STM32

Voltage: 3V3, Max current: 160 mA
Voltage: 3V3, Typical run mode current: 18mA

General Purpose Debugging LEDS
D1 D2 D6 R1 R2 R3 220R
GND

Antenna I2C A
I2C2_SDA I2C2_SCL R20 4K7 R19 4K7 3V3

Antenna I2C B
I2C3_SCL I2C3_SDA R54 4K7 R49 4K7

VBAT_MONITOR

Camera UART
MOSI_UART4_TX MISO_UART4_RX R25 22R R29 22R R31 0R CAM_EN

U1A
U-STM32L4R5ZIT6

GPS UART
BOOM_DEPLOY_EN BOOM_PGOOD GPS_PPS
MOSI_USART3_TX MISO_USART3_RX

Memory SPI NCS
SPI_NCS_FLASH_5 SPI_NCS_FLASH_4 SPI_NCS_FLASH_3 SPI_NCS_FLASH_2 SPI_NCS_FLASH_1 SPI_NCS_FLASH_0 SPI_NCS_FRAM_1 SPI_NCS_FRAM_0

Memory SPI
SPI1_SCLK SPI1_MISO SPI1_MOSI

U1B
U-STM32L4R5ZIT6

UHF_CTL R67 0R
RBF_1
RBF_2
I2C4_SCL I2C4_SDA R70 4K7 R71 4K7

MPI RS422 Enable
MISO_MPI_RX_NEN R46 0R
MOSI_MPI_TX_EN R43 0R

Debug UART
MOSI_LPUART1_TX MISO_LPUART1_RX R21 22R R18 22R

MPI UART
MOSI_USART1_TX MISO_USART1_RX R107 0R R109 0R

SWDIO

SWCLK

EPS UART
MOSI_UART5_TX R40 22R
MISO_UART5_RX R56 22R

LoRa US UART
MOSI_UART2_TX R58 22R
MISO_UART2_RX R59 22R
NRST_LORA_US R57 22R

Stack I2C
I2C1_SDA I2C1_SCL R91 4K7 R92 4K7

SWO

Voltage: 3V3, Max current: 15 mA

Clock

U1D
U-STM32L4R5ZIT6

NRST BOOT0 C19 0.1uF C37 0.1uF

Y1
ECS-TXO-2520-33-250-AN-TR
OUTPUT VCC GND NC
C21 15 pF C20 0.1uF

Y2
TG-3541CE 32.7680KXB3
TRI-STATE VCC VCC OUT GND NC GND GND NC
C12 0.1uF

25 MHz TCXO: XTAL OSC TCXO 25.0000MHZ HCMOS
32.768 KHz Oscillator: SER4422CT-ND

Decoupling Capacitors

Place as close to pins as possible

VDDA Capacitors

3V3 C1 0.1uF C2 1uF C3 0.1uF GND
C4 C5 C6 C7 C8 C9 C10 0.1uF
+C13 4.7uF C51 C14 C15 C16 C17 C18 0.1uF

U1C
U-STM32L4R5ZIT6
VDD_1 VDD_2 VDD_3 VDD_4 VDD_5 VDD_6 VDD_7 VDD_8 VDD_9 VDDIO2_1 VDDIO2_2 VDDUSB VBAT VREF+ VDDA
VSS_1 VSS_2 VSS_3 VSS_4 VSS_5 VSS_6 VSS_7 VSS_8 VSS_9 VSS_10 VSS_11 VSSA VREF-

SWD Interface

J2
J-TSW-106-05-T-S
2.54mm Header
SWCLK SWDIO NRST SWO

Temperature Sensor

U15
STDS75DS2F
SDA SCL *OS/INT GND VDD A0 A1 A2
I2C4_SDA I2C4_SCL C54 0.1uF
Address: 0b1001_0001 = 0x91

Reset Switch

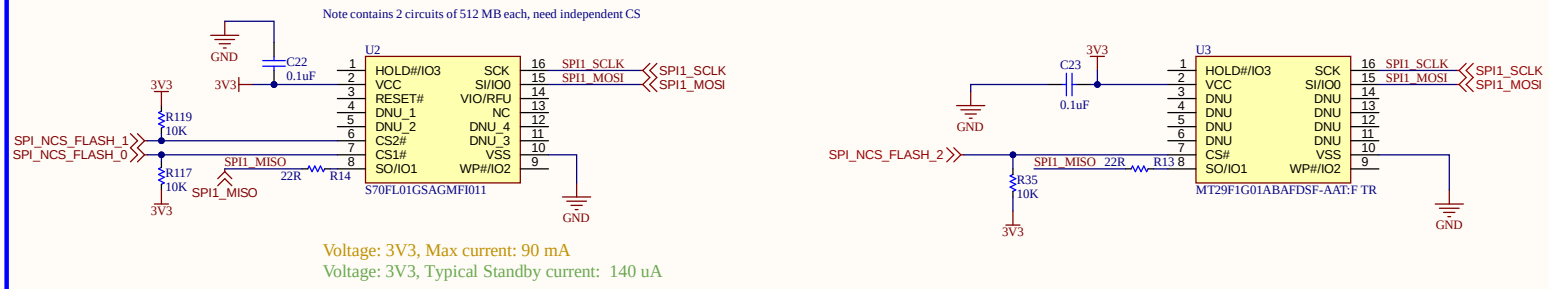
NRST C52 0.1uF S1
S-KH-6X6X4.3H-STM

NRST + BOOT

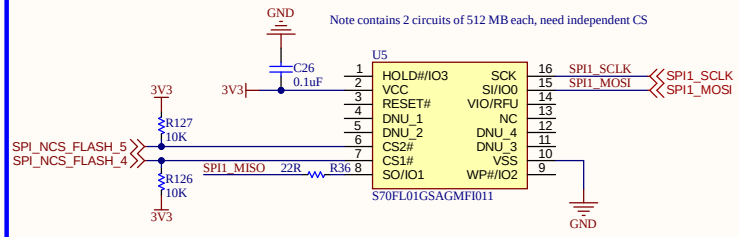
J1
J-TSW-106-05-T-S
BOOT0 NRST

Title	1. STM32 - Rev 1.3	
Size A3	Number	Revision
Date: 8-17-2024		Sheet of
File: C:\Users\..\STM32.SchDoc		Drawn By:

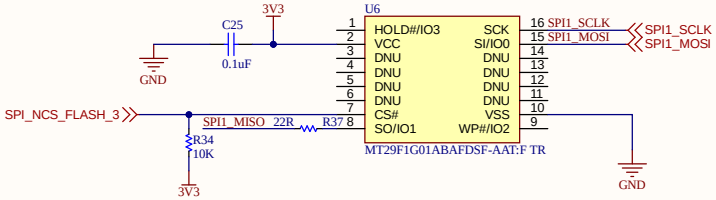
Flash Memory



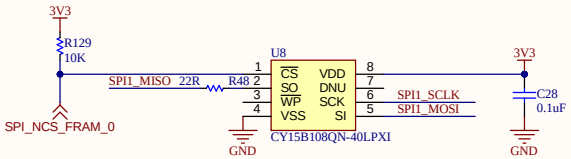
Voltage: 3V3, Max current: 90 mA
Voltage: 3V3, Typical Standby current: 140 uA



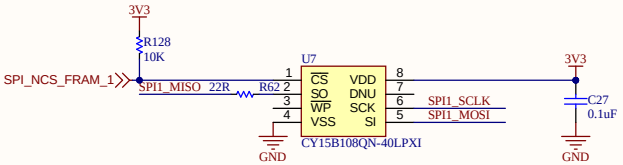
Voltage: 3V3, Max current: 90 mA
Voltage: 3V3, Typical Standby current: 140 uA



FRAM Memory



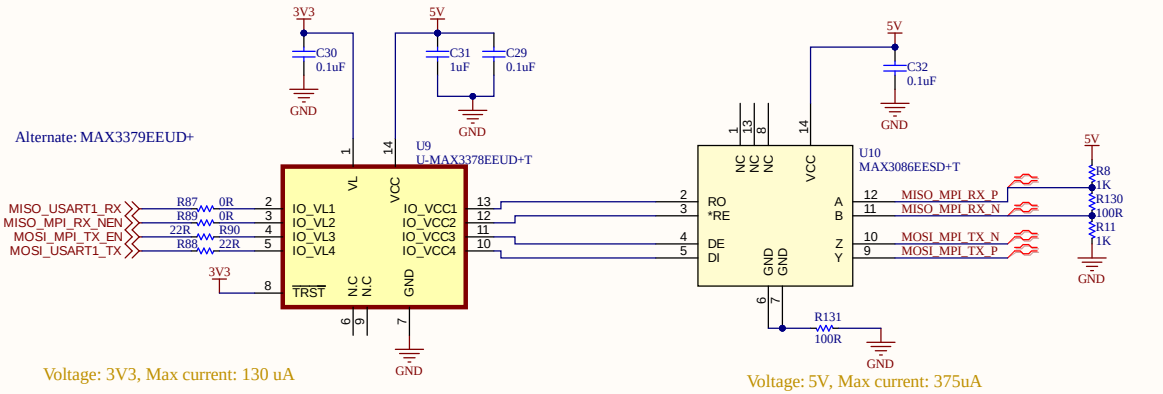
Voltage: 3V3, Typical current: 2.6 mA
Voltage: 3V3, Typical Standby current: 3.5 uA



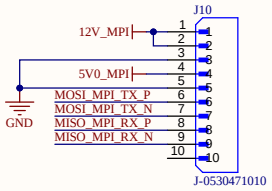
Voltage: 3V3, Typical current: 2.6 mA
Voltage: 3V3, Typical Standby current: 3.5 uA

Title	**2. Memory - Rev 1.3**	
Size A3	Number	Revision
Date: 8-17-2024		Sheet of
File: C:\Users\..\Memory.SchDoc		Drawn By: James Chen

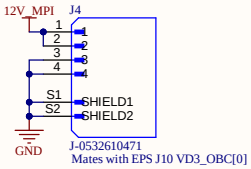
MPI RS422 Transceiver + Connector



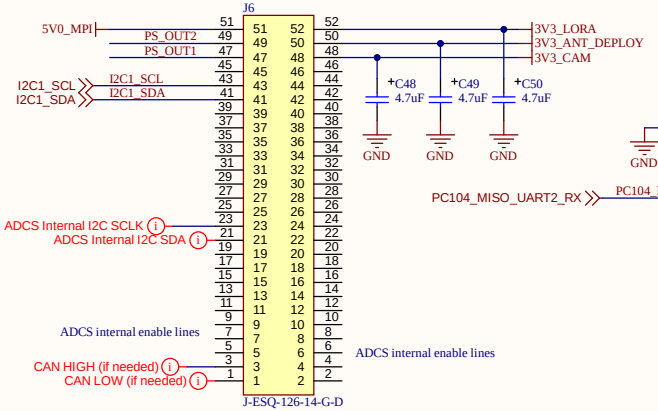
MPI Connector



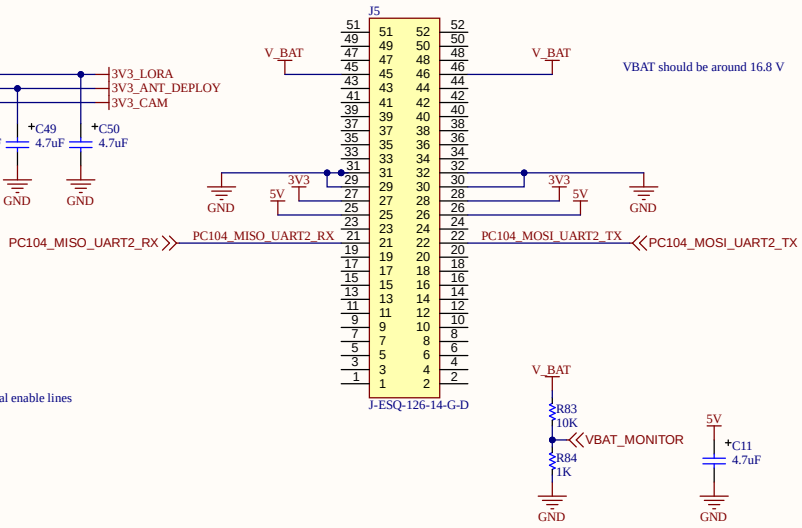
Power Connector



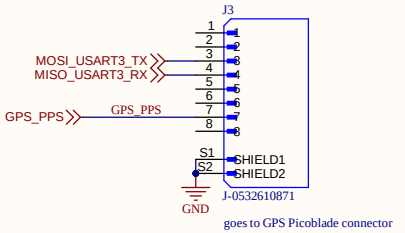
H1 PC104 Connector



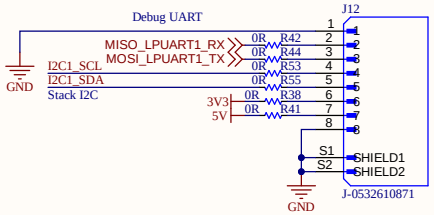
H2 PC104 Connector



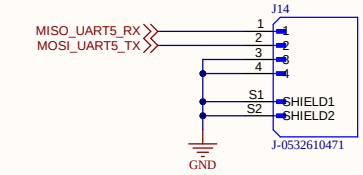
GPS connector



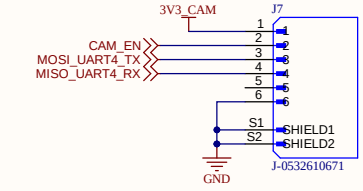
Umblilical connector

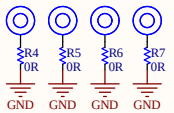


EPS Connector

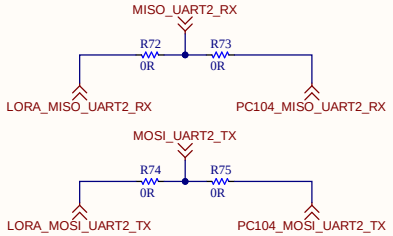


Camera Connector

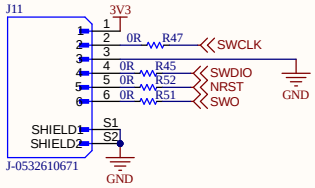


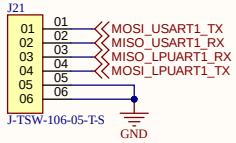


UART Stack/LoRa Switch

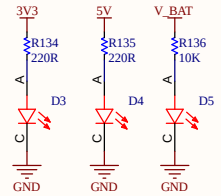


Programming Connector

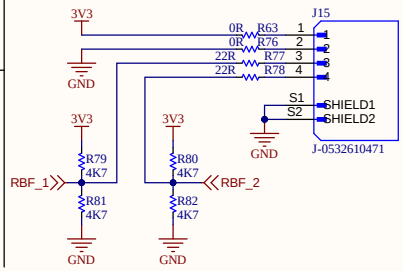




Voltage Indicator LEDs

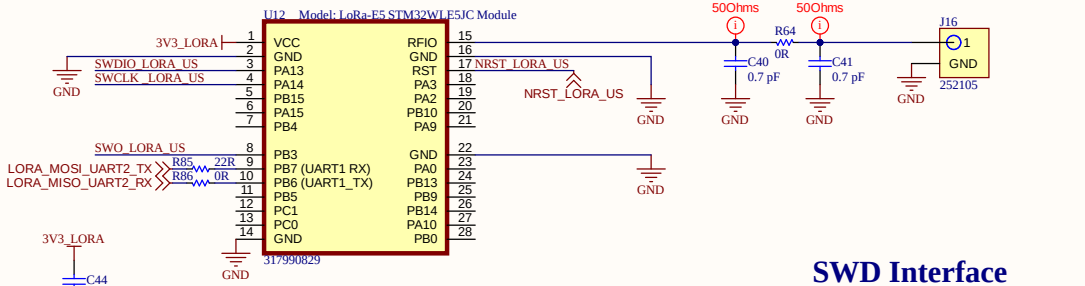


Remove Before Flight

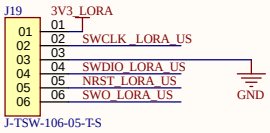


Title: 3. External Connectors - Rev 1.3		
Size: A3	Number	Revision
Date: 8-17-2024	Sheet of	
File: C:\Users\..\External Connectors.SchDoc	Drawn By: James Chen	

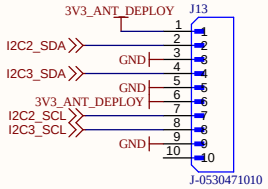
LoRa WAN US915 + Antenna



SWD Interface



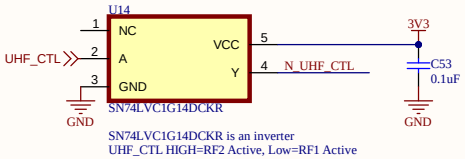
Antenna Deploy Connectors (9 pin)



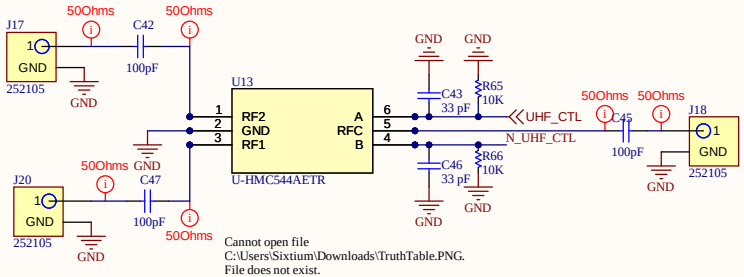
Voltage: 3V3, Typical Standby current: 13 mA

2W system, 3V3, ~600mA Activated in deployment

UHF Dipole Switch



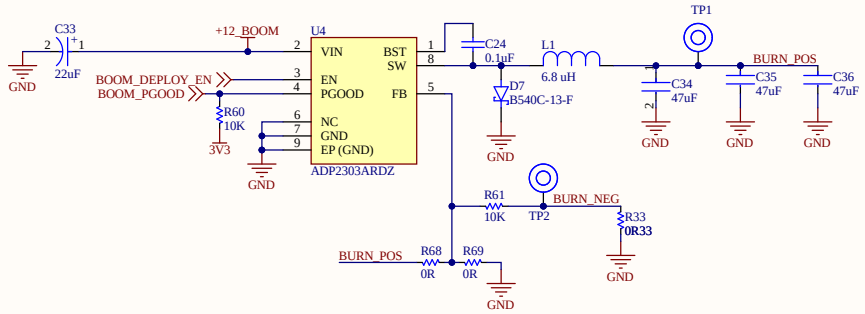
SN74LVC1G14DCKR is an inverter
UHF_CTL HIGH=RF2 Active, Low=RF1 Active



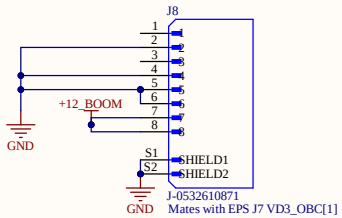
Cannot open file
C:\Users\Sixtium\Downloads\TruthTable.PNG.
File does not exist.

Title	4. Antenna and LoRa - Rev 1.3	
Size A3	Number	Revision
Date: 8-17-2024	Sheet of	
File: C:\Users\..\Antenna and LoRa.SchDoc	Drawn By: James Chen	

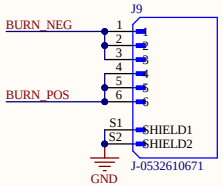
Boom Deployment Circuit



MPI Power In



Output Connector



Title	**5. Boom Control - Rev 1.3**	
Size: A3	Number	Revision
Date: 8-17-2024		Sheet of
File: C:\Users\..\Boom Control.SchDoc		Drawn By: James Chen