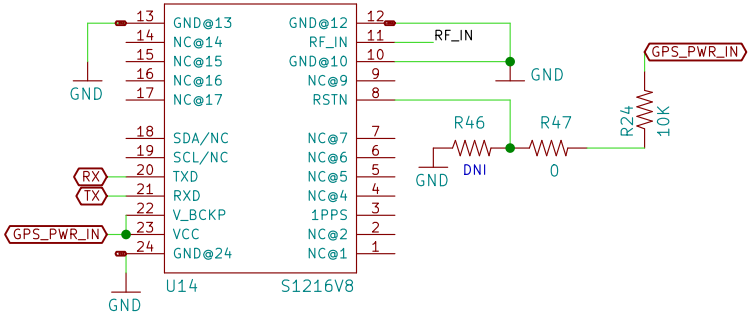




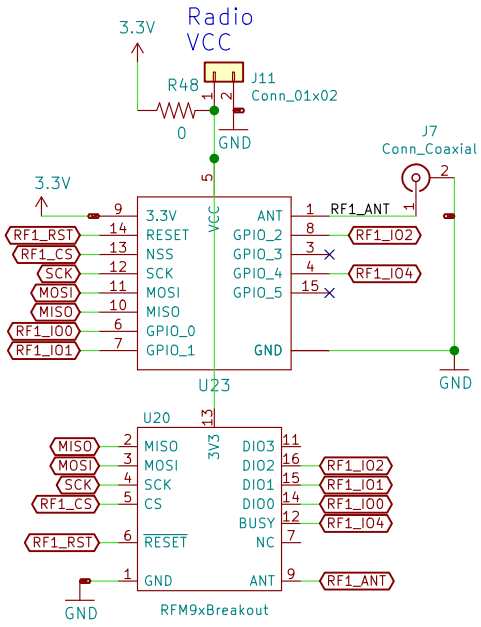


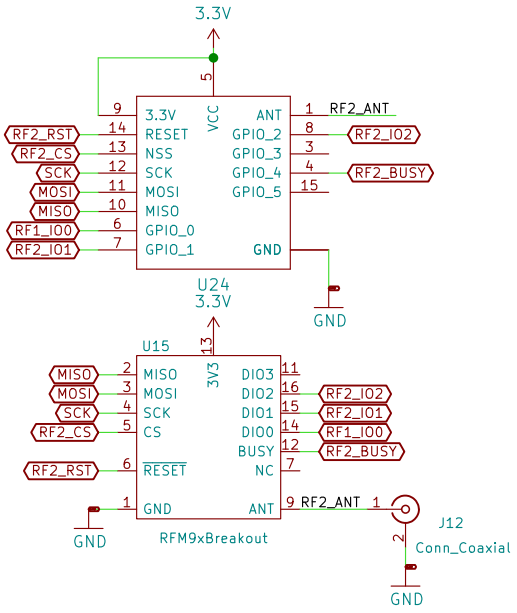


GPS Module

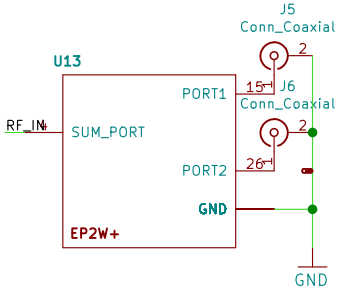


HopeRF RFM98PW module at 3.3V





RF Splitter
(2 Way, 0deg DC-Pass)



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Radio, GPS, Payloads

Sheet: /RF and GPS/
File: RF_and_GPS.sch

Title: PyCubed Mainboard

Size: A4	Date:	**Rev: v03**
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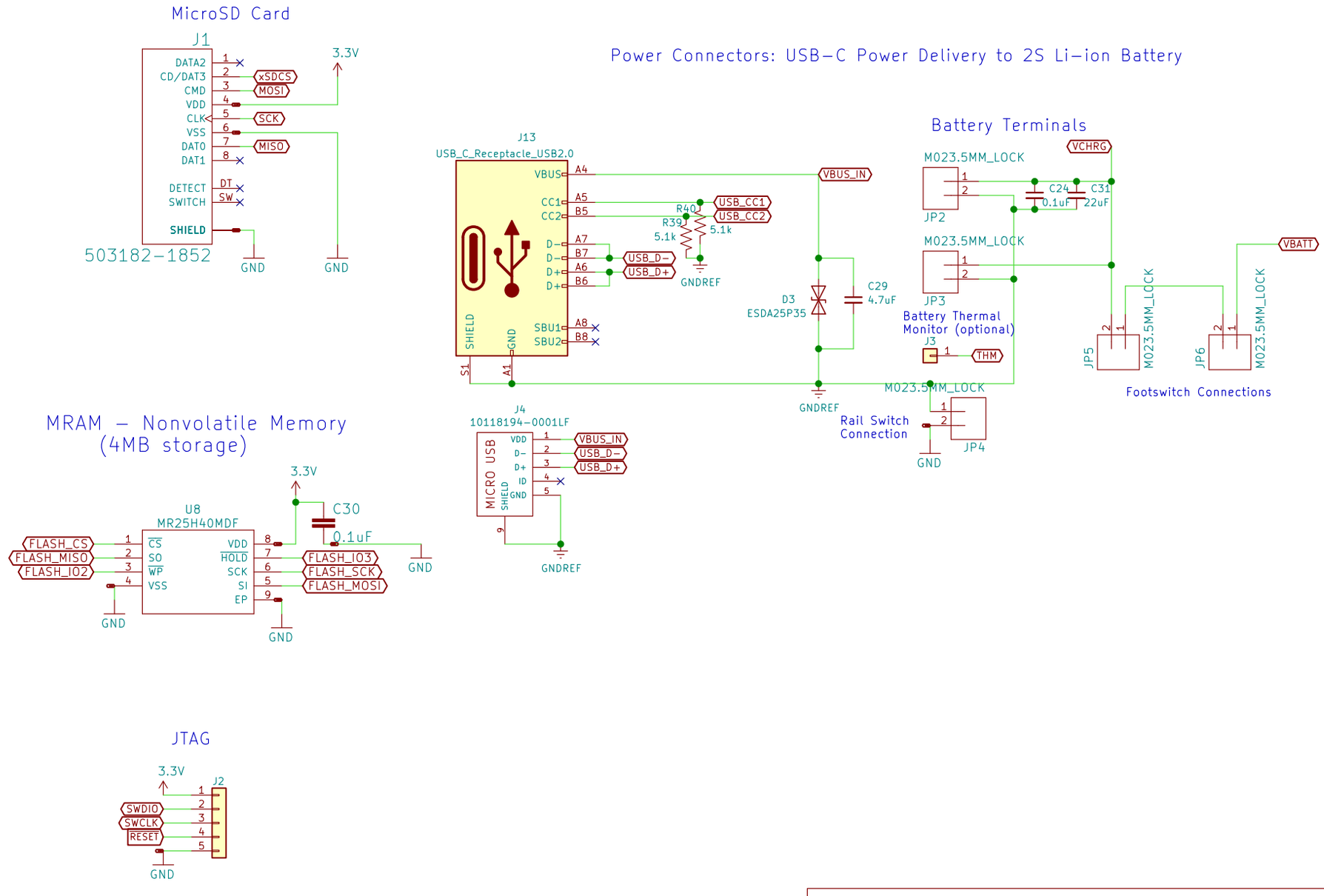
MicroSD Card
J1
DATA2
CD/DAT3
CMD
VDD
CLK
VSS
DAT0
DAT1
DETECT
SWITCH
SHIELD
xSDCS
MOSI
SCK
MISO
DT
SW
3.3V
GND
GND
503182-1852
Power Connectors: USB-C Power Delivery to 2S Li-ion Battery
J13
USB_C_Receptacle_USB2.0
VBUS
CC1
CC2
D-
D-
D+
D+
SBU1
SBU2
SHIELD
GND
S1
A1
R40
R39
5.1k
5.1k
USB_CC1
USB_CC2
USB_D-
USB_D+
GNDREF
VBUS_IN
D3
ESDA25P35
C29
4.7uF
GNDREF
Battery Terminals
VCHRG
M023.5MM_LOCK
JP2
C24
0.1uF
C31
22uF
M023.5MM_LOCK
JP3
Battery Thermal
Monitor (optional)
J3
THM
M023.5MM_LOCK
JP4
Rail Switch
Connection
GND
JP5
M023.5MM_LOCK
JP6
M023.5MM_LOCK
VBATT
Footswitch Connections
J4
10118194-0001LF
MICRO USB
VDD
D-
D+
ID
GND
SHIELD
VBUS_IN
USB_D-
USB_D+
GNDREF
MRAM - Nonvolatile Memory
(4MB storage)
U8
MR25H40MDF
CS
SO
WP
VSS
VDD
HOLD
SCK
SI
EP
FLASH_CS
FLASH_MISO
FLASH_IO2
FLASH_IO3
FLASH_SCK
FLASH_MOSI
3.3V
C30
0.1uF
GND
GND
GND
JTAG
3.3V
J2
SWDIO
SWCLK
RESET
GND
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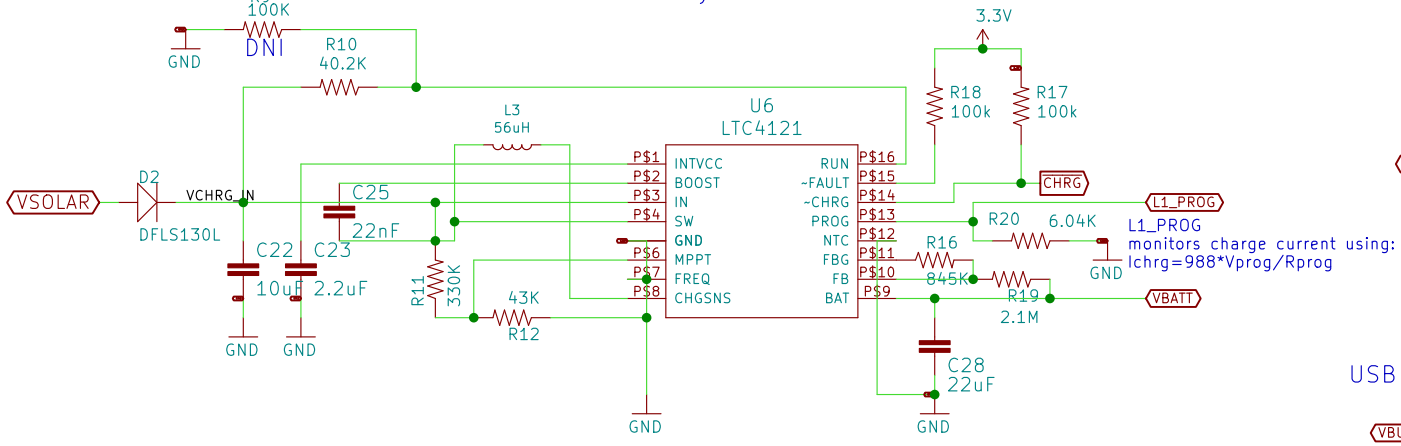
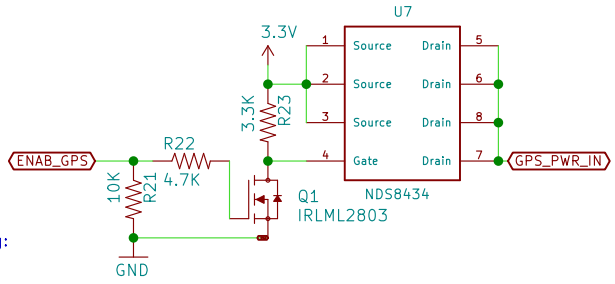
Connectors
Sheet: /Connectors/
File: Connectors.sch
Title: PyCubed Mainboard
Size: User
Date:
Rev: v03
KiCad E.D.A. eeschema (5.1.4)-1
Id: 4/6

2s2P Li-Ion Battery Charging Circuit

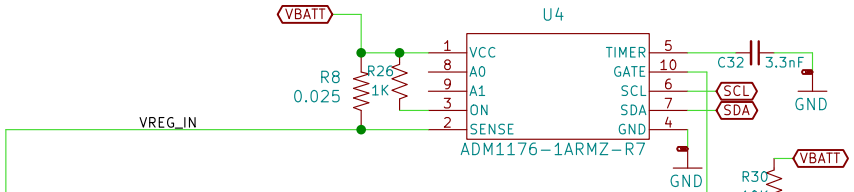
TODO: breakout NTC to battery connectors



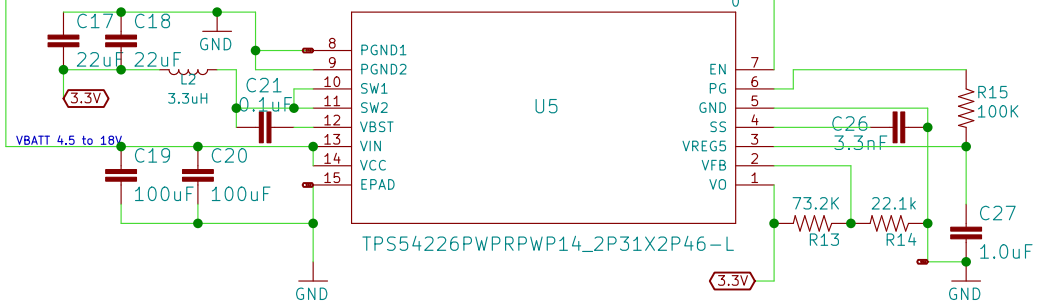
GPS Power



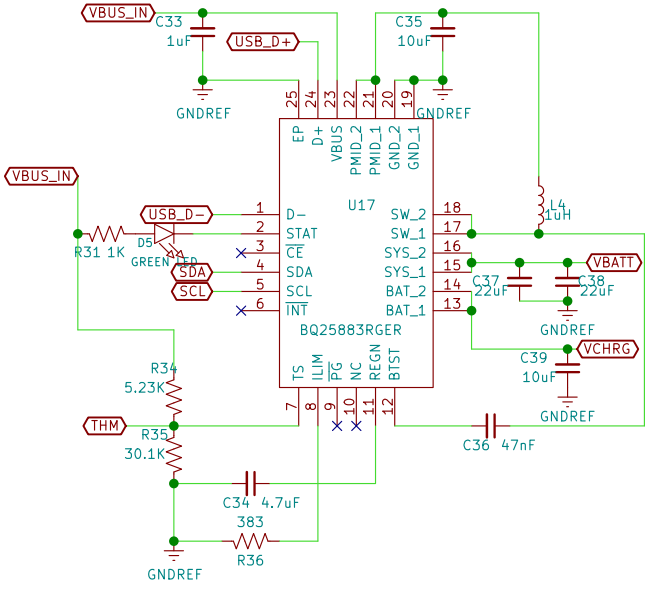
Battery Current Sensor



Regulator - 3.3V OUT



USB (Boost) Charging for 2-cell Li-Ion



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Sheet: /Power/
File: Power.sch

Title: PyCubed Mainboard

Size: A4	Date:	**Rev: v03**
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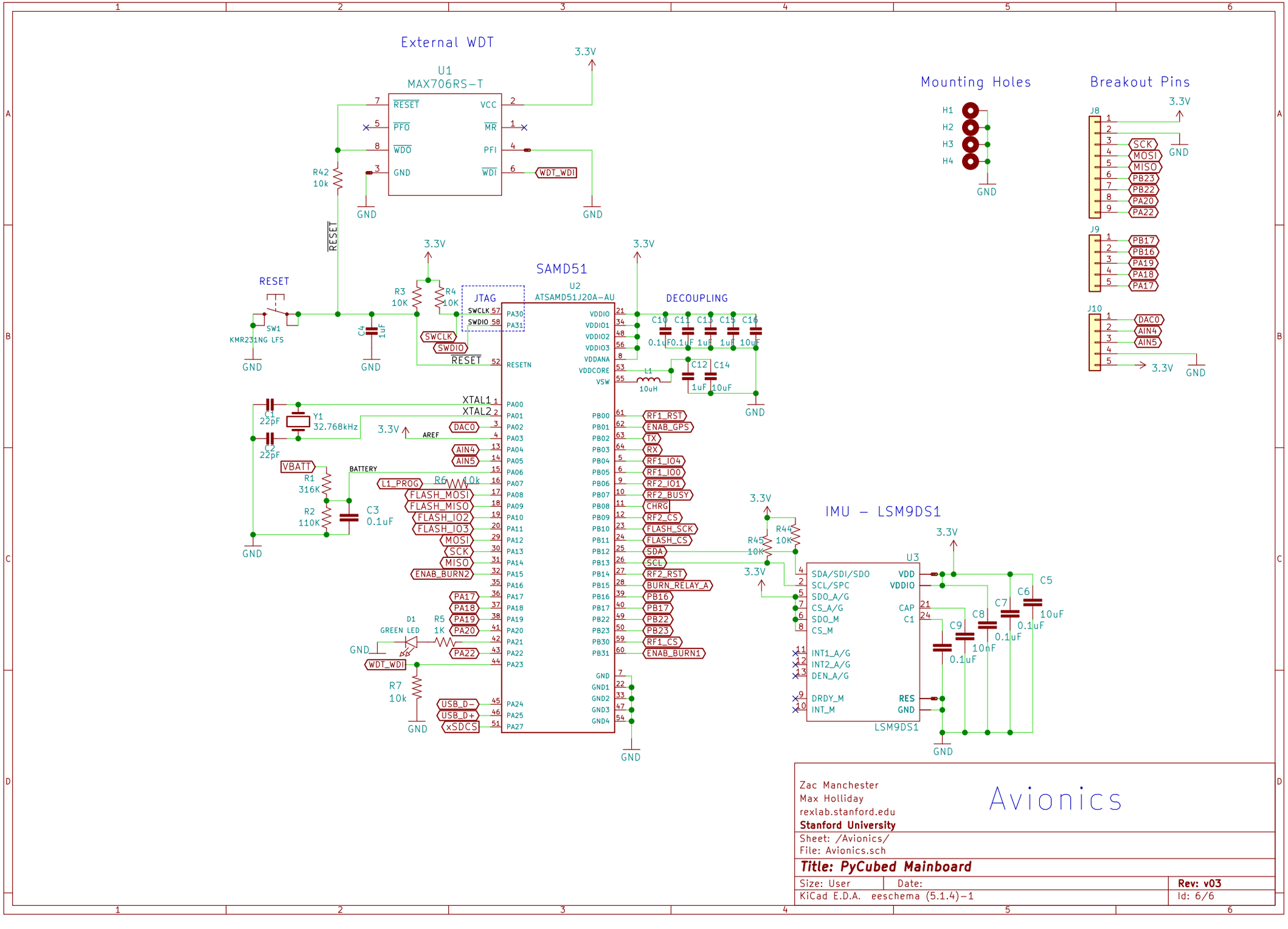
External WDT
U1
MAX706RS-T
RESET
PFO
WDO
GND
VCC
MR
PFI
WDI
WDT_WDI
R42
10k
3.3V
RESET
SAMD51
U2
ATSAMD51J20A-AU
JTAG
SWCLK
SWDIO
RESETN
SW1
KMR231NG LFS
R3
10K
R4
10K
C4
1uF
DECOUPLING
C10
C11
C13
C15
C16
0.1uF
0.1uF
1uF
1uF
10uF
L1
10uH
C12
C14
1uF
10uF
XTAL1
XTAL2
C1
22pF
C2
22pF
Y1
32.768kHz
AREF
DAC0
AIN4
AIN5
VBATT
BATTERY
R1
316K
R2
110K
C3
0.1uF
L1_PROG
R6
10k
FLASH_MOSI
FLASH_MISO
FLASH_IO2
FLASH_IO3
MOSI
SCK
MISO
ENAB_BURN2
PA17
PA18
PA19
PA20
PA21
PA22
PA23
D1
GREEN LED
R5
1K
WDT_WDI
R7
10k
USB_D-
USB_D+
xSDCS
PA24
PA25
PA27
PB00
PB01
PB02
PB03
PB04
PB05
PB06
PB07
PB08
PB09
PB10
PB11
PB12
PB13
PB14
PB15
PB16
PB17
PB22
PB23
PB30
PB31
RF1_RST
ENAB_GPS
TX
RX
RF1_IO4
RF1_IO0
RF2_IO1
RF2_BUSY
CHRG
RF2_CS
FLASH_SCK
FLASH_CS
SDA
SCL
RF2_RST
BURN_RELAY_A
PB16
PB17
PB22
PB23
RF1_CS
ENAB_BURN1
IMU - LSM9DS1
U3
LSM9DS1
R44
10K
R45
10K
SDA/SDI/SDO
SCL/SPC
SDO_A/G
CS_A/G
SDO_M
CS_M
INT1_A/G
INT2_A/G
DEN_A/G
DRDY_M
INT_M
VDD
VDDIO
CAP
C1
RES
GND
C5
C6
10uF
C7
0.1uF
C8
0.1uF
C9
10nF
0.1uF
Mounting Holes
H1
H2
H3
H4
Breakout Pins
J8
SCK
MOSI
MISO
PB23
PB22
PA20
PA22
J9
PB17
PB16
PA19
PA18
PA17
J10
DAC0
AIN4
AIN5
Zac Manchester
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Avionics
Sheet: /Avionics/
File: Avionics.sch
Title: PyCubed Mainboard
Size: User
Date:
Rev: v03
KiCad E.D.A. eeschema (5.1.4)-1
Id: 6/6