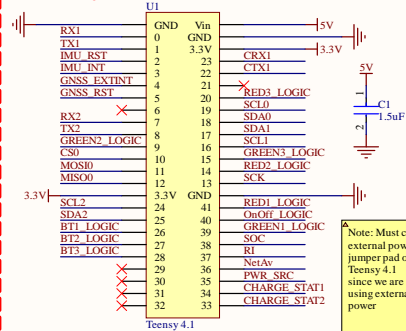


Teensy and IMU

Teensy 4.1



GPIOs:

Outputs:

- IMU_RST (Active Low): Reset. Pull low to reset the sensor
- GNSS_EXTINT: Customizable GNSS module external interrupt
- GNSS_RST (Active Low): Reset. Drive low to reset the GNSS module
- RED1_LOGIC, RED2_LOGIC, RED3_LOGIC, GREEN1_LOGIC, GREEN2_LOGIC, GREEN3_LOGIC (Active Low): Light up external RGY LEDs
- OnOff_LOGIC: Iridium on = low, Iridium off = high

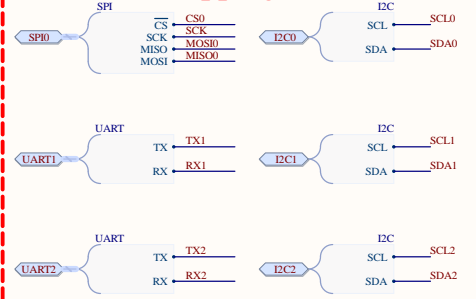
Inputs:

- IMU_INT (Active Low): Interrupt/Data Ready. Indicates that the BNO085 needs the host's attention
- PWR_SRC: high = usb pwr, low = bat pwr
- CHARGE_STAT1, CHARGE_STAT2: See datasheet for state diagram
- NetAv (Active High): IridiumNetwork Available signal
- RI (Active Low): Iridium Ring Indicator signal
- BT1_LOGIC, BT2_LOGIC, BT3_LOGIC (Active High): External pushbutton press activated

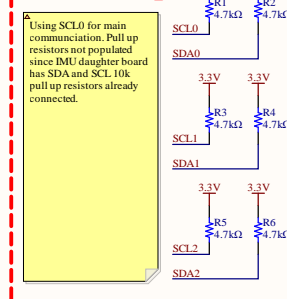
Bidirectional:

- Analog Inputs:
 - SOC: 1/2 of real PWR_SEL voltage. Need to map real voltage to % state of battery charge

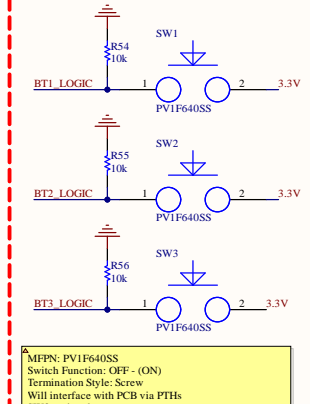
Serial I/O Mapping



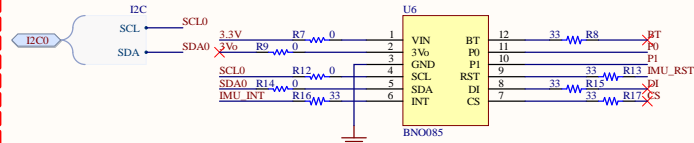
I2C Pullups



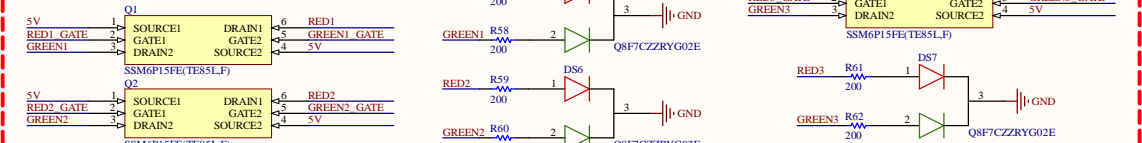
External Buttons



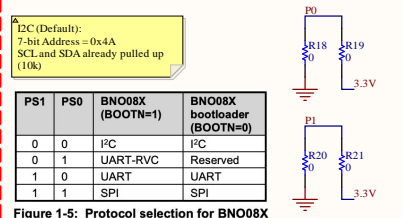
IMU



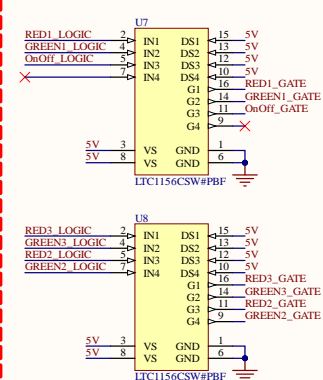
External RGY LEDs



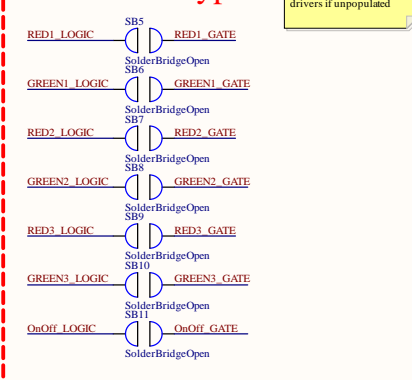
IMU Communication Select



LED Gate Drivers



Gate Drive Bypass



Project Name: Capstone PCB.PrjPcb

Drawer: Cameron Gordon & Elise Cooke

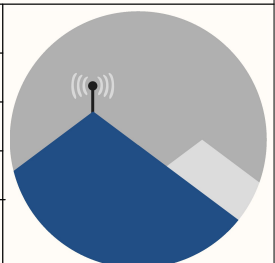
Variant: [No Variations]

Revision: V1.0

Date: 9/10/2023

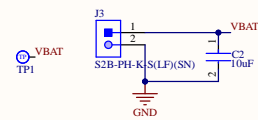
Page: 1 of 3

Capstone 2023

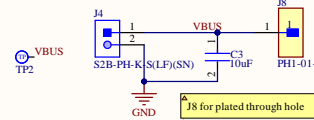


Power Management

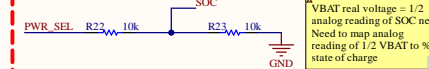
Battery Connector



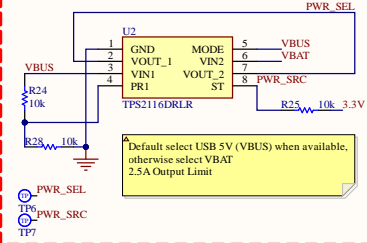
USB 5V Connector



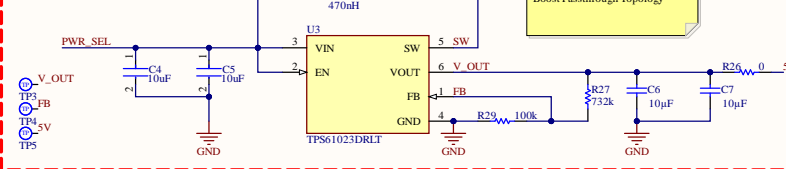
Battery SOC Voltage Divider



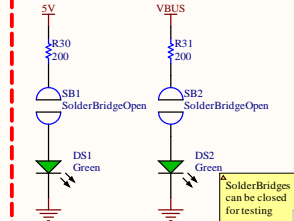
Power MUX



Boost Converter



Power LEDs



Battery Charger

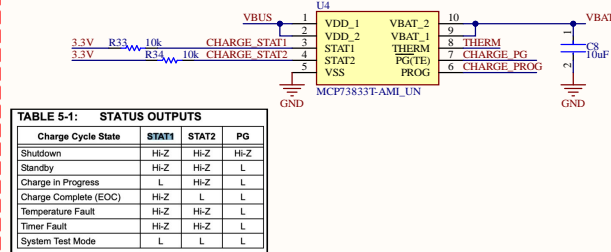
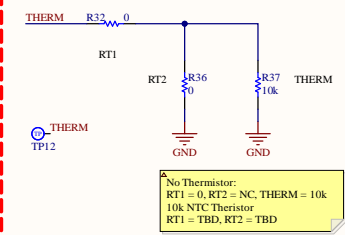


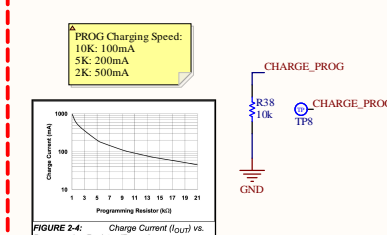
TABLE 5-1: STATUS OUTPUTS

Charge Cycle State	STAT1	STAT2	PG
Shutdown	Hi-Z	Hi-Z	Hi-Z
Standby	Hi-Z	Hi-Z	L
Charge In Progress	L	Hi-Z	L
Charge Complete (EOC)	Hi-Z	L	L
Temperature Fault	Hi-Z	Hi-Z	L
Timer Fault	Hi-Z	Hi-Z	L
System Test Mode	L	L	L

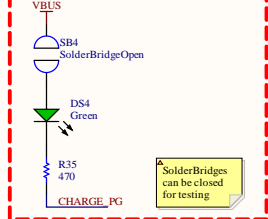
Charge Temperature Set



Charge Current Set



Charge PG LEDs



Project Name: Capstone PCB.PrjPcb

Drawer: Cameron Gordon & Elise Cooke

Variant: [No Variations]

Revision: V1.0

Date: 9/10/2023

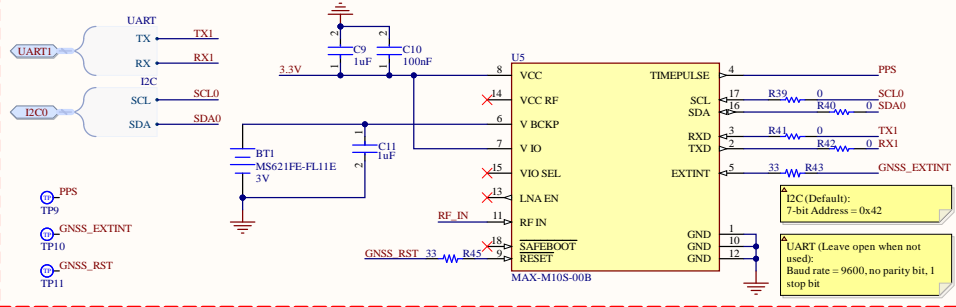
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Capstone 2023

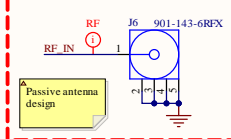
GNSS Module and Iridium Transceiver

Mechanical

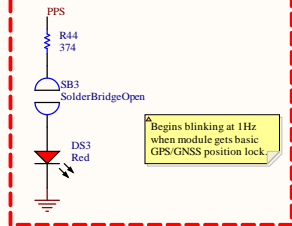
GNSS Module



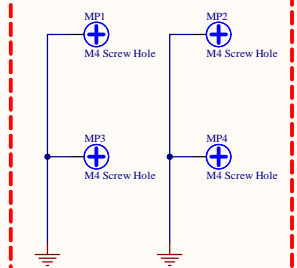
GNSS Antenna



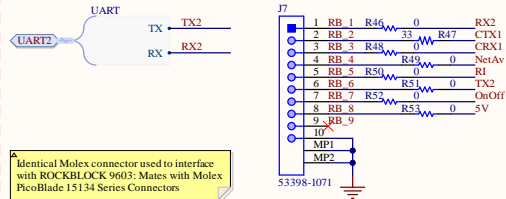
Position Lock LED



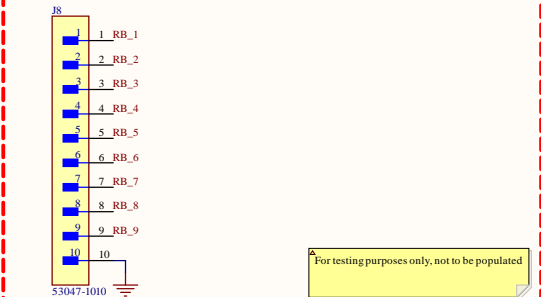
Mounting



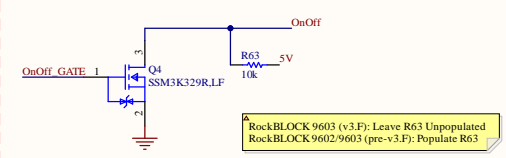
ROCKBLOCK 9603 Connector



ROCKBLOCK 9603 Breakout Header




ROCKBLOCK 9603 OnOff Control



Fiducials



Project Name: Capstone PCB.PrjPcb	
Drawer: Cameron Gordon & Elise Cooke	
Variant: [No Variations]	
Revision: V1.0	
Date: 9/10/2023	
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Capstone 2023	

