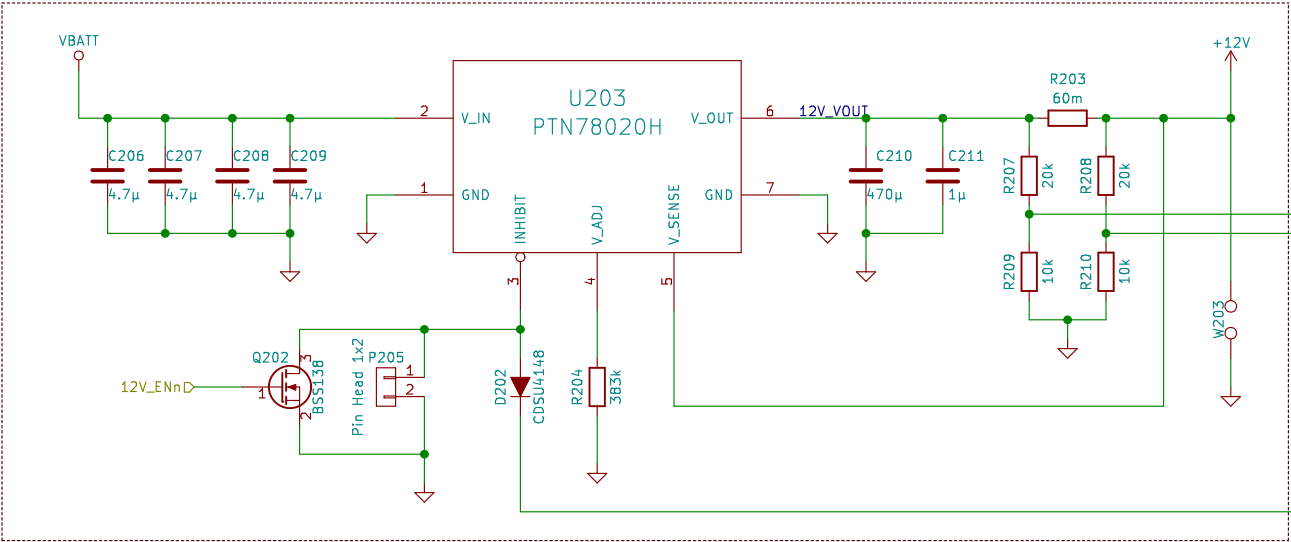
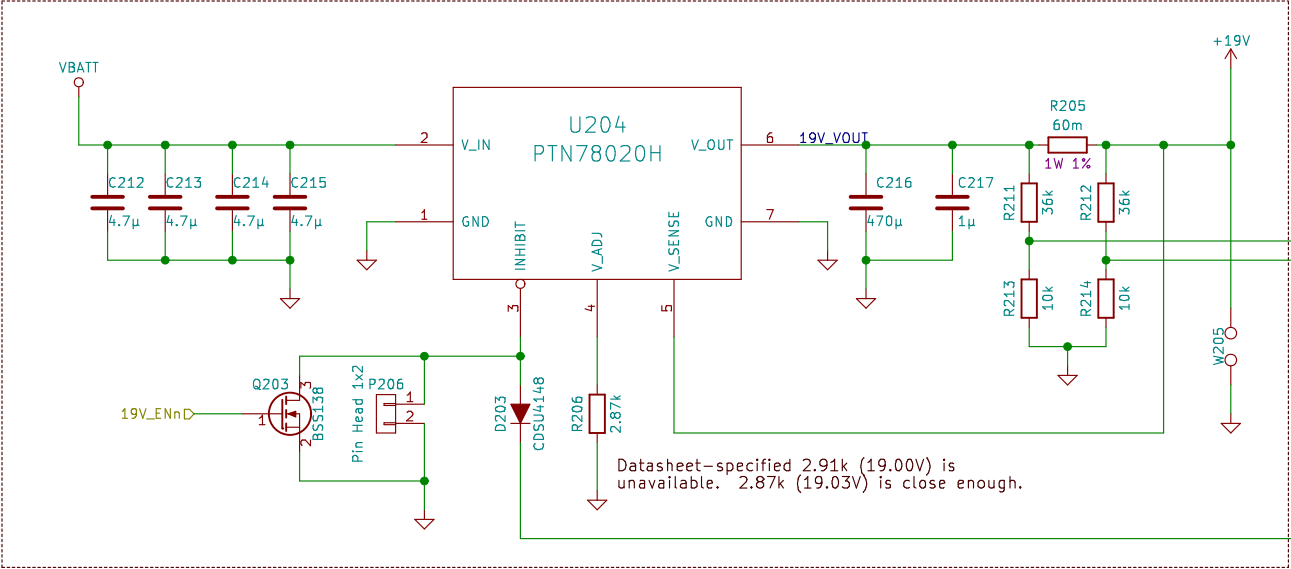


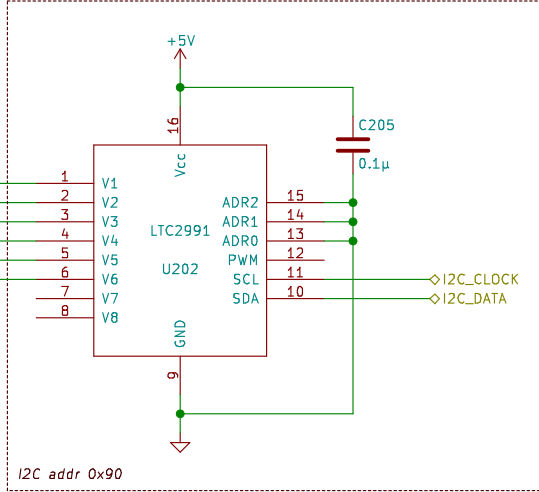
+5V DC Supply



+12V DC Supply



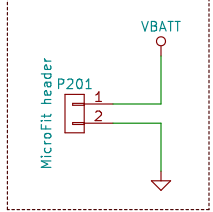
+19V DC Supply



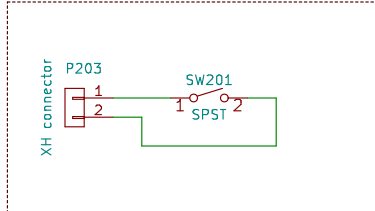
Voltage, Current, & Temp Sense

Current Sense Resistors
full-scale voltage = 0.300 V
 $R_{sense_max} = 0.300 / I_{max}$
5 A = 60mΩ

**TODO: add MicroFit housing
contacts to BOM**



Power In



Main Power Switch, Front Panel

NOTES

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.

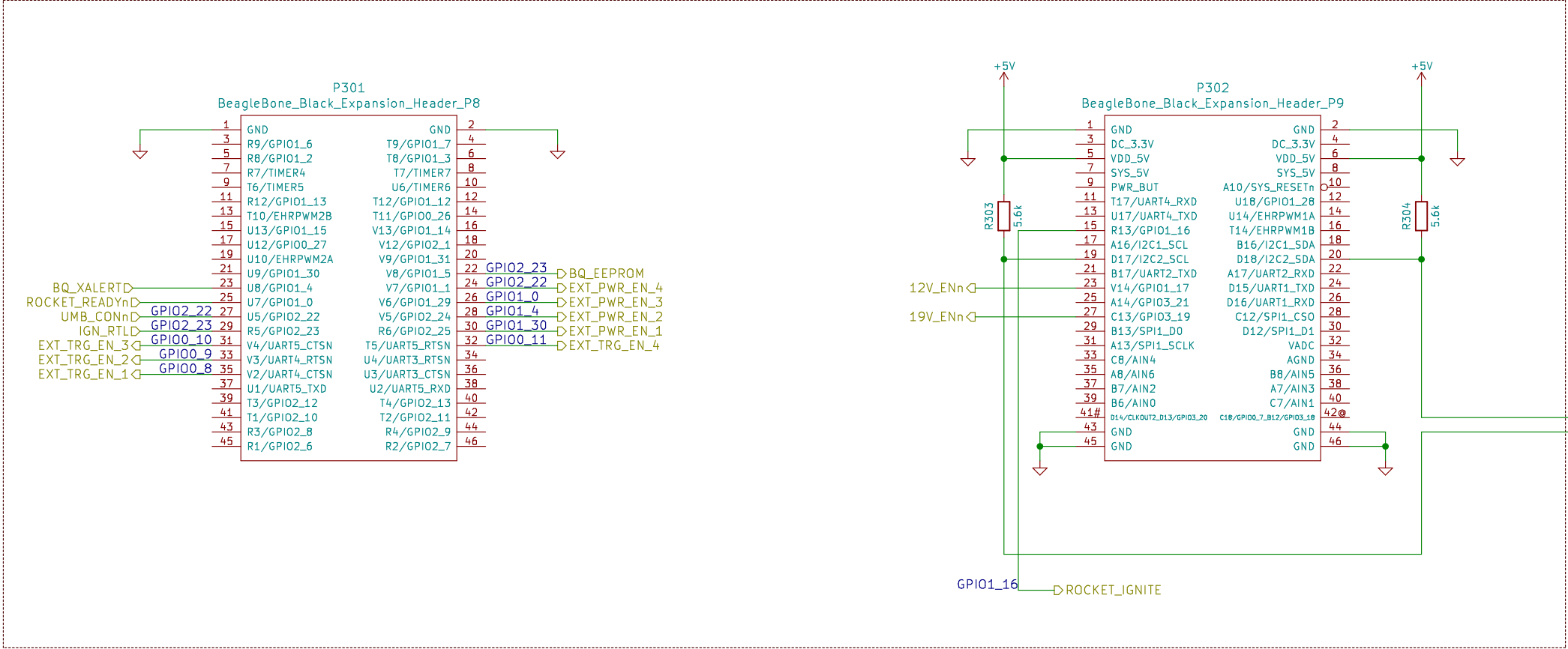
Portland State Aerospace Society <<http://psas.pdx.edu/>>

Sheet: /DC-DC Converters/
File: dcdc_converter.sch

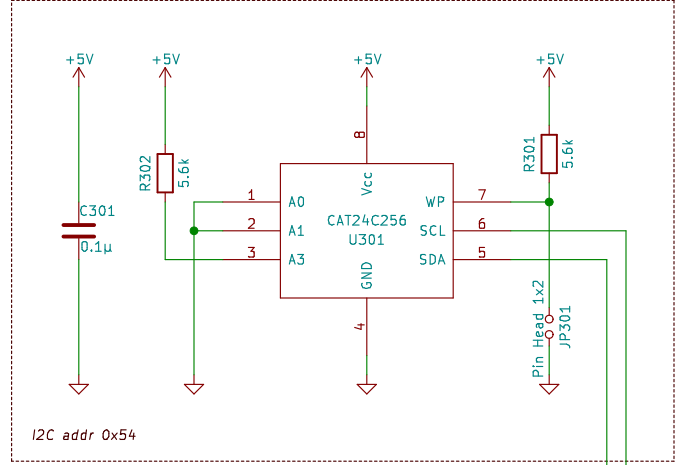
Title: LTC3 DC-DC Converters

Size: B Date: 2016-09-04
KiCad E.D.A. kicad 4.0.2+dfsg1-stable

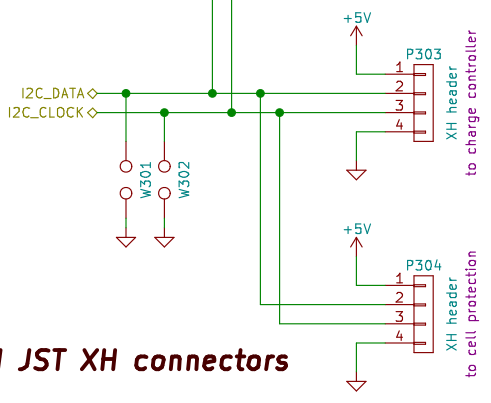
Rev: A
Id: 2/6



BeagleBone Expansion Headers



Cape EEPROM

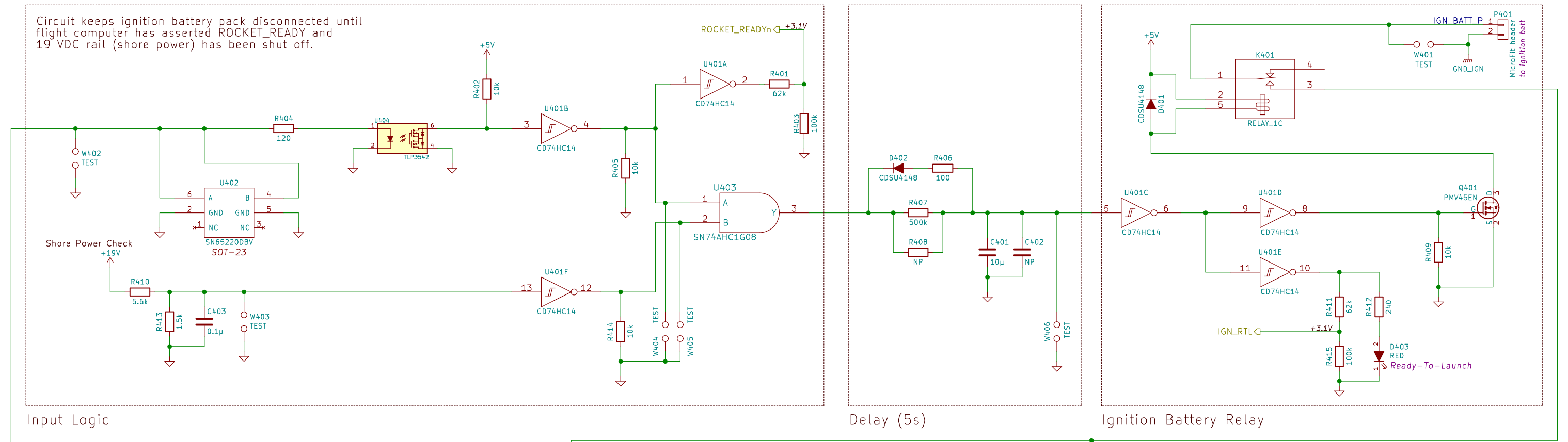


TODO: add off-board JST XH connectors

I2C Devices			
ADDR	Part	Type	Location
0x10	U203	BQ77PL900	B/PM
0x54	U501	EEPROM	BBB
0x90	U402	LTC2991	DC-DC
0x98	U203	LTC2990	Power In
0x9A	U301	LTC2990	B/PM

NOTES:
* Do NOT change ROCKET_IGNITE, pin default reset state is High-Z w/ pulldown resistor. Other pins can be configured in EEPROM at boot time.
* All I2C devices on LTC3 are slaves. The BBB is the only master so the LTC will not need arbitration.

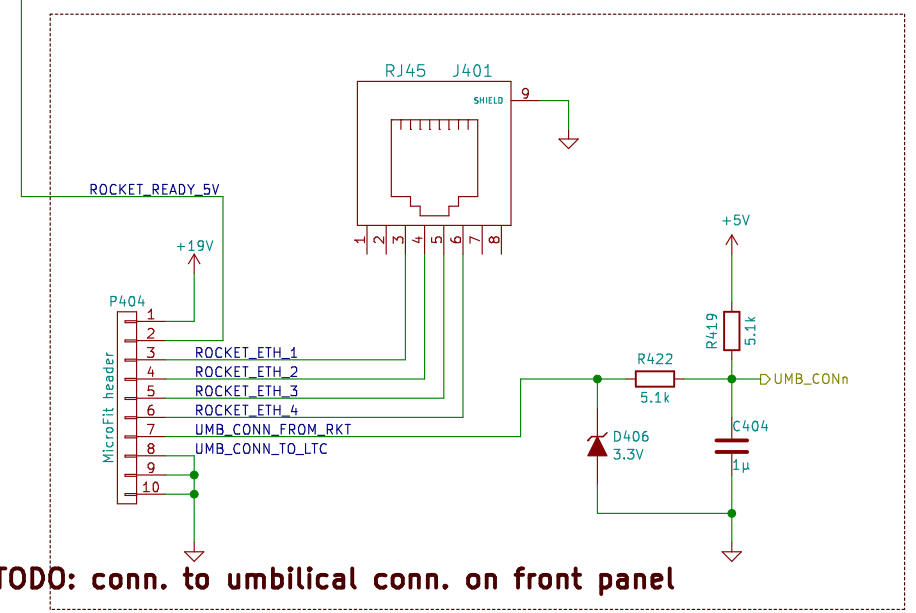
Circuit keeps ignition battery pack disconnected until flight computer has asserted ROCKET_READY and 19 VDC rail (shore power) has been shut off.



Input Logic

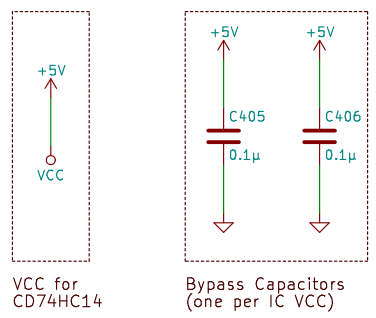
Delay (5s)

Ignition Battery Relay



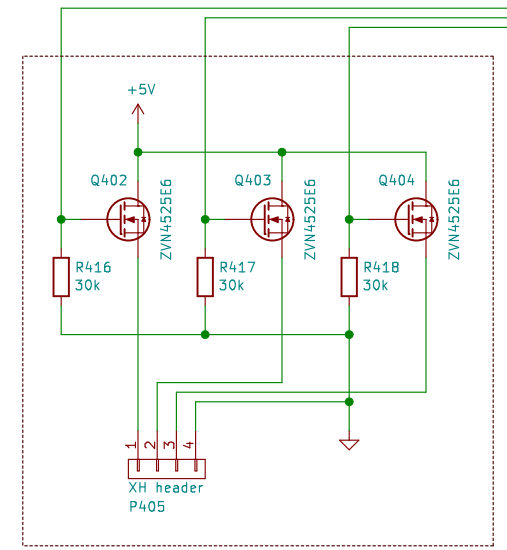
TODO: conn. to umbilical conn. on front panel

Rocket Umbilical
Rocket-to-BeagleBone Ethernet

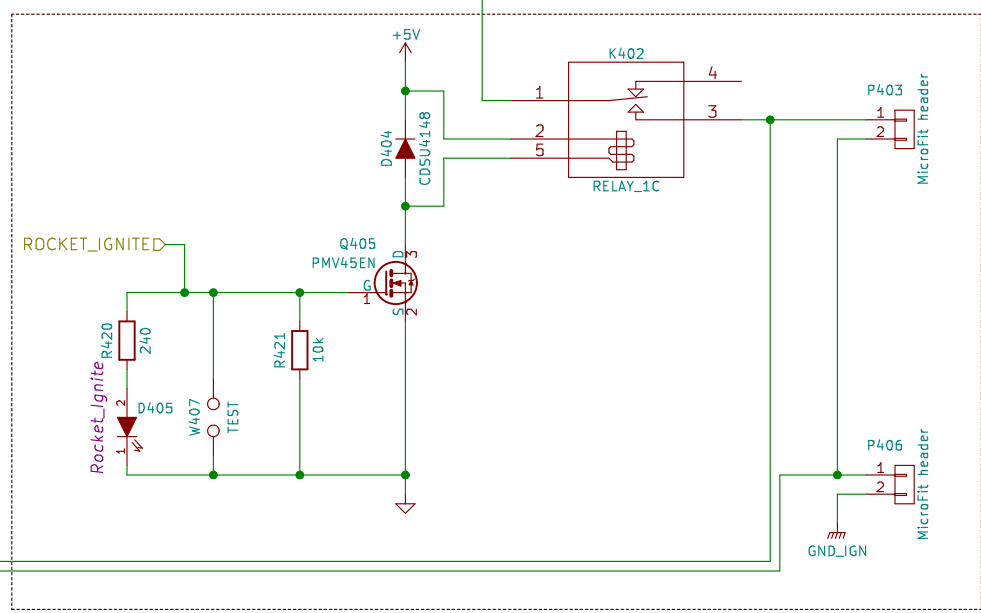


VCC for CD74HC14

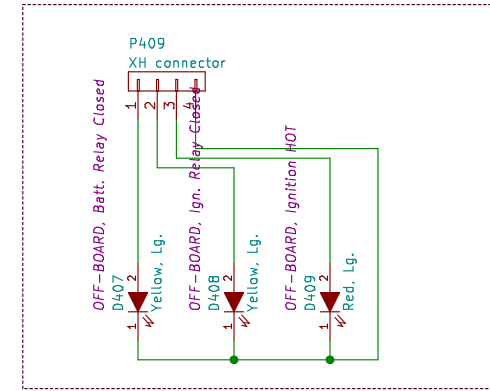
Bypass Capacitors (one per IC VCC)



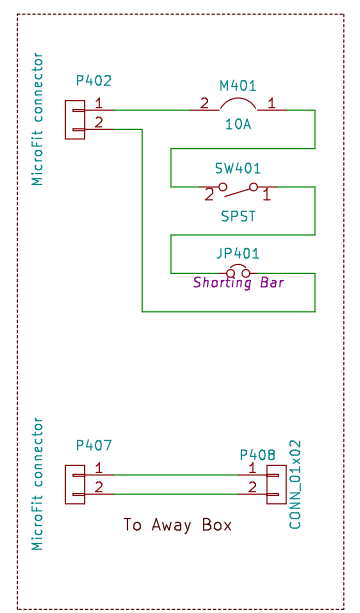
Rocket Ignition Relay



TODO: find out if Dialight 557 LED indicators require current-limiting resistor



BAKERCON Hazard Gauge
(super-bright LEDs, exterior panel)



Breaker, Arm Switch, Shorting Bar, & Ignition Connector
(front panel)

TODO: add MicroFit housing contacts to BOM

