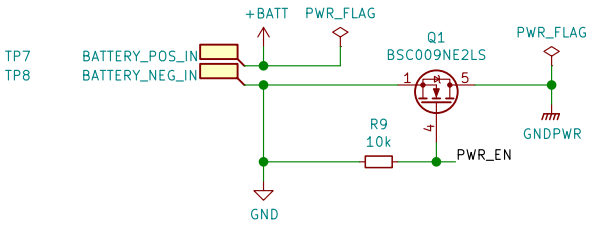
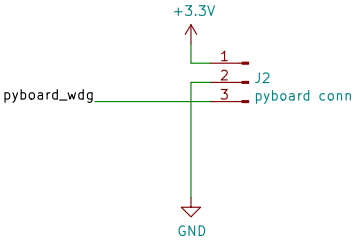
Power Switch



100A Continuous rated MOSFET.
Expected 40A Max sustained.
1mOhm on resistance – 1.6W dissipated.
6cm^2 area –> 100oC convection cooled
We've got forced air so should be safer! – Can confirm this ran stone cold!

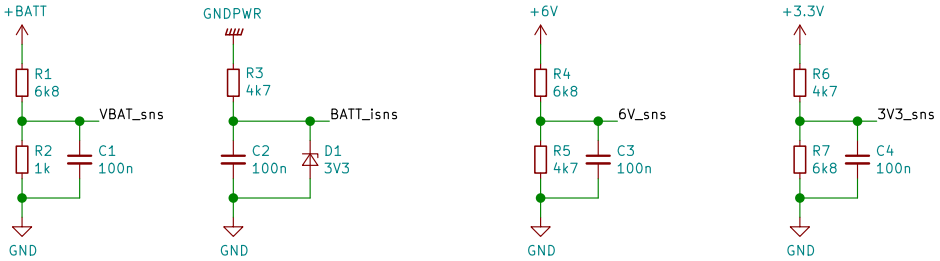
Input keep-alive from pyboard



6V Servo
Power Conn

Sense Circuits

Drop voltages to the 2.56V ADC Referenced Level



Battery Voltage Sensing
Up to 20V in

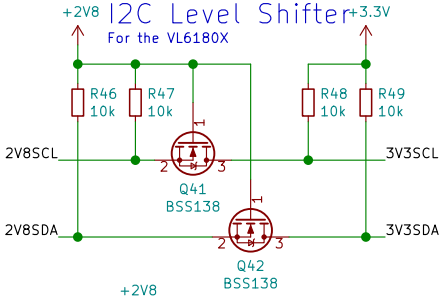
MOSFET Drain Monitoring
LED or Zener as clamp device
GND PF1 to permit diff amp usage
Expected 60mV at peak current

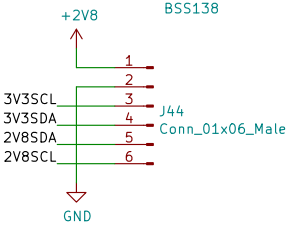
2.45V nominal

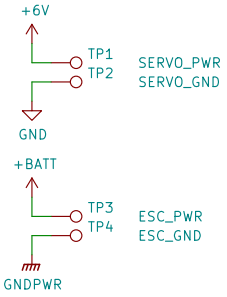
1.95V nominal

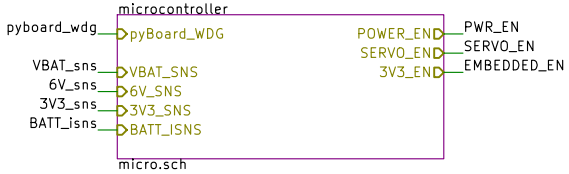
I2C Level Shifter

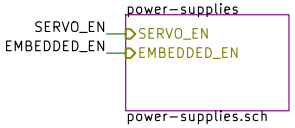
For the VL6180X











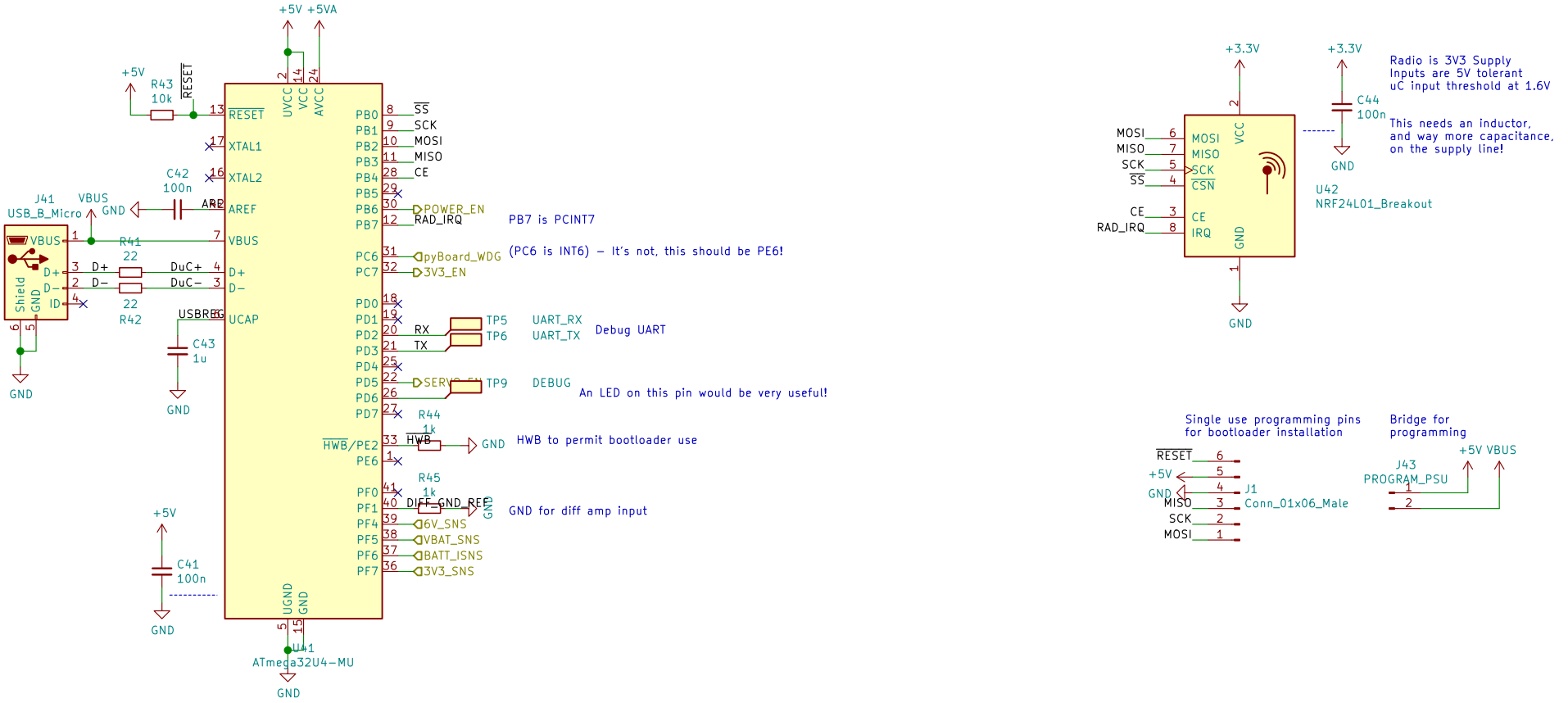
Top Level
WITH REVIEW COMMENTS

Bio Robots Team "Congo"
George Brown

Sheet: /
File: cutoff-hardware.sch

Title: Wall-IE Power Distribution Board

Size: A4	Date: 2019-05-12	**Rev: 1.0r**
KiCad E.D.A. kicad 5.1.2-f72e74a84ubuntu18.04.1		Id: 1/3



Microcontroller Hardware
WITH REVIEW COMMENTS

Bio Robots Team "Congo"
George Brown

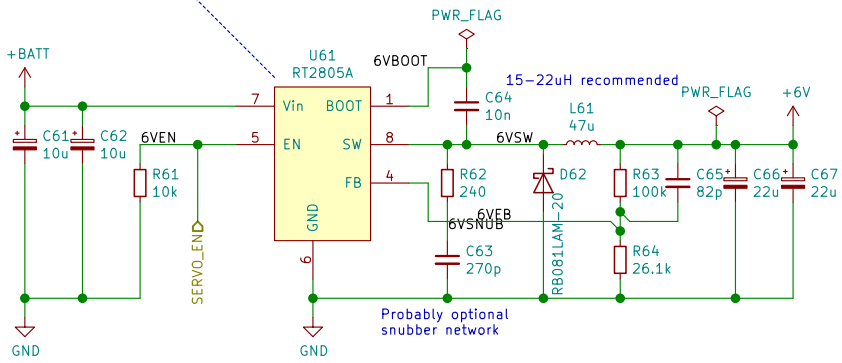
Sheet: /microcontroller/
File: micro.sch

Title: Wall−IE Power Distribution Board

Size: A4	Date: 2019−03−24	**Rev: 1.0r**
KiCad E.D.A. kicad 5.1.2−f72e74a84ubuntu18.04.1		Id: 2/3

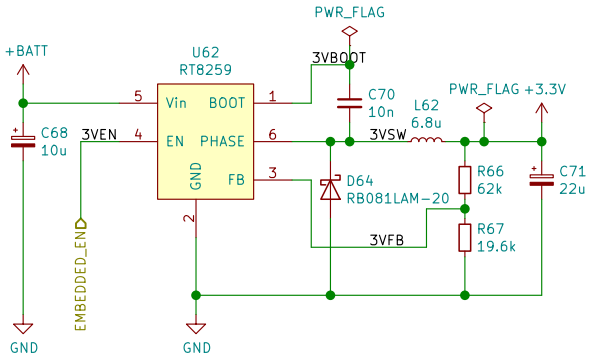
This specific buck regulator is NLA.
RT8279GSP is pin compatable replacement.
This was the part equipped on WALL-IE without issue.

6V Servo Supply



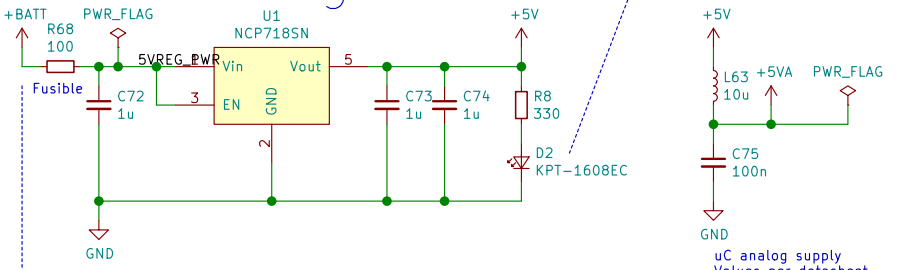
22uH Output Capacitor:
https://onecall.farnell.com/vishay/t55t226m010c0150/cap-22-f-10v-20/dp/2476078
10u Input Capacitor:
https://onecall.farnell.com/avx/tcjb106m035r0200/cap-10-f-35v-20/dp/2747670

3V3 pyboard Supply

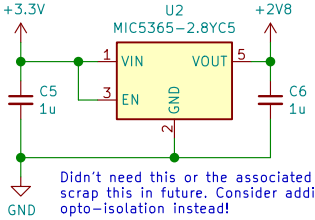


There's no way to turn on and off the pyboard without also turning off the onboard radio supply. Consider in future revisions adding a independent radio supply, such that the radio gets a cleaner supply!

5V Reg



2V8 Regulator



5V Filter Inductor:
https://onecall.farnell.com/tdk/mlz2012m100wt/inductor-10uh-20-shielded/dp/2215650

5V Regulator:
https://onecall.farnell.com/on-semiconductor/ncp718bsn500t1g/ldo-fixed-5v-0-3a-40-to-125deg/dp/2981167

Buck Diodes:
https://onecall.farnell.com/rohm/rb081lam-20tr/schottky-rect-single-20v-sod-128/dp/2918854

3.3V Inductor
https://onecall.farnell.com/bourns/srn4012ta-6r8m/inductor-6-8uh-1-3a-20-aec-q200/dp/2616881

6V Inductor:
https://onecall.farnell.com/bourns/srp1245a-180m/inductor-18uh-20-7-5a-shielded/dp/2434057
https://onecall.farnell.com/bourns/srp1265a-470m/inductor-47uh-20-6-5a-shielded/dp/2434080

Power Supplies
WITH REVIEW COMMENTS

Bio Robots Team "Congo"
George Brown

Sheet: /power-supplies/
File: power-supplies.sch

Title: Wall-IE Power Distribution Board

Size: A4	Date: 2019-03-24	**Rev: 1.0r**
KiCad E.D.A.	kicad 5.1.2-f72e74a84ubuntu18.04.1	Id: 3/3