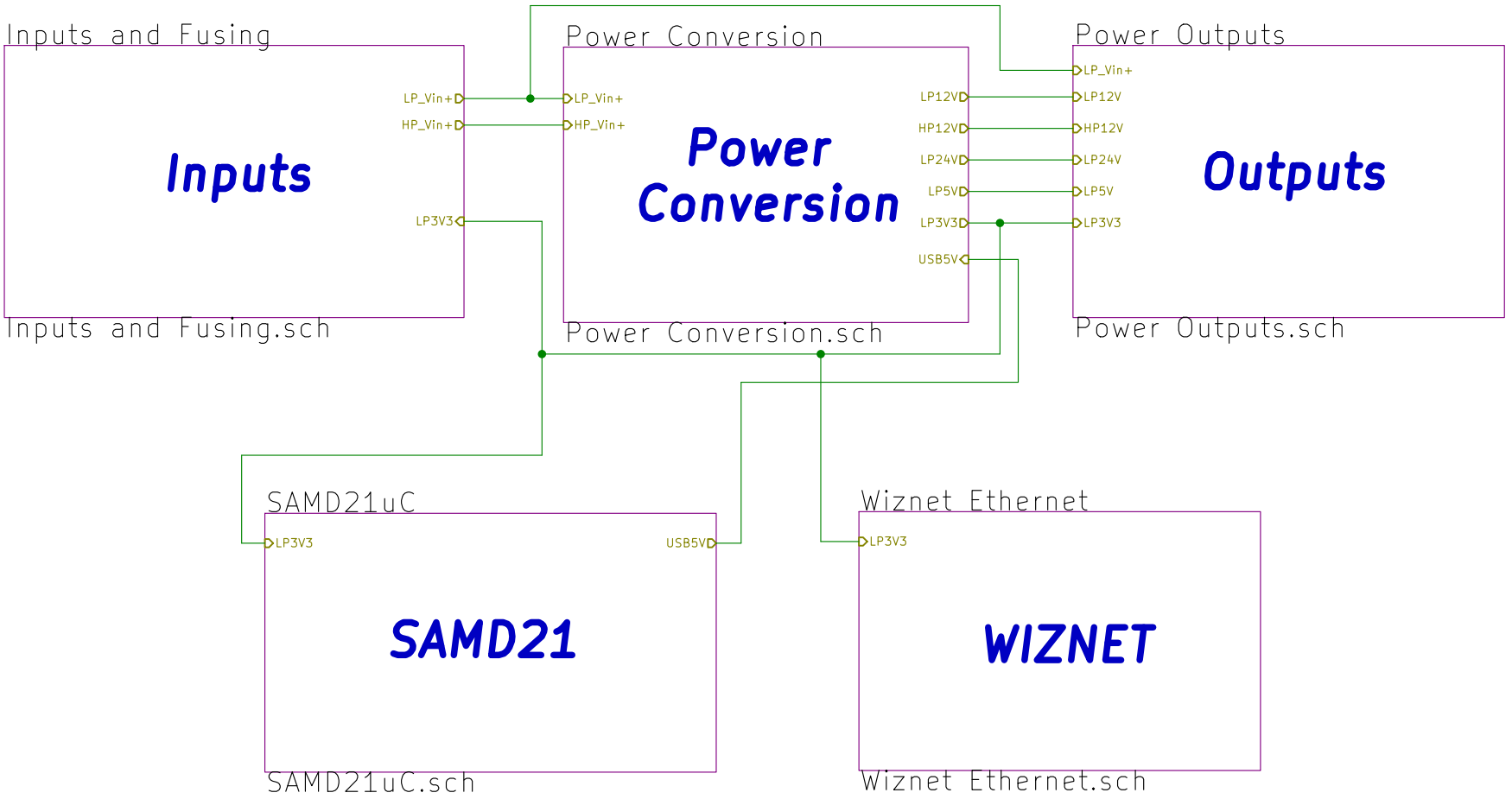

Paradigm Hyperloop

Sheet: /
File: LVDC Distribution.sch

Title: LVDC Power Distribution Board

Size: A4	Date: Mark Belbin -- Fall 2018	Rev:
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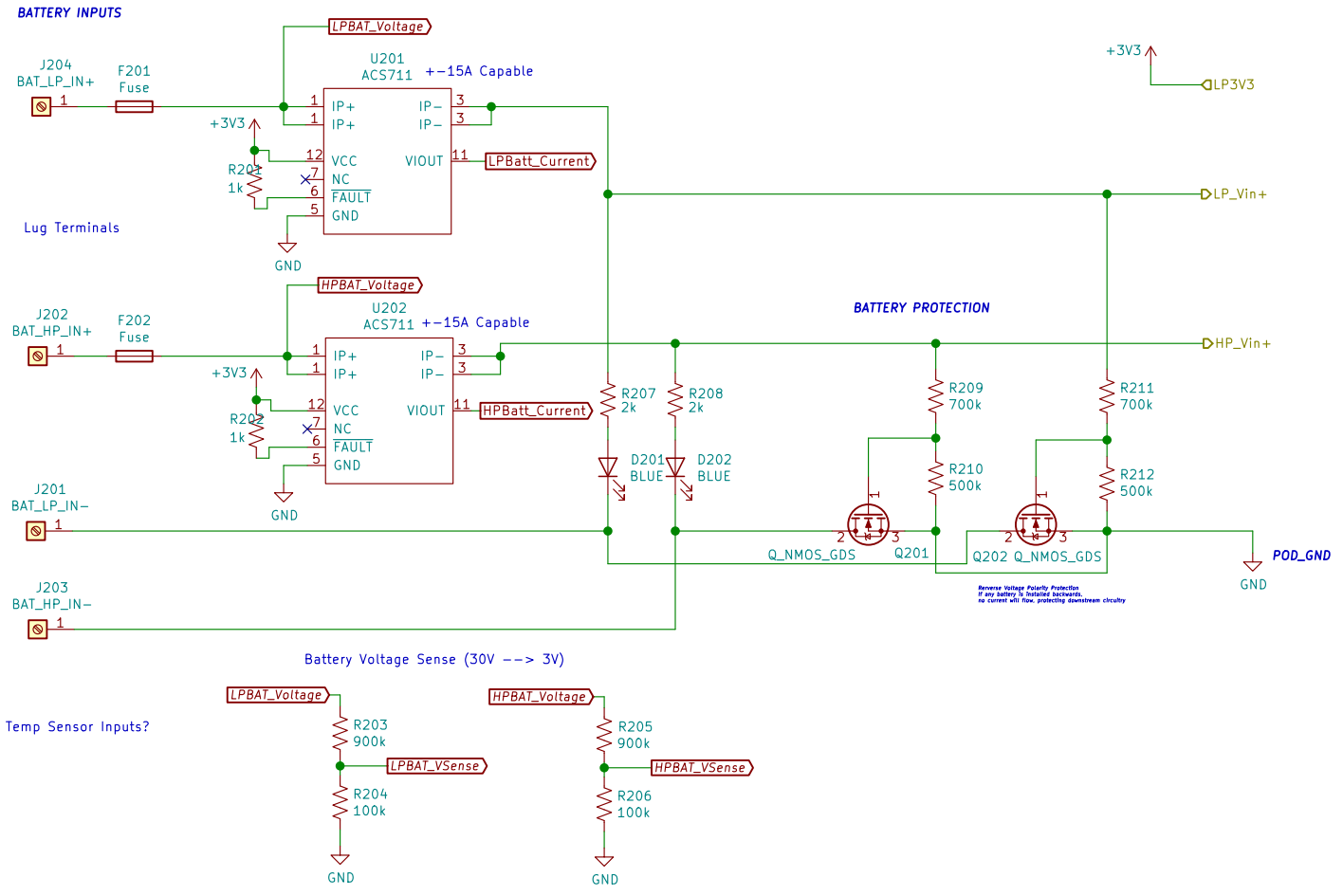
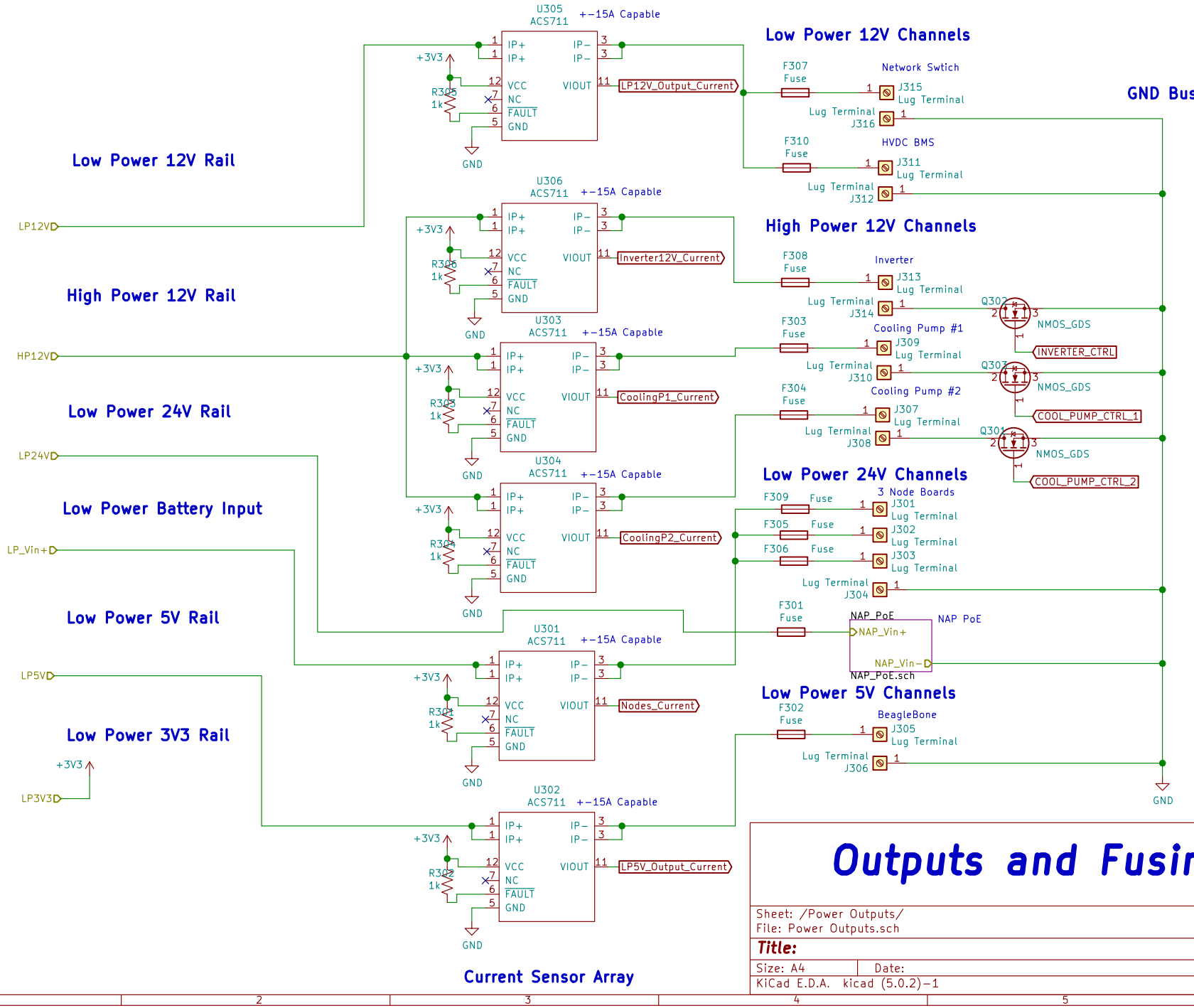
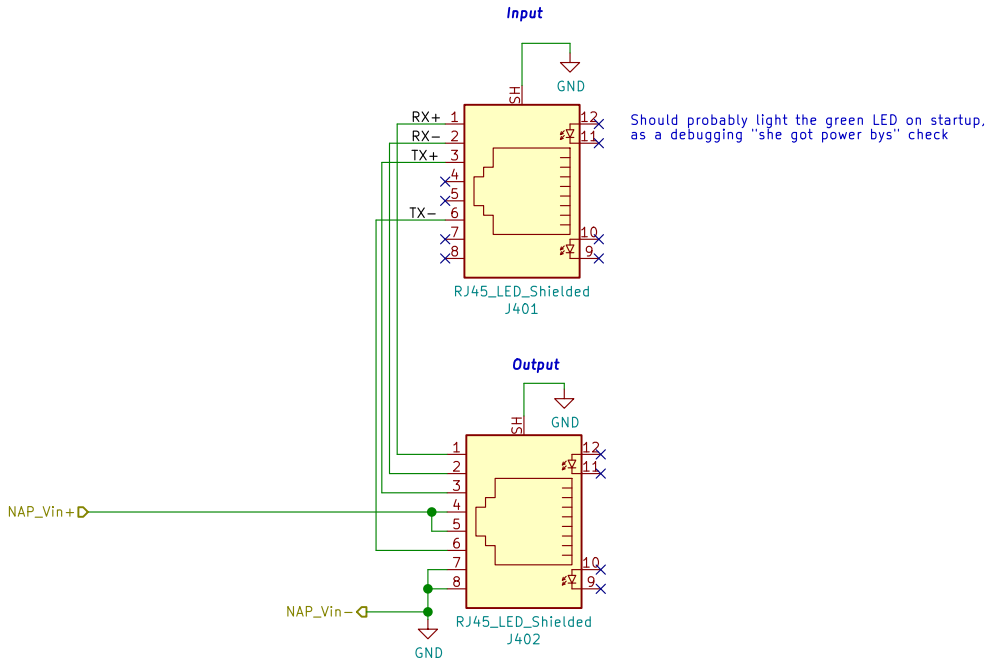


Inputs and Fusing

Sheet: /Inputs and Fusing/ File: Inputs and Fusing.sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad (5.0.2)-1		Id: 2/8


Low Power 12V Rail
High Power 12V Rail
Low Power 24V Rail
Low Power Battery Input
Low Power 5V Rail
Low Power 3V3 Rail
LP12V
HP12V
LP24V
LP_Vin+
LP5V
LP3V3
+3V3
U305 ACS711 +-15A Capable
U306 ACS711 +-15A Capable
U303 ACS711 +-15A Capable
U304 ACS711 +-15A Capable
U301 ACS711 +-15A Capable
U302 ACS711 +-15A Capable
IP+
IP-
VCC
NC
FAULT
GND
VIOUT
LP12V_Output_Current
Inverter12V_Current
CoolingP1_Current
CoolingP2_Current
Nodes_Current
LP5V_Output_Current
Current Sensor Array
Low Power 12V Channels
High Power 12V Channels
Low Power 24V Channels
Low Power 5V Channels
GND Bus
F307 Fuse
Network Swtich
J315 Lug Terminal
Lug Terminal J316
F310 Fuse
HVDC BMS
J311 Lug Terminal
Lug Terminal J312
F308 Fuse
Inverter
J313 Lug Terminal
Lug Terminal J314
Q302
NMOS_GDS
INVERTER_CTRL
F303 Fuse
Cooling Pump #1
J309 Lug Terminal
Lug Terminal J310
Q303
COOL_PUMP_CTRL_1
F304 Fuse
Cooling Pump #2
J307 Lug Terminal
Lug Terminal J308
Q301
COOL_PUMP_CTRL_2
F309 Fuse
F305 Fuse
F306 Fuse
3 Node Boards
J301 Lug Terminal
J302 Lug Terminal
J303 Lug Terminal
Lug Terminal J304
F301 Fuse
NAP_PoE
NAP_Vin+
NAP_Vin-
NAP PoE
NAP_PoE.sch
F302 Fuse
BeagleBone
J305 Lug Terminal
Lug Terminal J306
GND
Outputs and Fusing
Sheet: /Power Outputs/
File: Power Outputs.sch
Title:
Size: A4
Date:
Rev:
KiCad E.D.A. kicad (5.0.2)-1
Id: 3/8

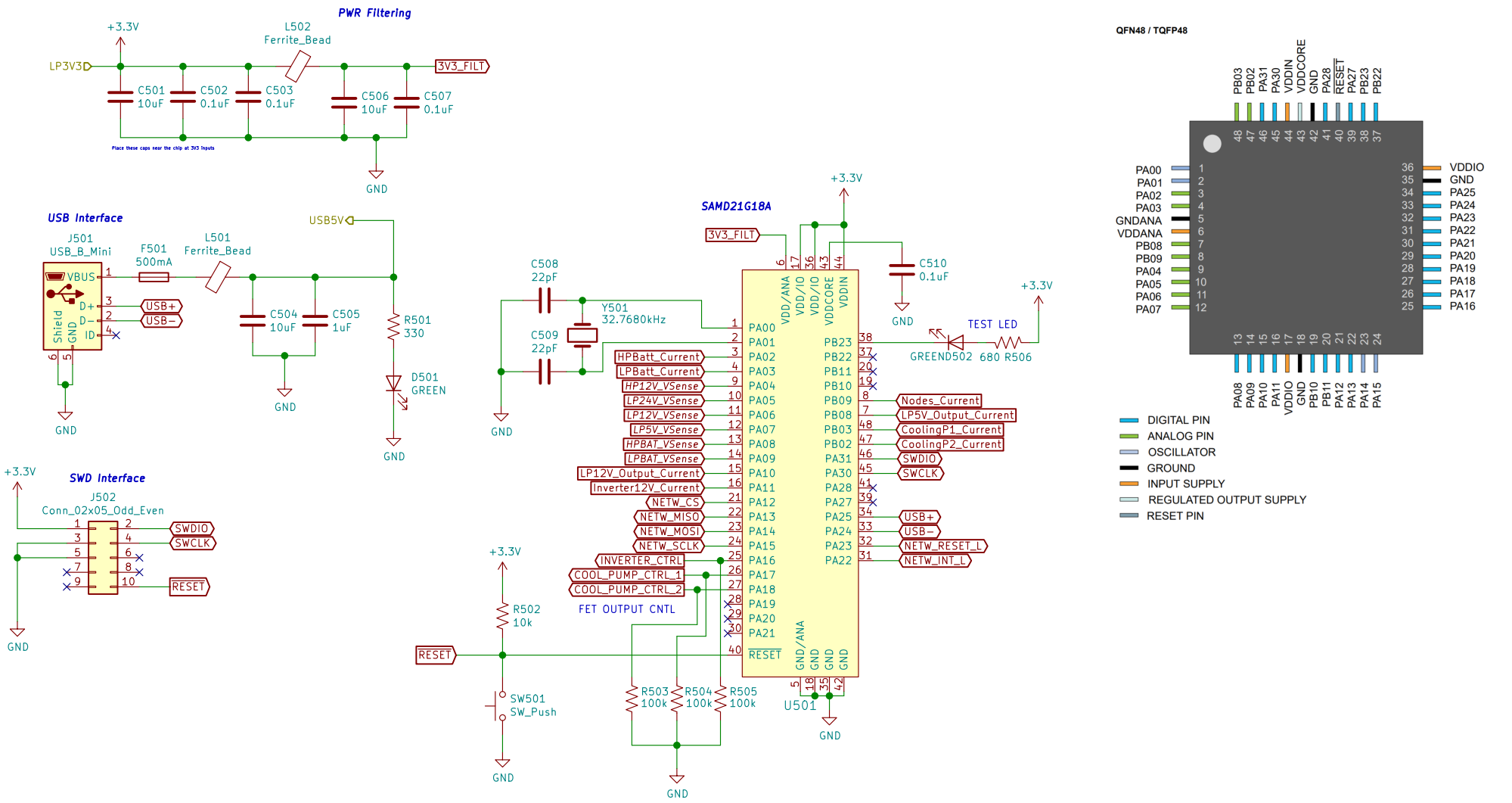


NAP PoE

Sheet: /Power Outputs/NAP_PoE/
File: NAP_PoE.sch

Title:

Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad (5.0.2)−1		Id: 4/8



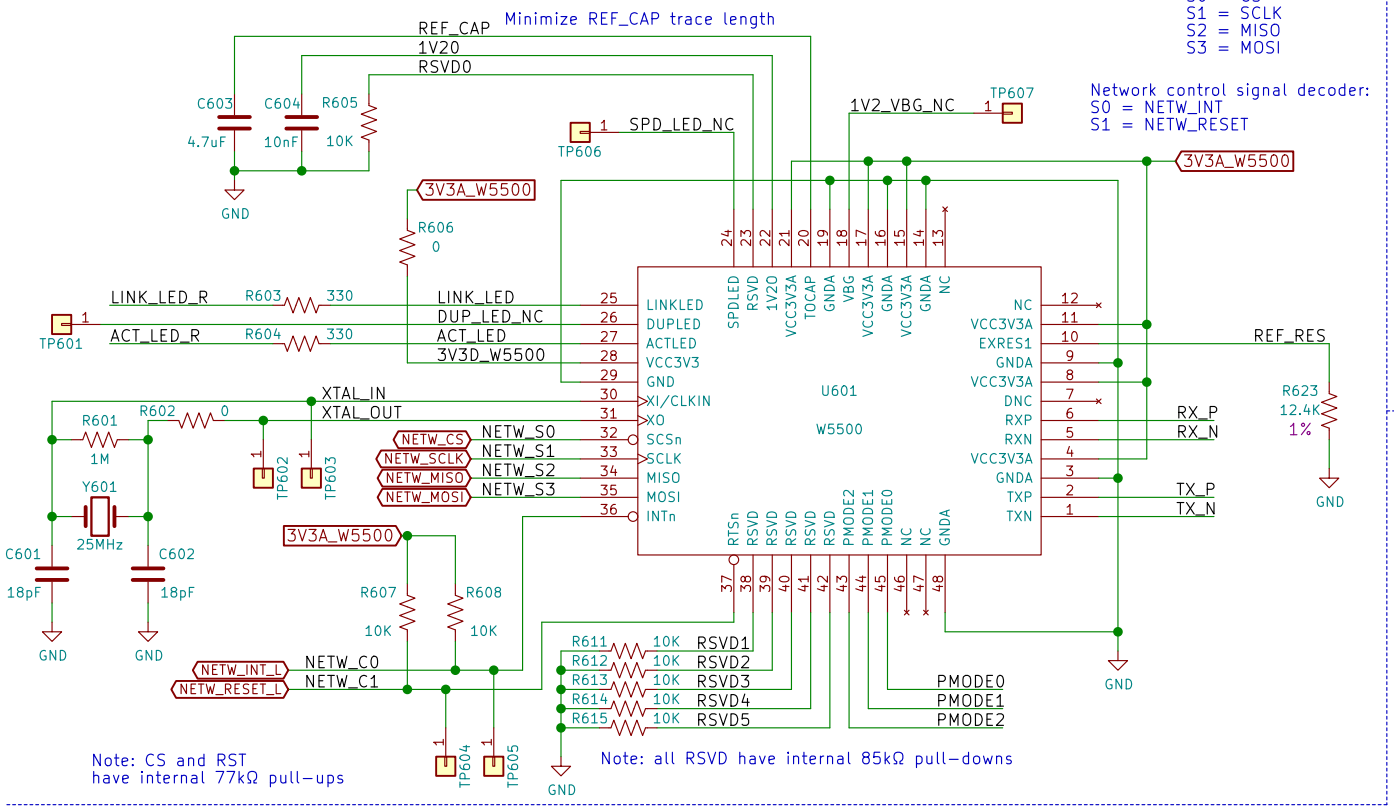
SAMD21

Sheet: /SAMD21uC/
File: SAMD21uC.sch

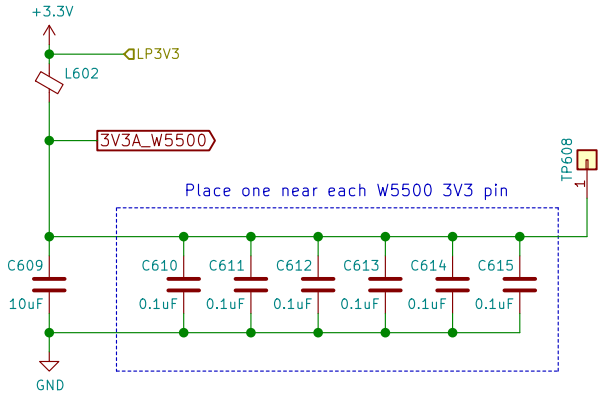
Title:

Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad (5.0.2)−1		Id: 5/8

W5500 Ethernet Controller

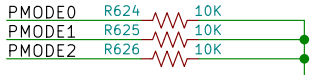


Power Supply Capacitors



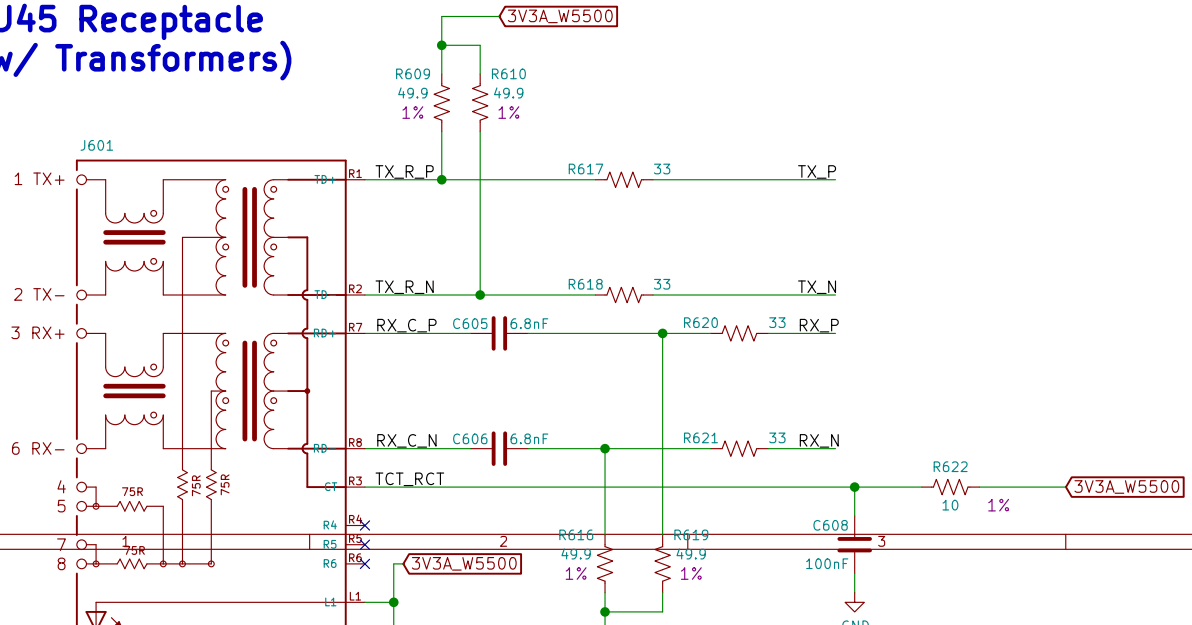
Network Mode Selection

Default: all pulled up to 3V3
(Note all have internal
77kΩ pull-ups)



PMODE [2:0]			Description
2	1	0	
0	0	0	10BT Half-duplex, Auto-negotiation disabled
0	0	1	10BT Full-duplex, Auto-negotiation disabled
0	1	0	100BT Half-duplex, Auto-negotiation disabled
0	1	1	100BT Full-duplex, Auto-negotiation disabled
1	0	0	100BT Half-duplex, Auto-negotiation enabled
1	0	1	Not used
1	1	0	Not used
1	1	1	All capable, Auto-negotiation enabled

RJ45 Receptacle (w/ Transformers)



WIZNET

Sheet: /Wiznet Ethernet/
File: Wiznet Ethernet.sch

Title:

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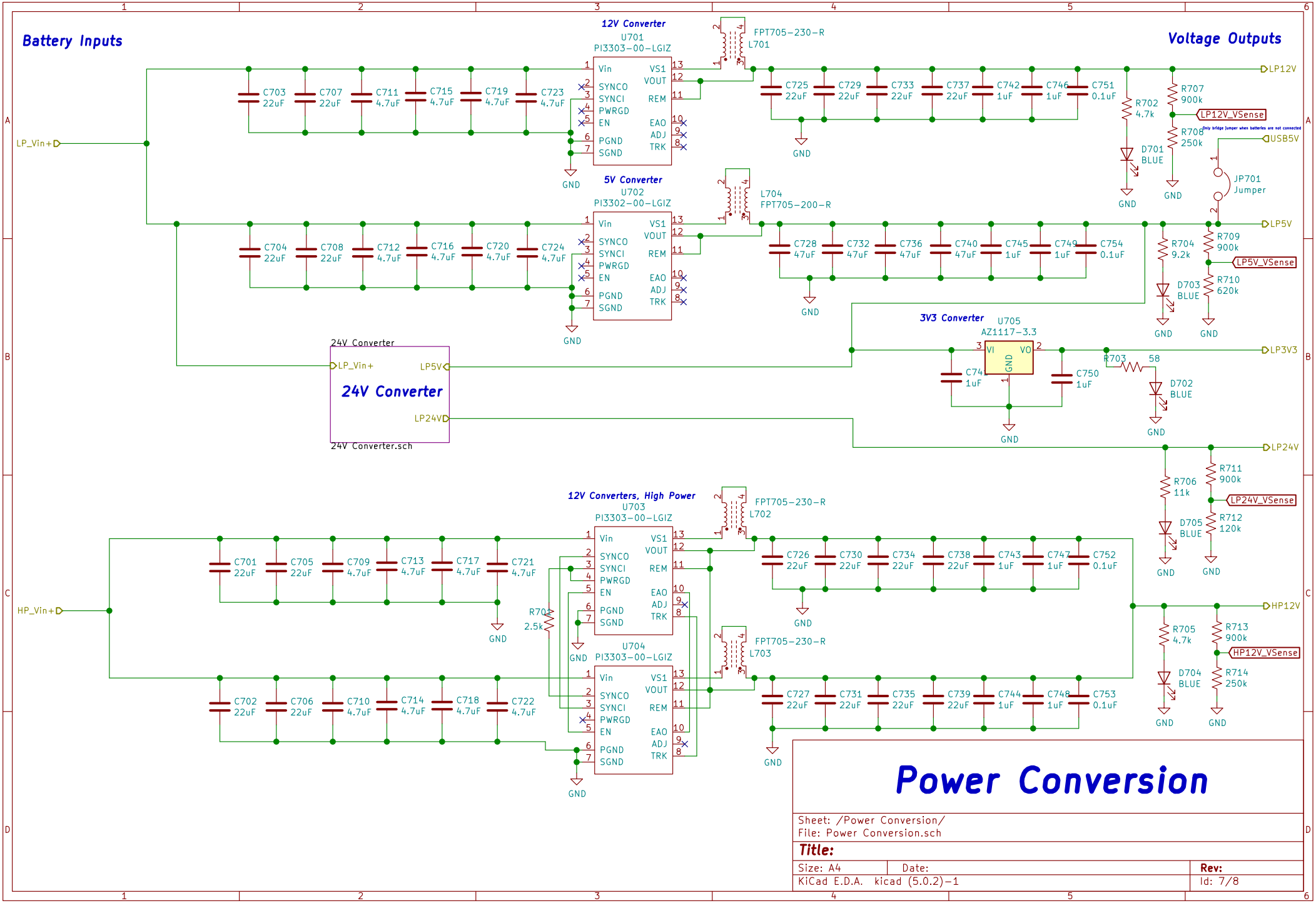
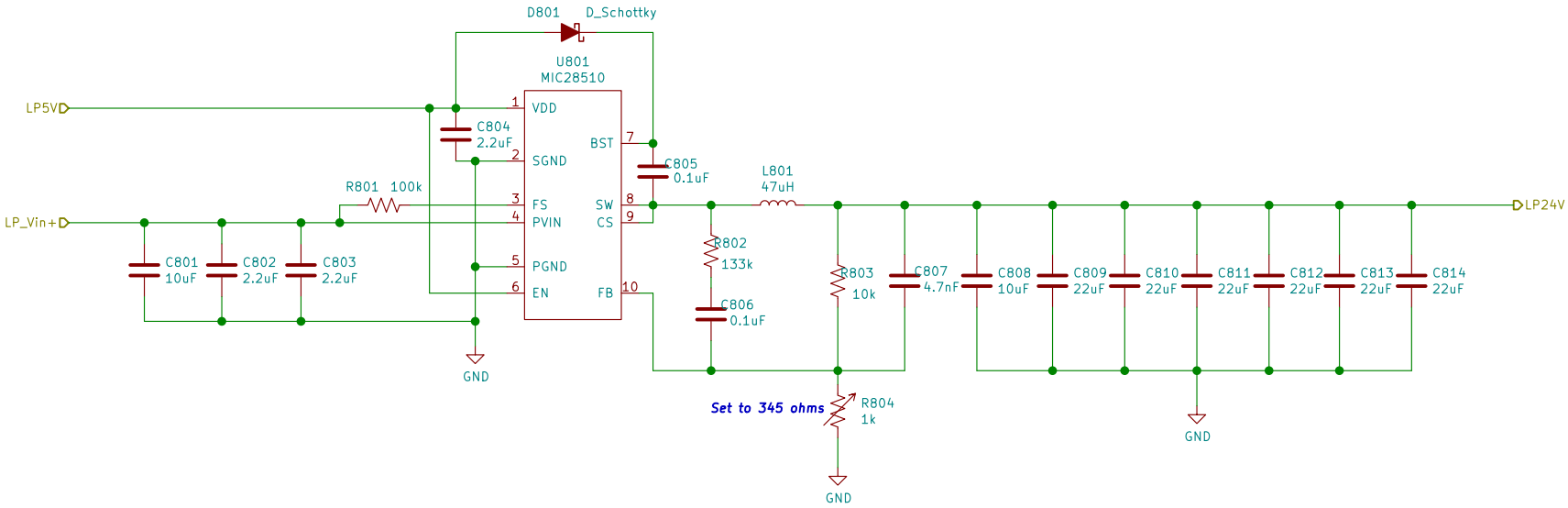

Battery Inputs
Voltage Outputs
LP_Vin+
HP_Vin+
12V Converter
U701
PI3303-00-LGIZ
FPT705-230-R
L701
5V Converter
U702
PI3302-00-LGIZ
L704
FPT705-200-R
24V Converter
LP_Vin+
LP5V
LP24V
24V Converter.sch
3V3 Converter
U705
AZ1117-3.3
12V Converters, High Power
U703
PI3303-00-LGIZ
FPT705-230-R
L702
U704
PI3303-00-LGIZ
FPT705-230-R
L703
LP12V
LP5V
LP3V3
LP24V
HP12V
LP12V_VSense
LP5V_VSense
LP24V_VSense
HP12V_VSense
USB5V
JP701
Jumper
Only bridge jumper when batteries are not connected
Power Conversion
Sheet: /Power Conversion/
File: Power Conversion.sch
Title:
Size: A4
Date:
Rev:
KiCad E.D.A. kicad (5.0.2)-1
Id: 7/8



24V Converter

Sheet: /Power Conversion/24V Converter/
File: 24V Converter.sch

Title:

Size: A4	Date:	**Rev:**
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