

Connector

File: connector.kicad_sch

SIM7080G

File: peripherals.kicad_sch

MCU

File: mcu.kicad_sch

LoRa

File: lora.kicad_sch

WMBUS

File: wmbus.kicad_sch

Approved By: Jones Kisaka
Designed By: Rodney Osodo
Abstract Machines

Sheet: /
File: s0.kicad_sch

Title: IoT Gateway

Size: A4

Date: 2024-10-15

Rev: v0.1.0

KiCad E.D.A. 8.0.8

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Beagle Board Connector

U4 BEAGLEBONEBLACK Pinout:

PIN	SIGNAL	PIN	SIGNAL
P9_9	PWR_BTN	P9_24	UART1_TXD
P9_10	SYS_RESET	P9_26	UART1_RXD
P9_39	AIN0	P9_21	UART2_TXD
P9_40	AIN1	P9_22	UART2_RXD
P9_37	AIN2	P9_13	UART4_TXD
P9_38	AIN3	P9_11	UART4_RXD
P9_33	AIN4	P8_37	UART5_TXD
P9_36	AIN5	P8_38	UART5_RXD
P9_35	AIN6	P8_36	UART3_CTSN
J1_4	B_UART0_RX	P8_34	UART3_RTSN
J1_5	B_UART0_TX	P8_35	UART4_CTSN
P9_17	I2C1_SCL	P8_33	UART4_RTSN
P9_18	I2C1_SDA	P8_31	UART5_CTSN
P9_19	I2C2_SCL	P8_32	UART5_RTSN
P9_20	I2C2_SDA	P8_7	TIMER4
P9_28	SPI1_CS0	P8_8	TIMER7
P9_29	SPI1_D0	P8_9	TIMER5
P9_30	SPI1_D1	P8_10	TIMER6
P9_31	SPI1_SCLK	P8_14	GPIO0_26
P9_14	EHRPWM1A	P8_17	GPIO0_27
P9_16	EHRPWM1B	P9_42	GPIO0_7/GPIO3_18
P8_19	EHRPWM2A	P9_27	GPIO3_19
P8_13	EHRPWM2B	P9_41	CLKOUT2/GPIO3_20
P8_25	GPIO1_0	P9_25	GPIO3_21
P8_24	GPIO1_1	P8_18	GPIO2_1
P8_5	GPIO1_2	P8_45	GPIO2_6
P8_6	GPIO1_3	P8_46	GPIO2_7
P8_23	GPIO1_4	P8_43	GPIO2_8
P8_22	GPIO1_5	P8_44	GPIO2_9
P8_3	GPIO1_6	P8_41	GPIO2_10
P8_4	GPIO1_7	P8_42	GPIO2_11
P8_12	GPIO1_12	P8_39	GPIO2_12
P8_11	GPIO1_13	P8_40	GPIO2_13
P8_16	GPIO1_14	P8_27	GPIO2_22
P8_15	GPIO1_15	P8_29	GPIO2_23
P9_15	GPIO1_16	P8_28	GPIO2_24
P9_23	GPIO1_17	P8_30	GPIO2_25
P9_12	GPIO1_28	P8_29	MISO
P8_26	GPIO1_29	P8_30	MOSI
P8_21	GPIO1_30	J1_8	NC
P8_20	GPIO1_31	P8	SHIELD
		P9_45	DGND
		P9_34	GND_ADC

USBC & BAT

USB-C Receptacle (J3) Pinout:

- VBUS (A4) → +5V
- CC1 (A5), CC2 (B5) → GND
- D- (A7), D+ (B6) → USB_D-
- D- (B7), D+ (A6) → USB_D+
- Shield (S1) → GND
- A1 → GND

Battery Connector (J4) Pinout:

- Pin 1 → Max 24V
- Pin 2 → GND

BUCK-CONVERTER

LM2575S-3.3 Buck Converter Circuit Components:

- Input: +5V
- Output: +3V3
- Inductor (L1): 47µH/2A
- Capacitor (C1): 100µF
- Capacitor (C2): 330µF
- Diode (D1): 40V 3A 550mV Schottky
- IC (U2): LM2575S-3.3(UMW)

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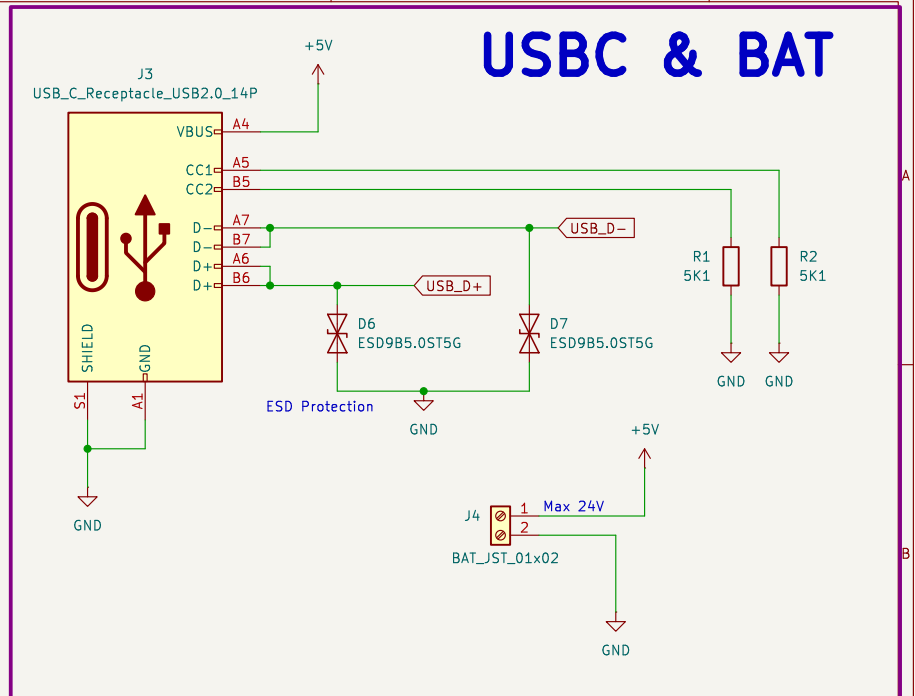
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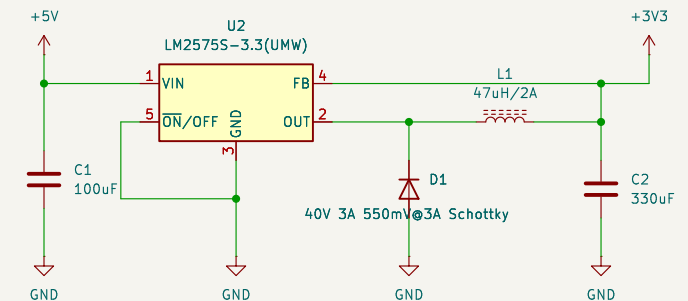
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BUCK-CONVERTOR



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KiCad E.

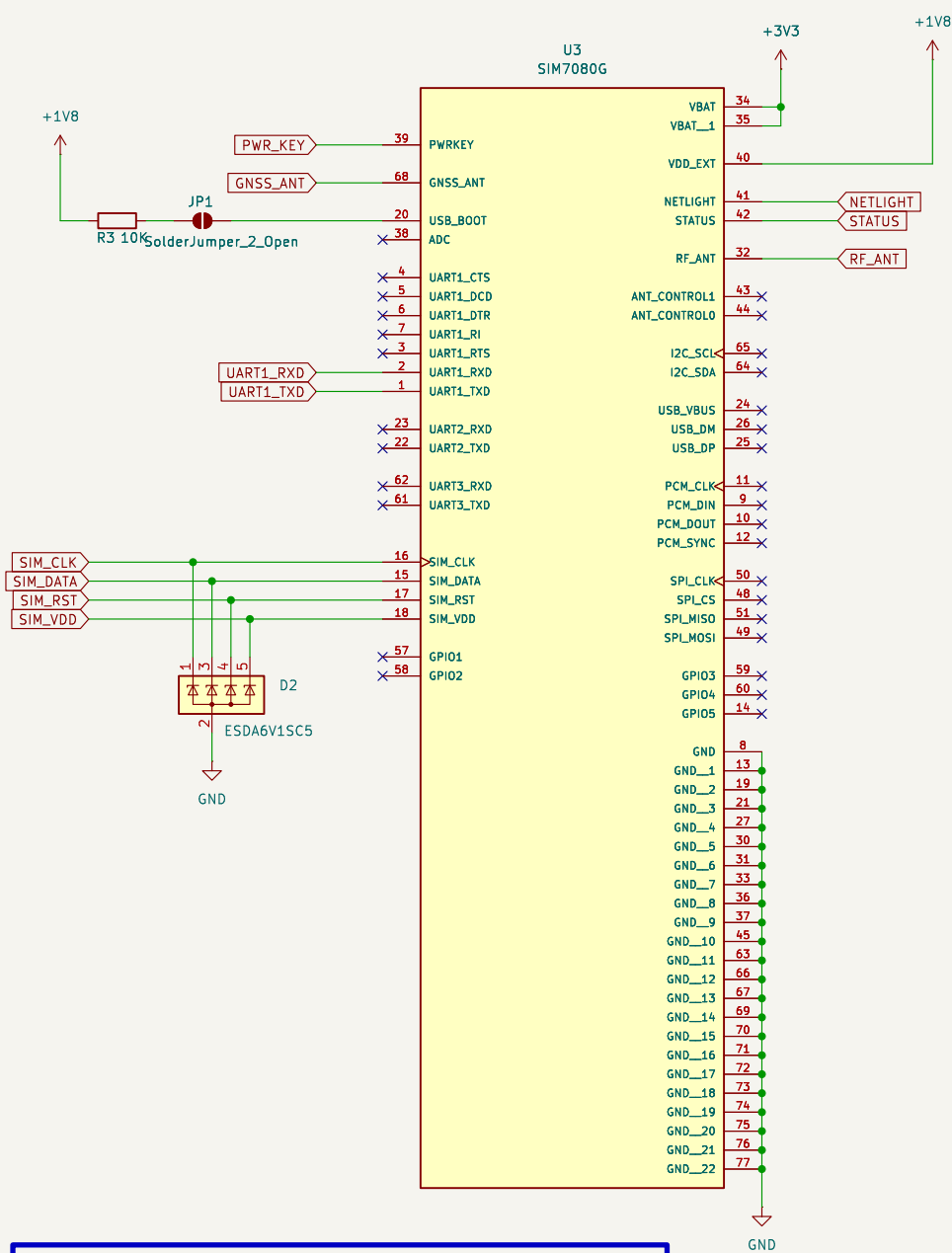
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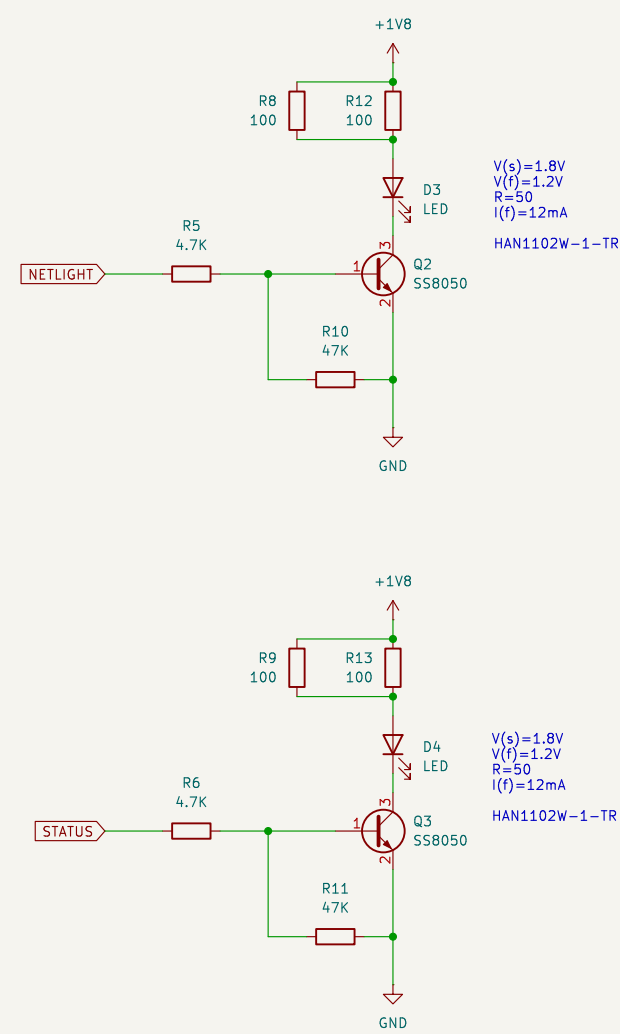
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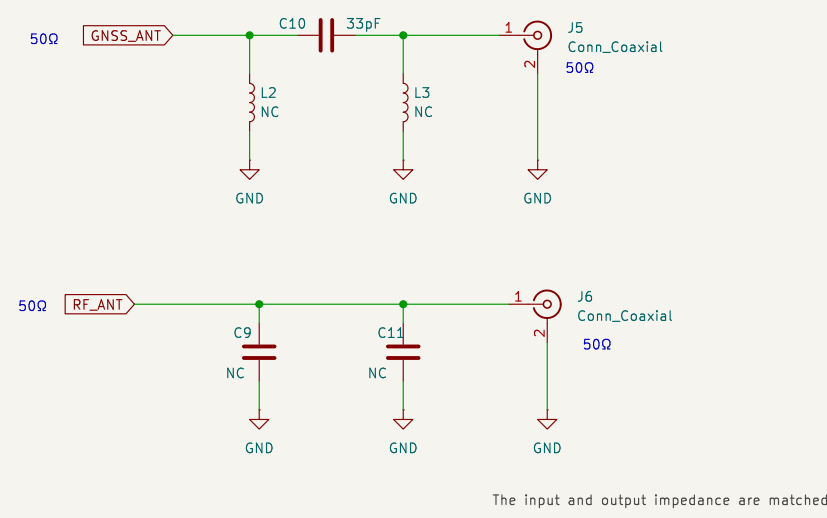
SIM7080G



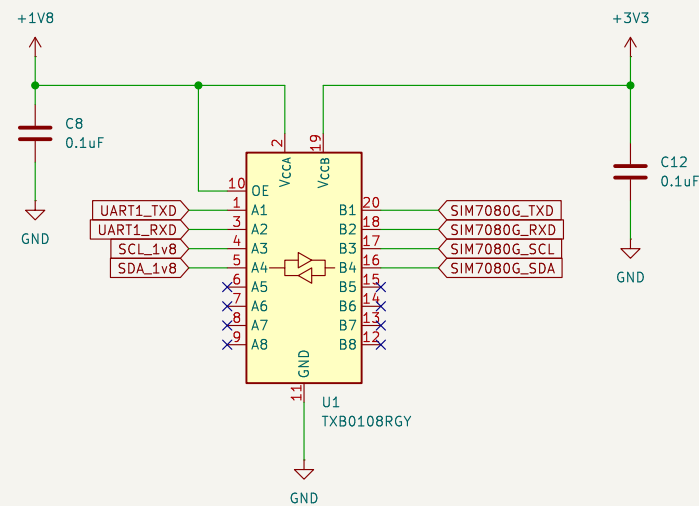
STATUS LEDS



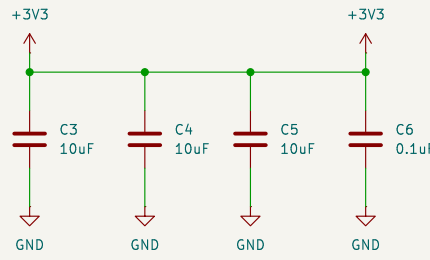
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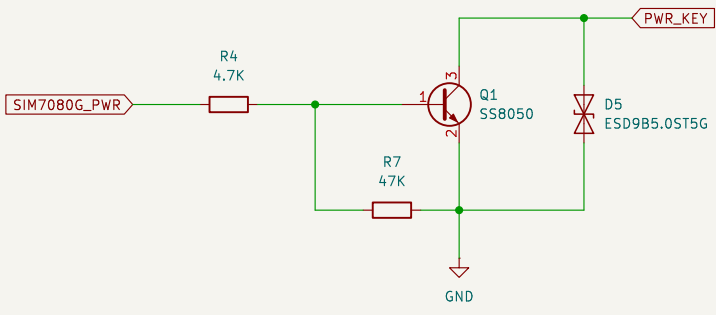
LEVEL SHIFTER



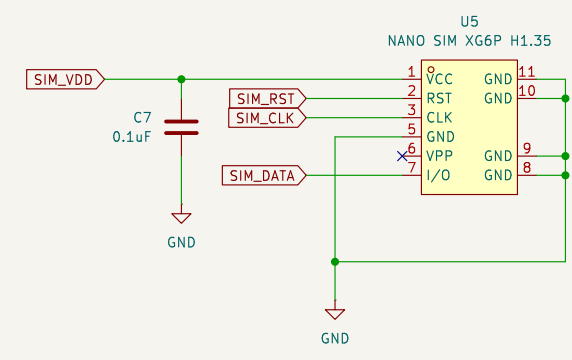
DECOUPLING CAPS



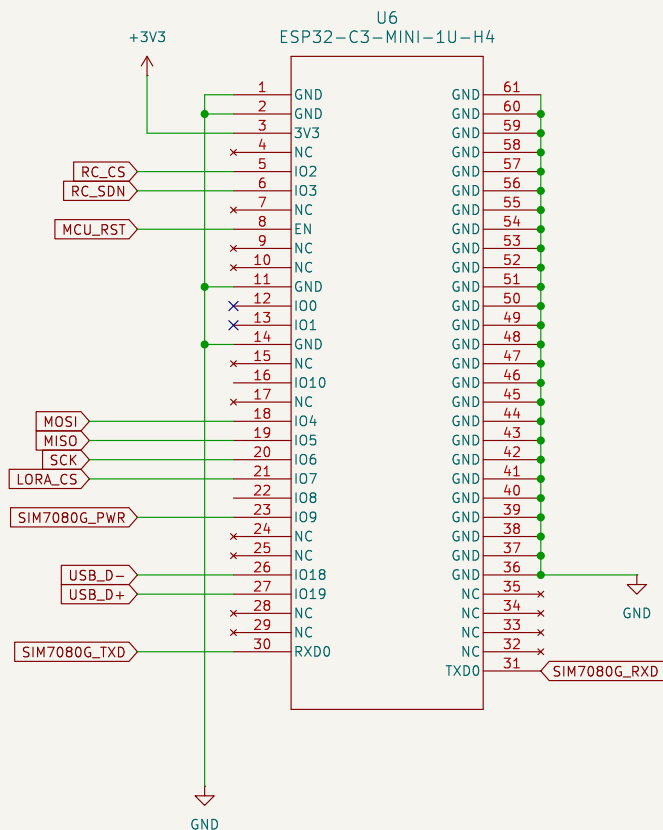
SIM POWER CONTROL



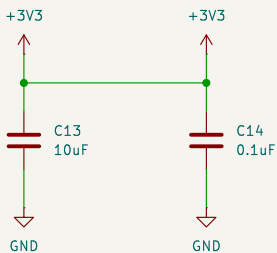
SIM CARD



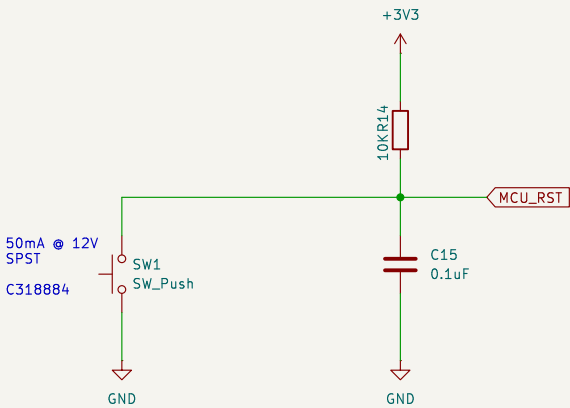
MCU-ESP32-C3-MINI



DECOUPLING CAPS



RESET



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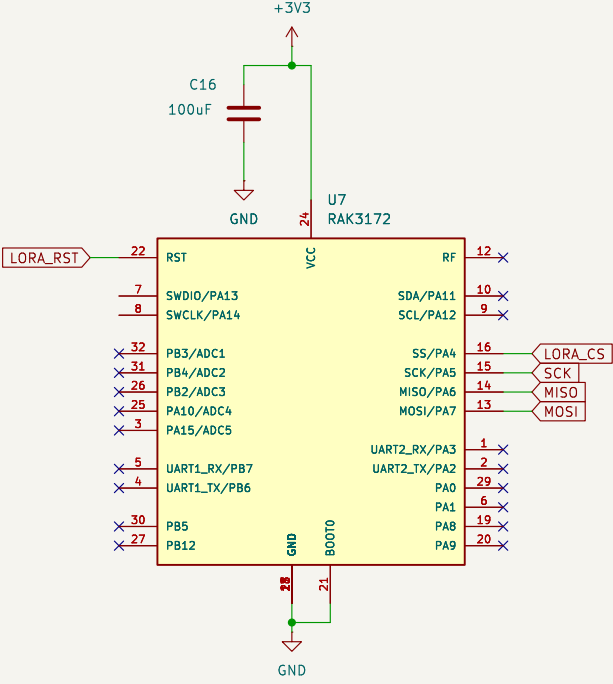
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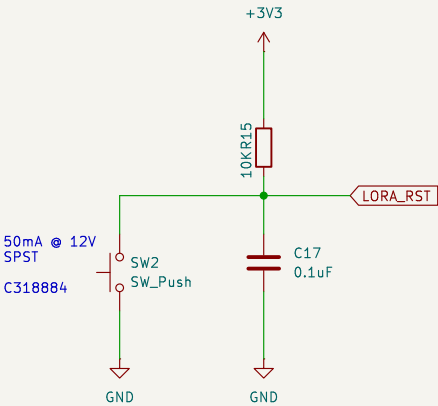
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LORA MODULE



RESET



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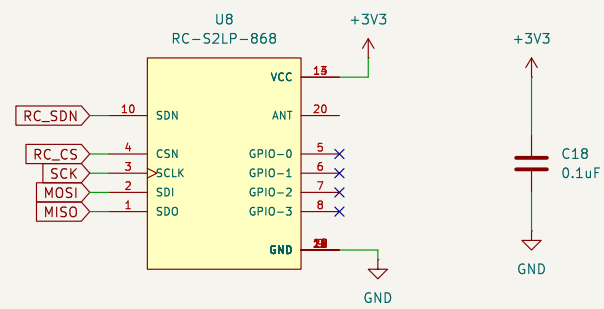
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RC-S2LP-868 WMBUS



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