

TODO:
* Finish wiring up sub-sheets.
* Bus entries need labels on both sides!

Notes:
* LTC3 is a single board represented on multiple sheets.

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Sheet: /
File: Launch_Tower_Computer_III.sch

Title: Launch Tower Computer 3 (LTC3)

Size: B Date: 2015-12-23

KiCad E.D.A. kicad 4.0.0rc1a-stable

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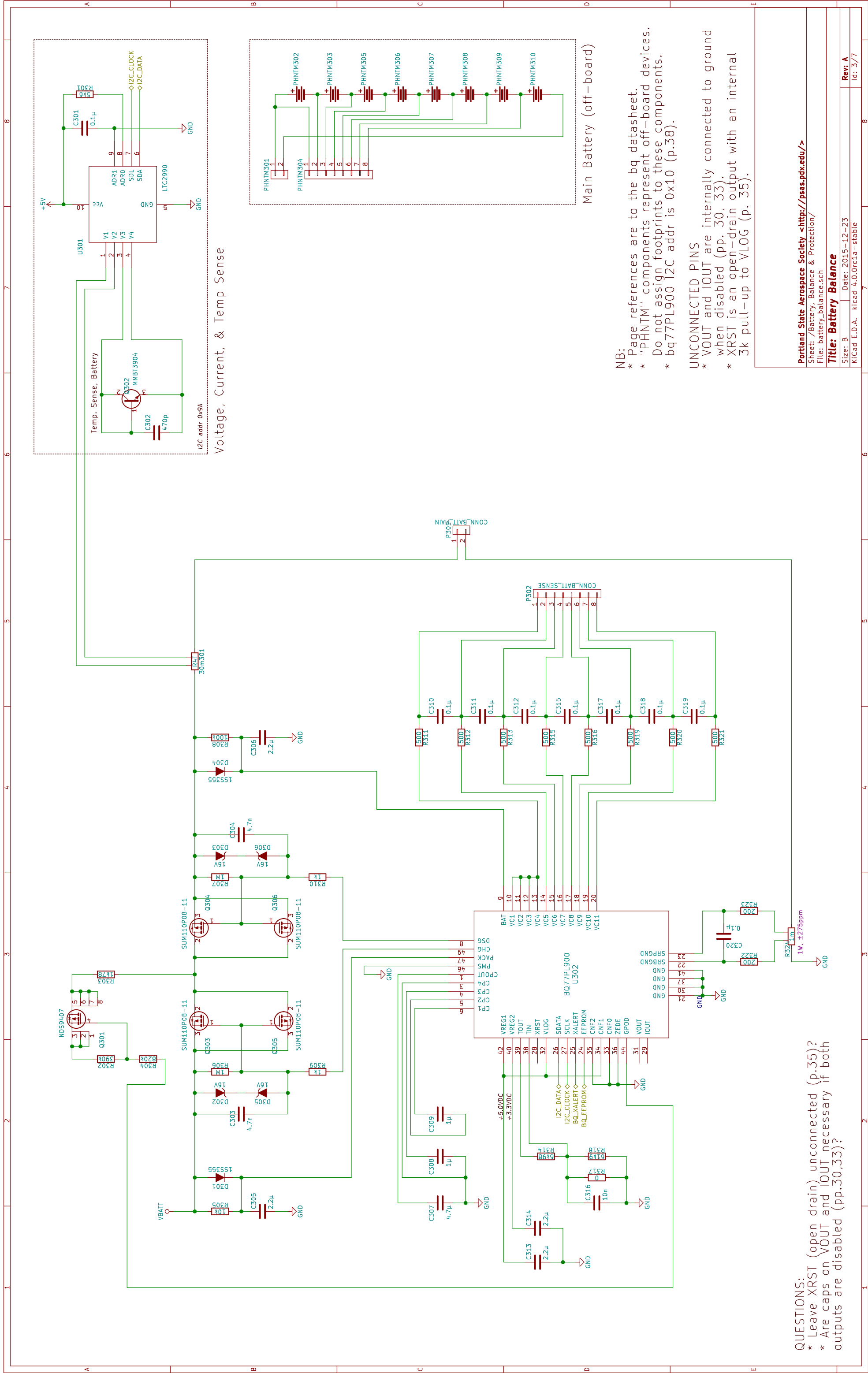
5

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1



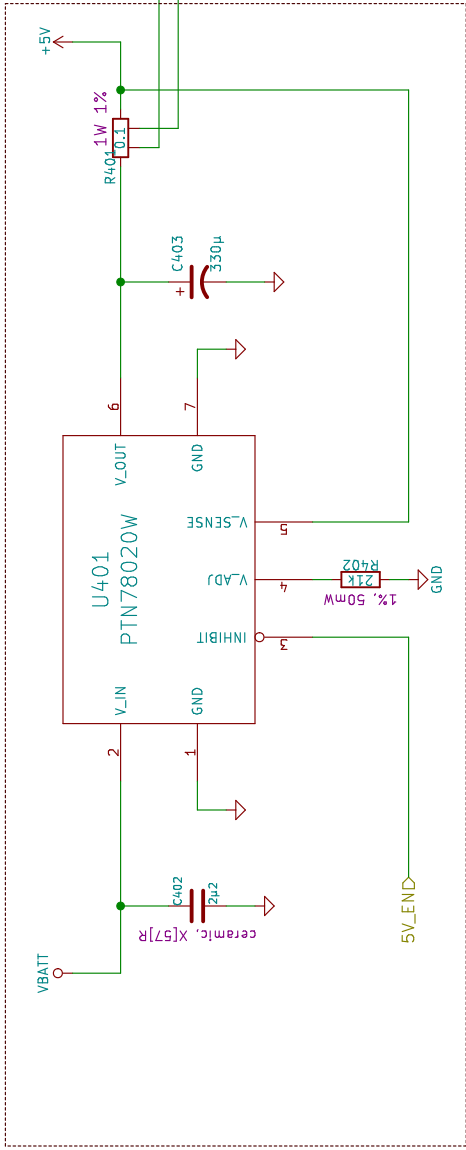
QUESTIONS:

- * Leave X_{RST} (open drain) unconnected (p.35)?
- * Are caps on V_{OUT} and I_{OUT} necessary if both outputs are disabled (pp.30,33)?

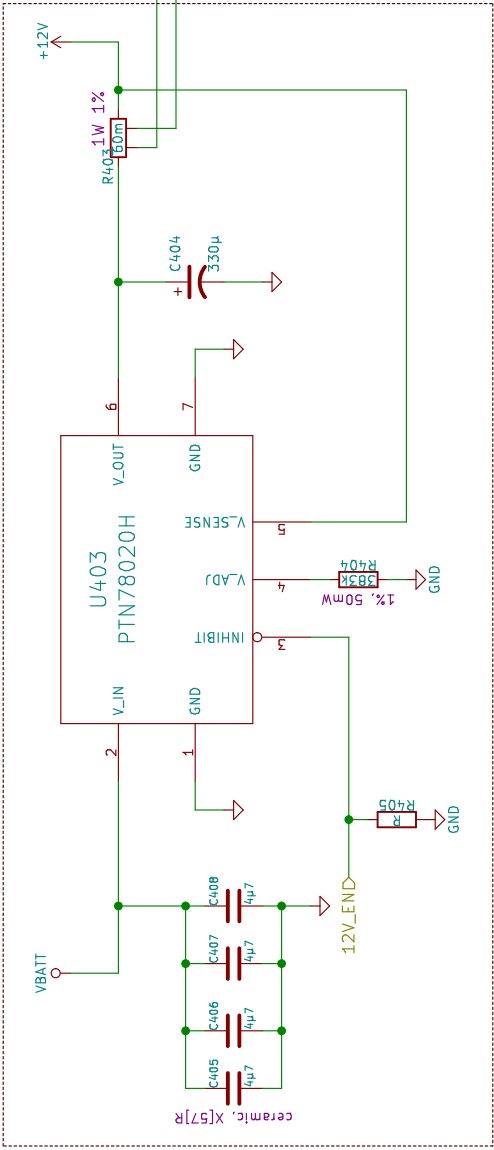
NB:
 * Page references are to the bq datasheet.
 * "PHNTM" components represent off-board devices.
 * Do not assign footprints to these components.
 * bq77PL900 12C addr is 0x10 (p.38).

UNCONNECTED PINS

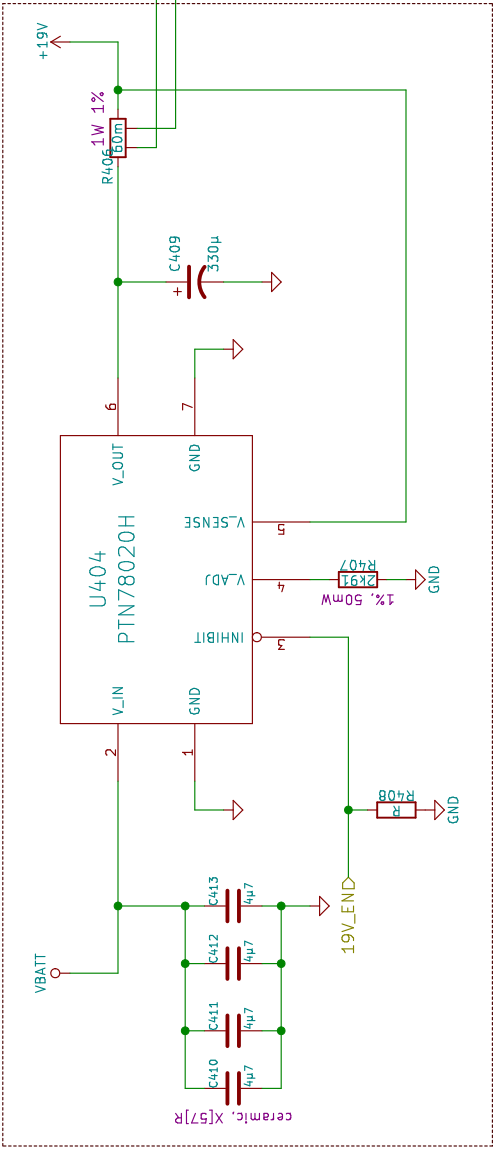
- * VOUT and IOUT are internally connected to ground when disabled (pp. 30, 33).
- * XRST is an open-drain output with an internal 3k pull-up to VLOG (p. 35).



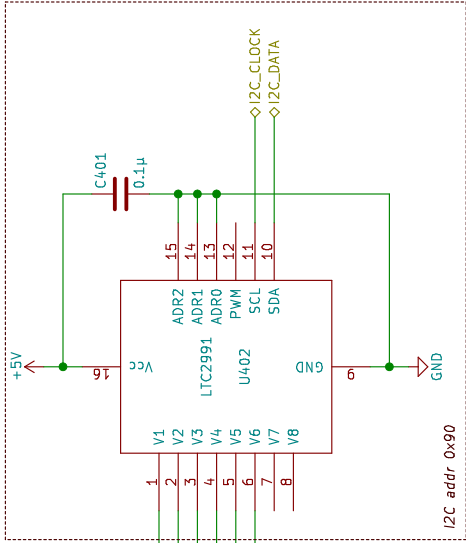
+5V DC Rail



+12V DC Rail



+19V DC Rail



Voltage, Current, & Temp Sense

Current Sense Resistors

full-scale voltage = 0.300 V
R_sense_max = 0.300/Imax
1 A = 300mΩ
3 A = 100mΩ
5 A = 60mΩ
10 A = 30mΩ

NB:

1. V_sense should connect as close as possible to the largest load on the given power rail.
2. Place Rset resistors as close to package pins as possible.
3. Ceramic (Cin) capacitors should be located within 0.5 in of the input pins.
4. We may need heat sinks on the converters. The datasheet indicates a range of 2W to 5W of power dissipation given our specs.
5. Pay attention to the datasheet's recommendations regarding capacitor selection.

TODO:

- * Capacitor values are minimums. Consider increasing these. Consult datasheet for more info.

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Sheet: /DC-DC Converters/

File: dcdc_converter.sch

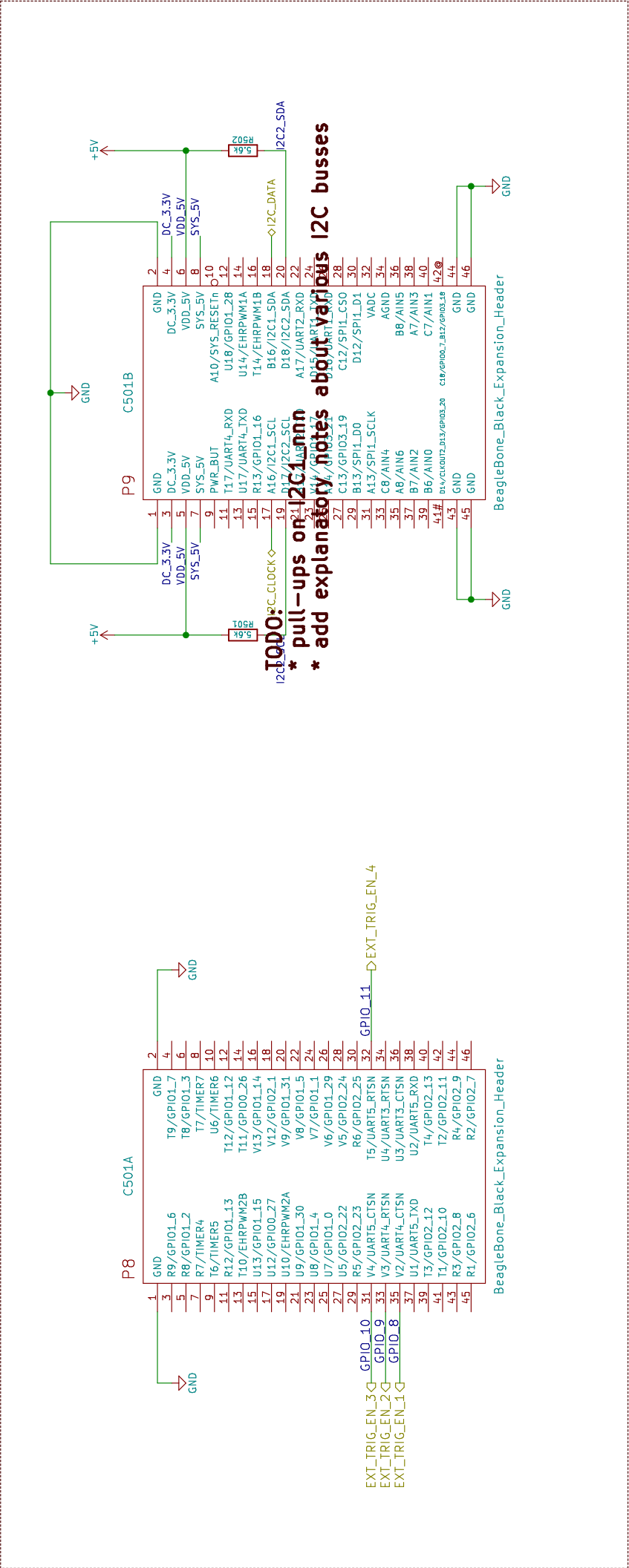
Title: LTC3 DC-DC Converters

Size: B Date: 2015-12-23

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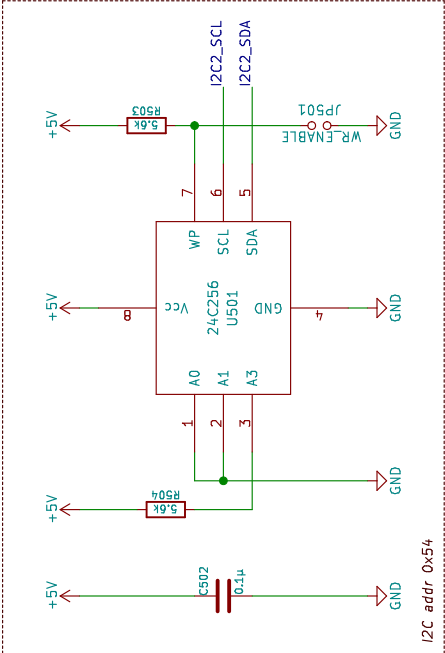
Rev: A

Id: 4/7

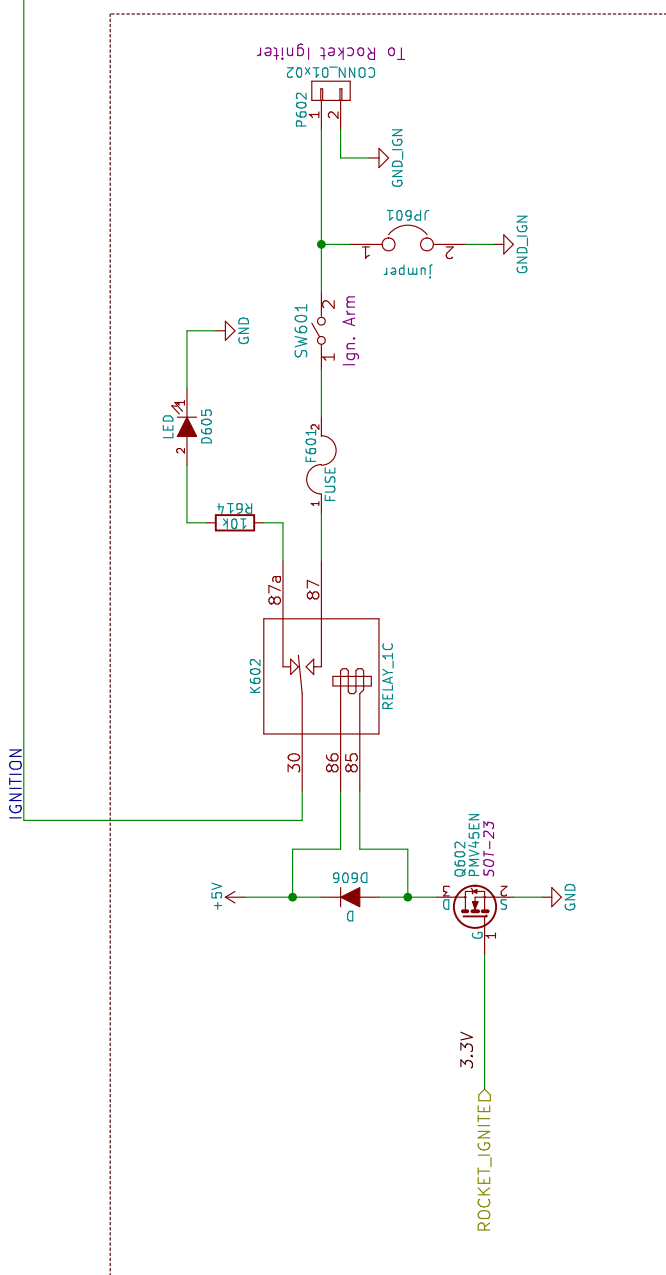
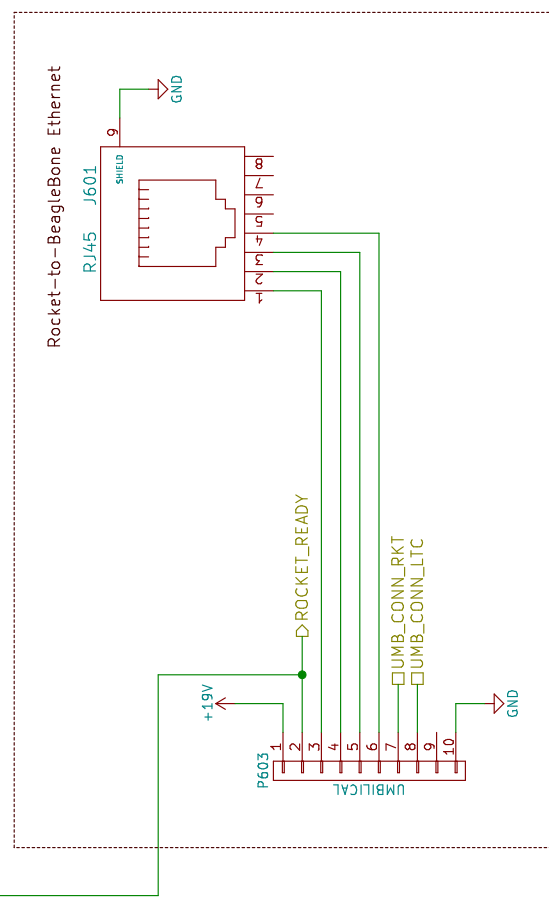
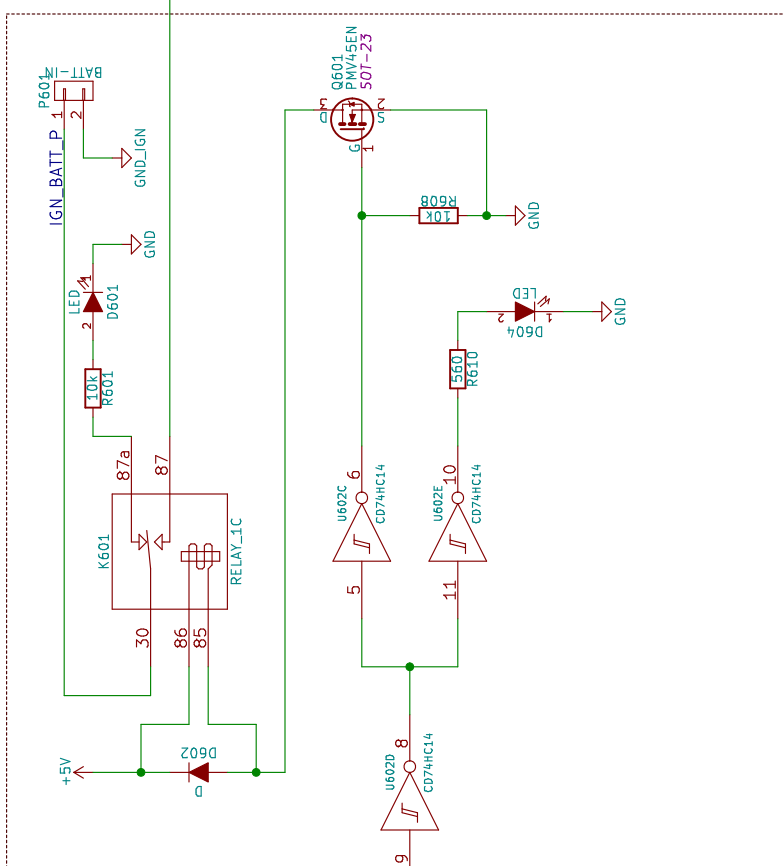
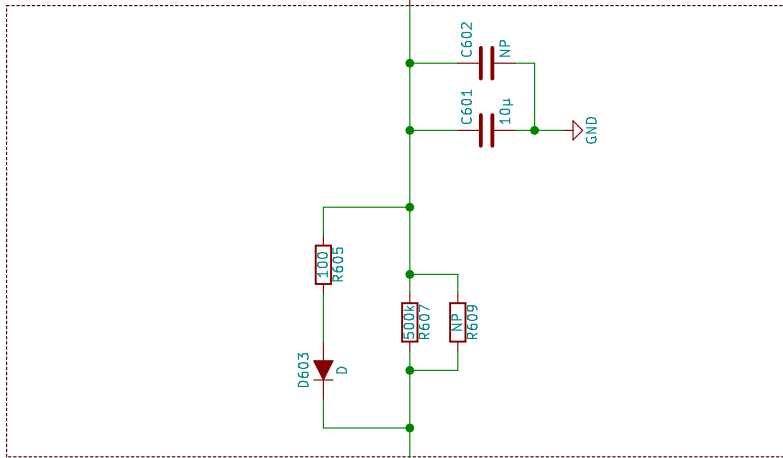
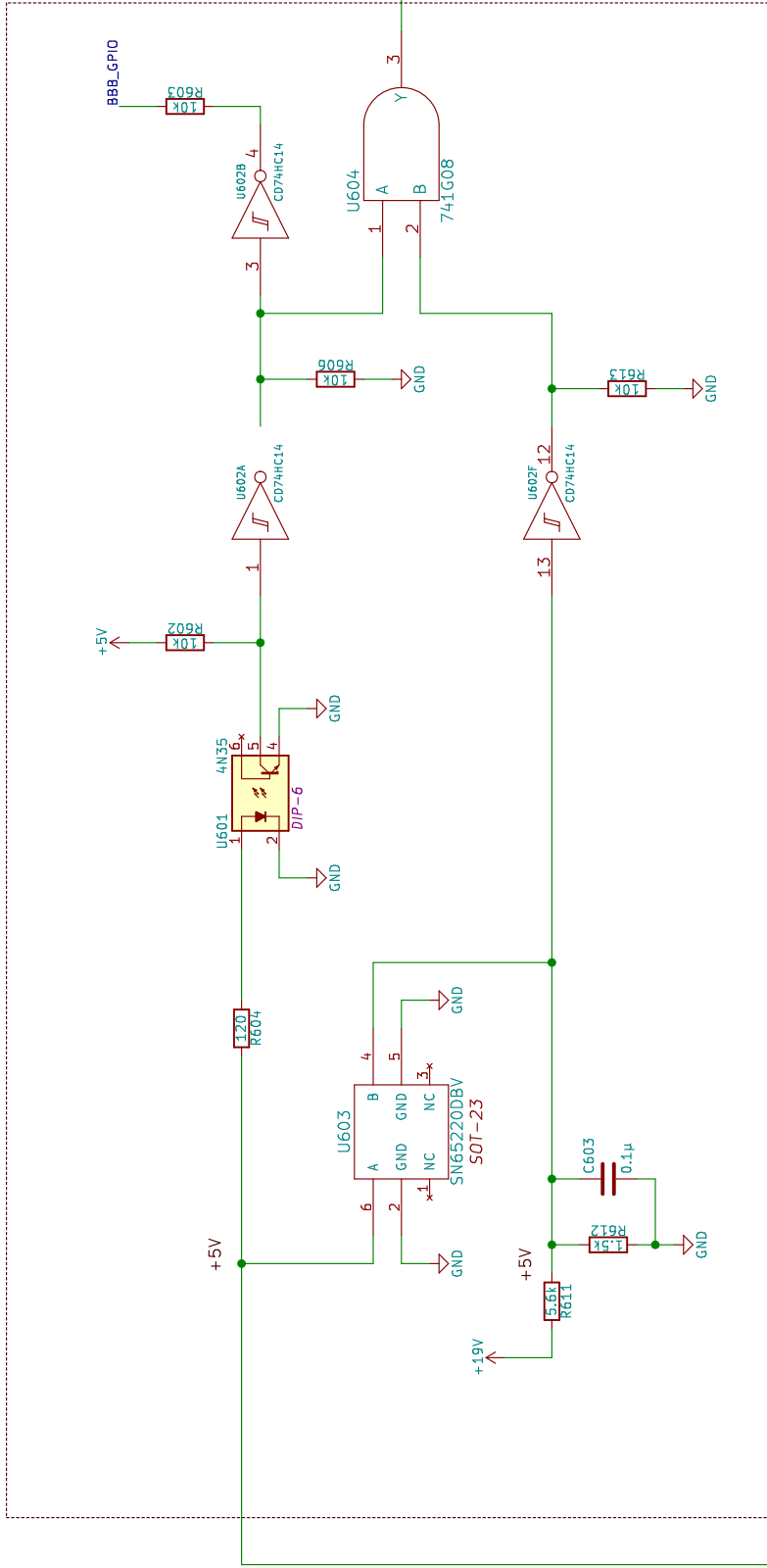


BeagleBone Expansion Headers

- TODO: connect these labels to BBB GPIO pins.
- ROCKET_READY
 - BQ_XALERT
 - BQ_EEPROM
 - ROCKET_IGNITE



- TODO:
- * Pick GPIO for rocket-ready signal.
 - * Buffer btw rocket-ready signal and BB, ign. board, etc?
 - * Umbilical connection state
 - * Ignition fuse state

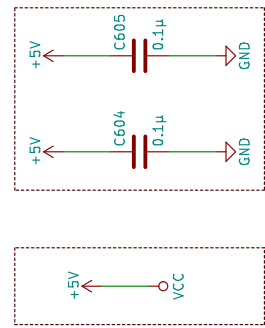


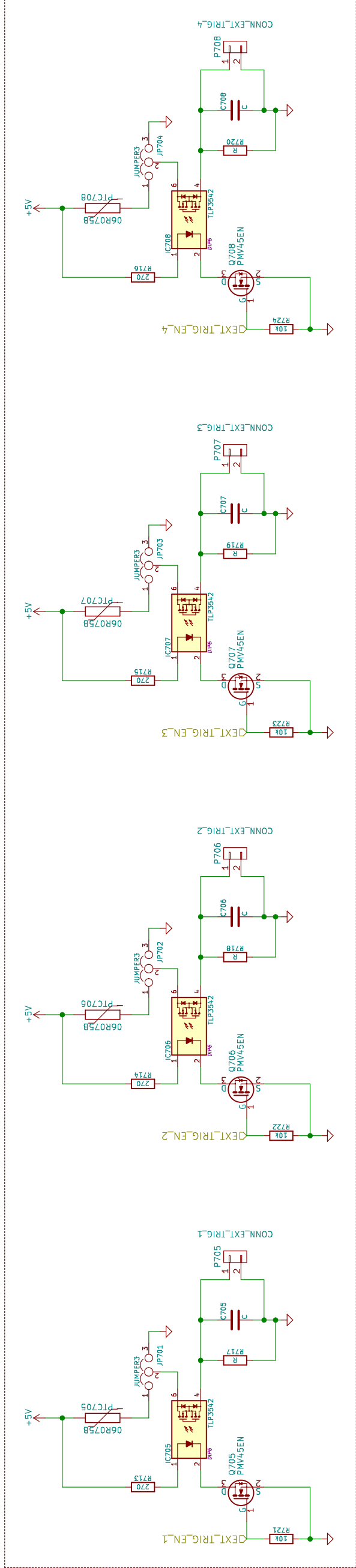
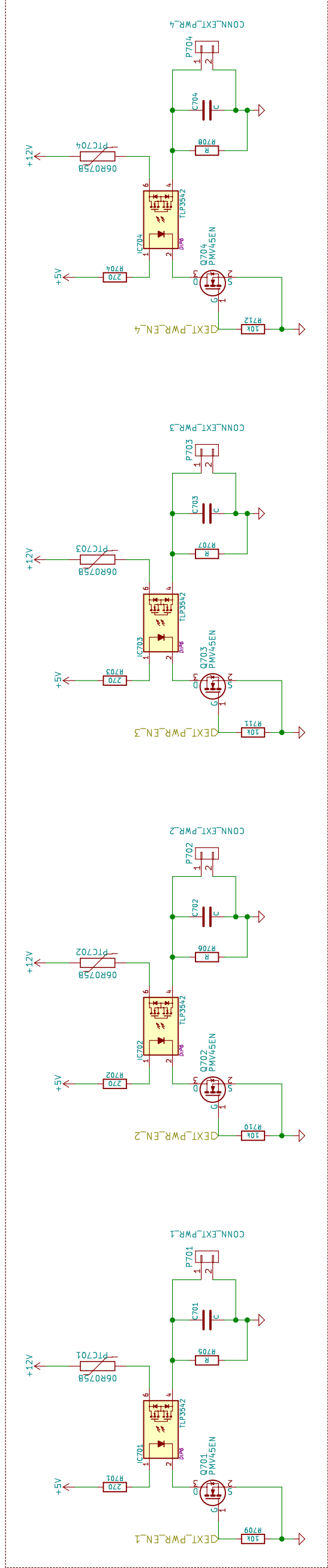
TODO:

- * Select appropriate component values.
- * Finish rocket umbilical connector.
- * Verify Enet jack "adapter" wiring.
- * Add umbilical connect sense lines circuitry.
- * Label various LEDs.

QUESTIONS:

- * Will 5v from schmidt fry BBB GPIO?





TODO:

- * Determine values for bleeder resistor and filter capacitor on each output connector.
- * Pick new PolyFuses, 0.5–1.0A max.