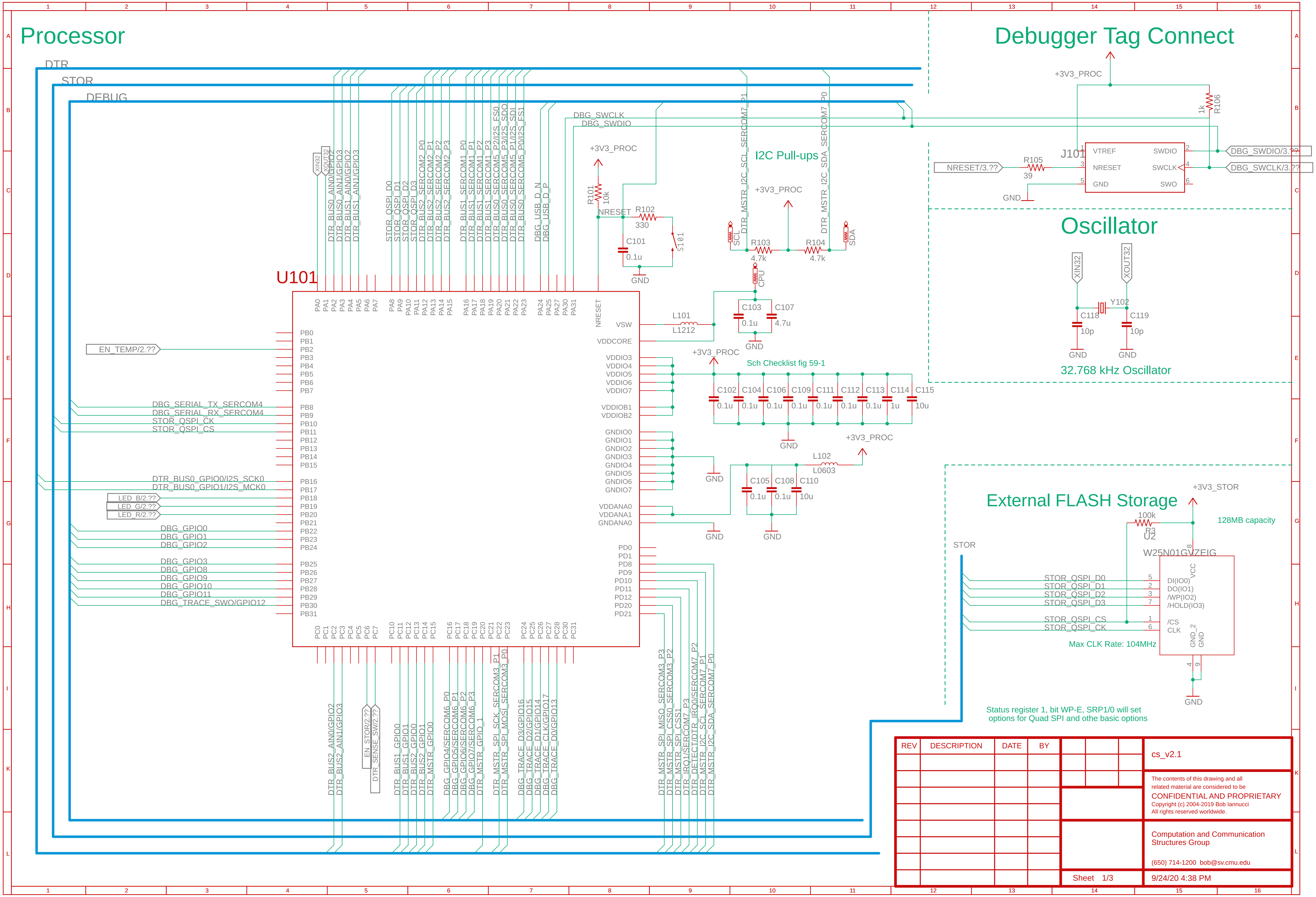

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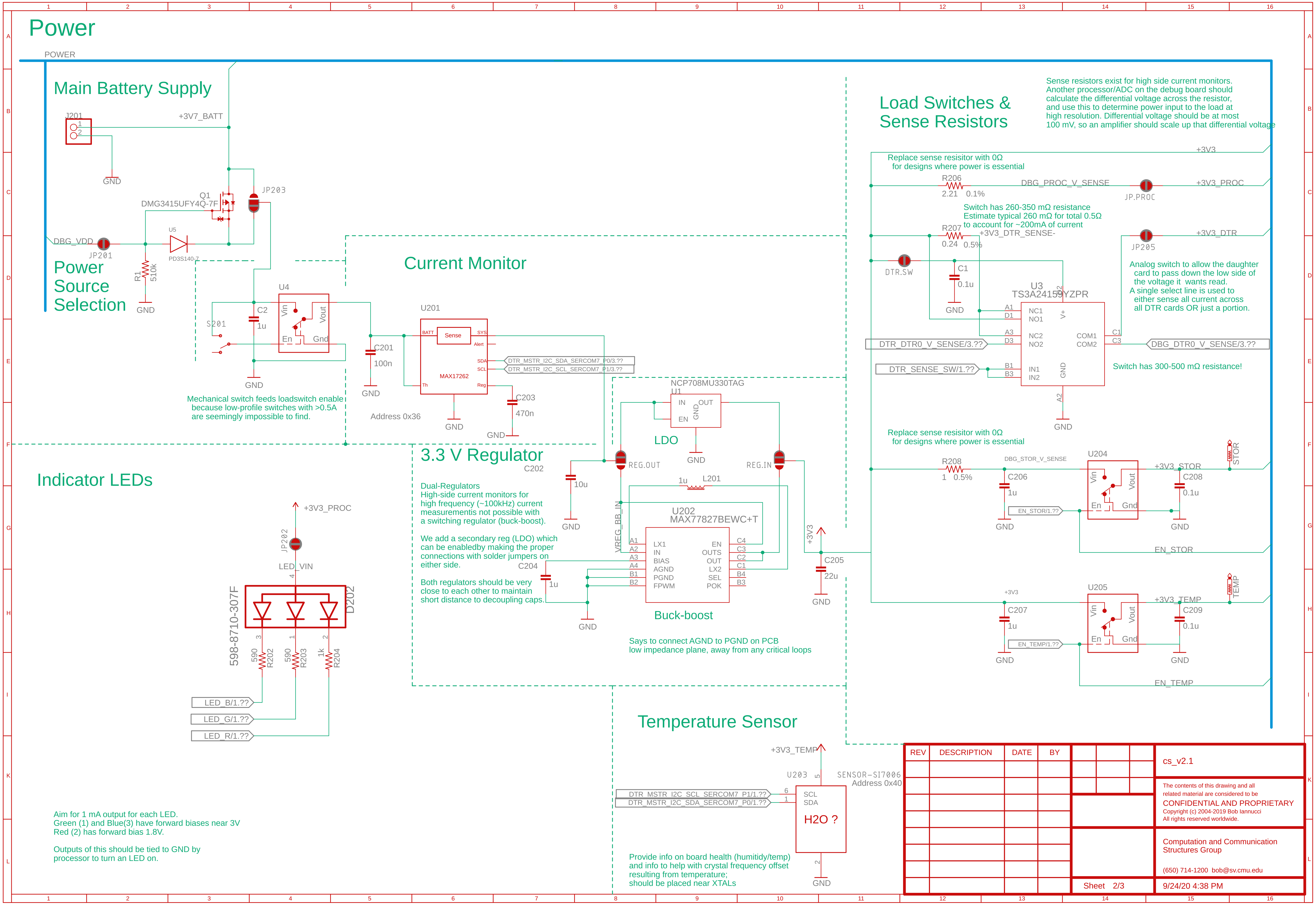
Power



Sense resistors exist for high side current monitors. Another processor/ADC on the debug board should calculate the differential voltage across the resistor, and use this to determine power input to the load at high resolution. Differential voltage should be at most 100 mV, so an amplifier should scale up that differential voltage

Replace sense resisitor with 0Ω for designs where power is essential

Switch has 260-350 mΩ resistance
Estimate typical 260 mΩ for total 0.5Ω
to account for ~200mA of current

Analog switch to allow the daughter card to pass down the low side of the voltage it wants read.
A single select line is used to either sense all current across all DTR cards OR just a portion.

Switch has 300-500 mΩ resistance!

Replace sense resisitor with 0Ω for designs where power is essential

Mechanical switch feeds loadswitch enable because low-profile switches with >0.5A are seemingly impossible to find.

Dual-Regulators
High-side current monitors for high frequency (~100kHz) current measurements not possible with a switching regulator (buck-boost).

We add a secondary reg (LDO) which can be enabledby making the proper connections with solder jumpers on either side.

Both regulators should be very close to each other to maintain short distance to decoupling caps.

Says to connect AGND to PGND on PCB low impedance plane, away from any critical loops

Aim for 1 mA output for each LED.
Green (1) and Blue(3) have forward biases near 3V
Red (2) has forward bias 1.8V.

Outputs of this should be tied to GND by processor to turn an LED on.

Provide info on board health (humitidy/temp) and info to help with crystal frequency offset resulting from temperature;
should be placed near XTALs

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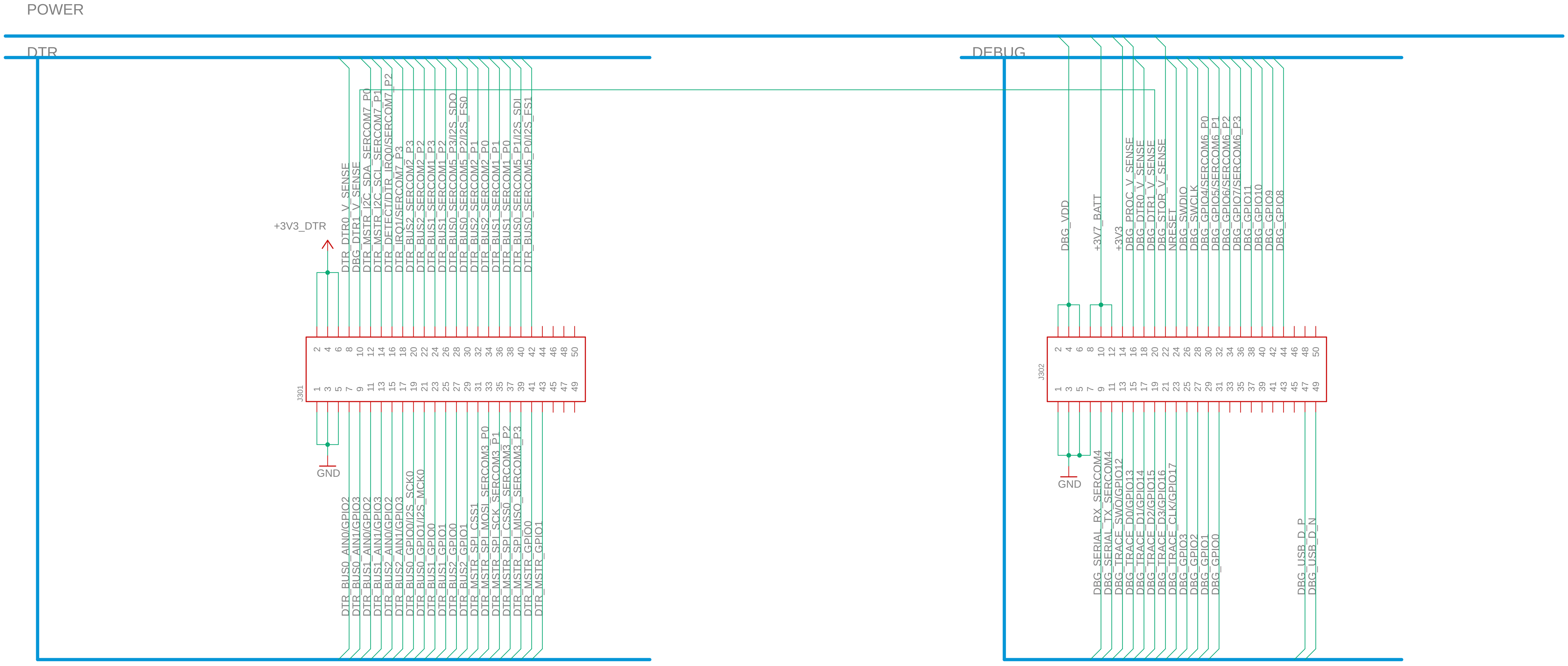
External Connectors



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