3D-ROBOTIC MAPPING PLATFORM

CAL STATE LONG BEACH - COMPUTER ENGINEERING

ENGINEER: LIAM GOGLEY
DRAWN BY: LIAM GOGLEY
VERIFIED BY: ROBERT DOMINICK
RELEASED BY: LIAM GOGLEY

3D-ROMAP Power Supply

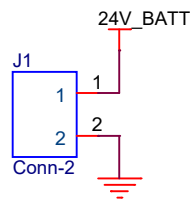| |
|---|
| SH1 - COVER |
| SH2 - LDO REGULATORS / POWER INPUT - OUTPUT |
| SH3 - SWITCHING POWER SUPPLY |

TEAM MEMBERS:

LIAM GOGLEY
ROBERT DOMINICK
MARK MUNOZ
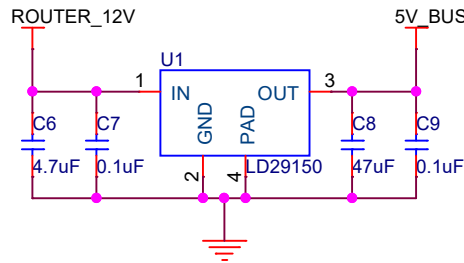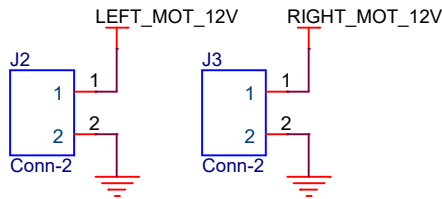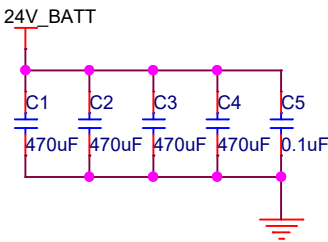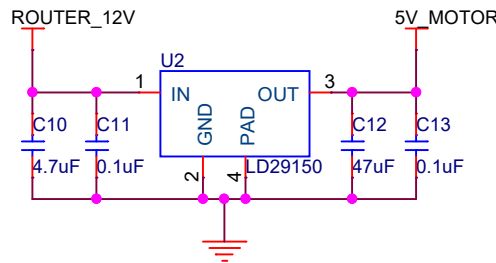DANIEL TRAN

Title 3D-ROMAP Power Supply		
Size B	**Document Number** 490-PSU	**Rev** C
Date: Sunday, July 08, 2018	**Sheet** 1 of 3	

INPUT PWR FROM BATTERY

24V_BATT

J1
1
2
Conn-2

24V_BATT

C1 470uF
C2 470uF
C3 470uF
C4 470uF
C5 0.1uF

LEFT_MOT_12V   RIGHT_MOT_12V

J2
1
2
Conn-2

J3
1
2
Conn-2

ROUTER_12V

U1
IN   OUT
GND PAD
LD29150

C6 4.7uF
C7 0.1uF
C8 47uF
C9 0.1uF

5V_BUS

5V Power to Tiva C Launchpad VBUS & LiDAR

ROUTER_12V   JETSON_18V

J4
1
2
Conn-2

J5
1
2
Conn-2

5V_MOTOR   5V_BUS

J6
1
2
Conn-2

J7
1
2
Conn-2

ROUTER_12V

U2
IN   OUT
GND PAD
LD29150

C10 4.7uF
C11 0.1uF
C12 47uF
C13 0.1uF

5V_MOTOR
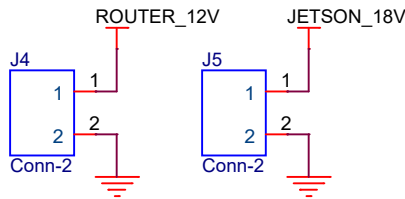
5V Power to LiDAR Stepper Motor
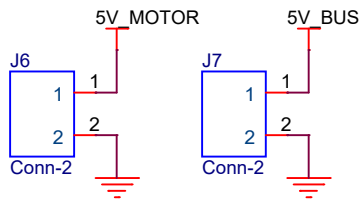
OUTPUT PWR FROM REG

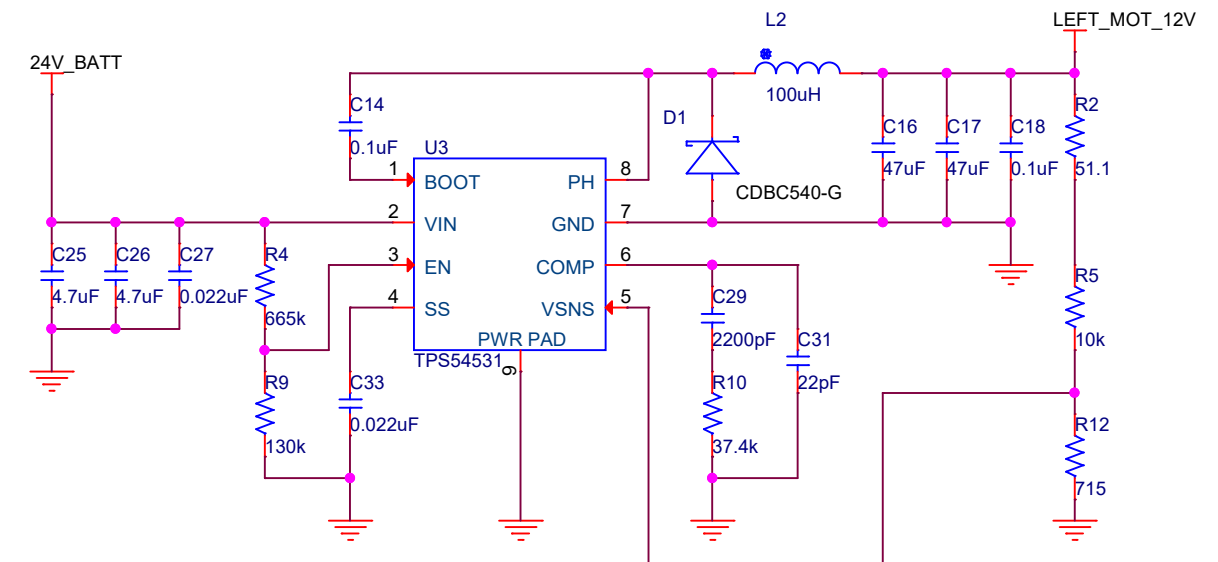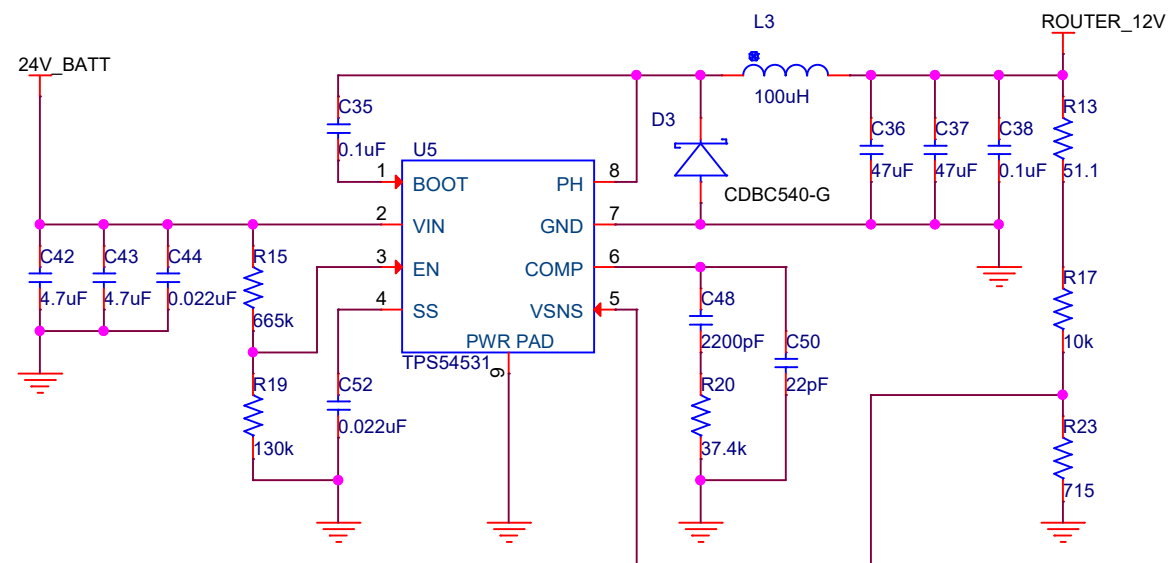| Title	3D-ROMAP Power Supply	
Size B	Document Number 490-PSU	Rev C
Date:	Sunday, July 08, 2018	Sheet 2 of 3
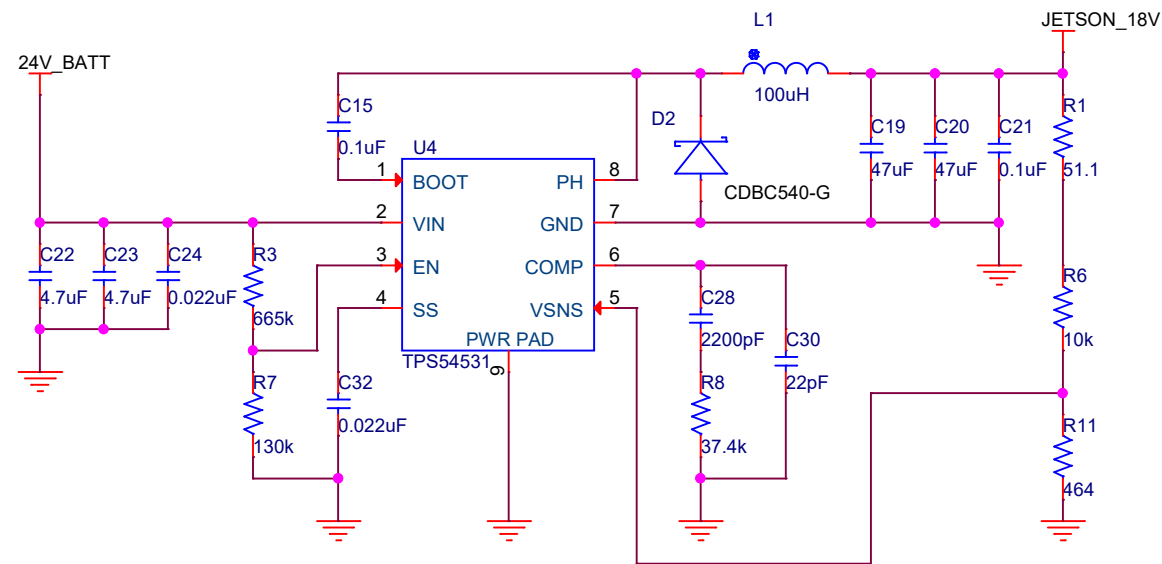
18V Power to Jetson TX1

$$465 = (10k * 0v8) / (18v - 0v8)$$
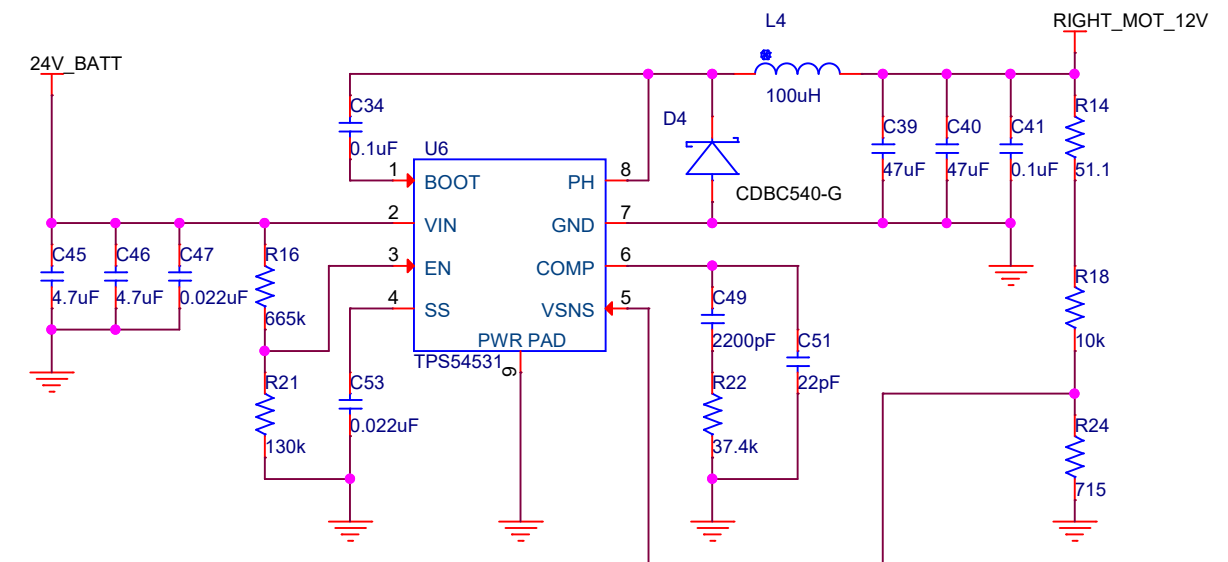$$79uH = (18V * (24V - 18V)) / (24V * 0.2 * 0.5A * 570KHz)$$

12V Power to Back Left Drive Motor

12V Power to WiFi Router

$$714 = (10k * 0v8) / (12v - 0v8)$$
$$88uH = (12V * (24V - 12V)) / (24V * 0.2 * 0.4A * 570KHz)$$

12V Power to Back Right Drive Motor

Title	3D-ROMAP Power Supply		
Size	Document Number		Rev
B	490-PSU		C
Date:	Sunday, July 08, 2018	Sheet 3 of 3	