

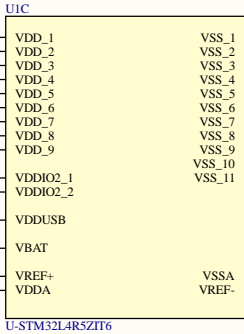
STM32

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

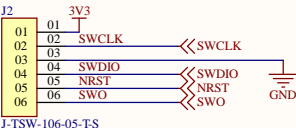
Decoupling Capacitors

VDDA Capacitors

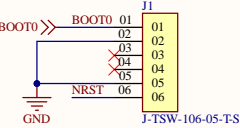
Place as close to pins as possible



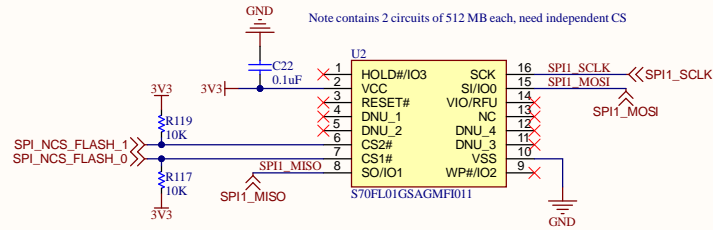
SWD Interface



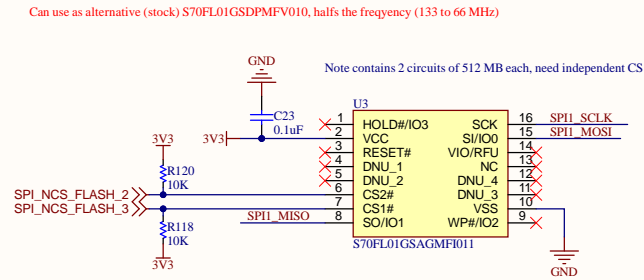
NRST + BOOT



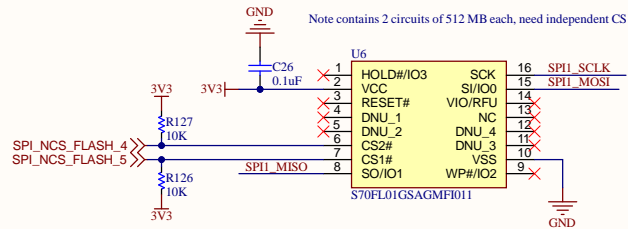
## Flash Memory



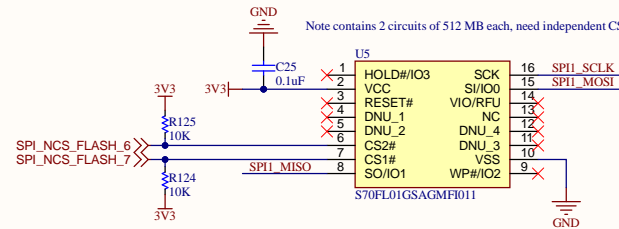
Voltage: 3V3, Max current: 90 mA  
Voltage: 3V3, Typical Standby current: 140 uA



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

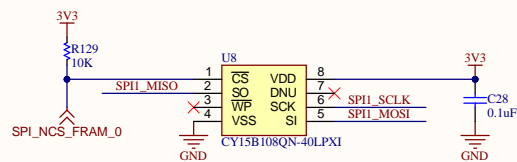


Voltage: 3V3, Max current: 90 mA  
Voltage: 3V3, Typical Standby current: 140 uA

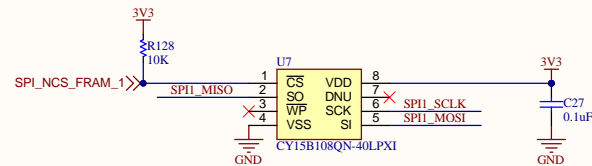


Voltage: 3V3, Max current: 90 mA  
Voltage: 3V3, Typical Standby current: 140 uA

## FRAM Memory



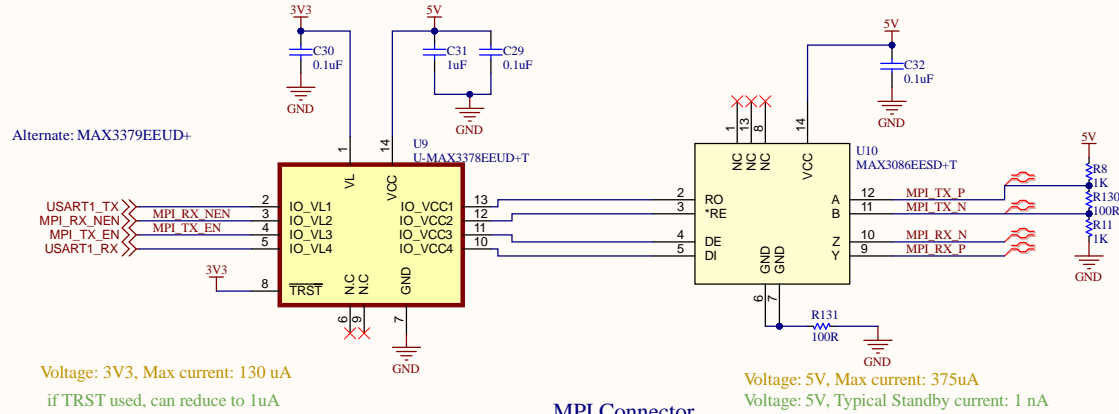
Voltage: 3V3, Typical current: 2.6 mA  
Voltage: 3V3, Typical Standby current: 3.5 uA



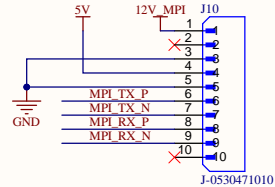
Voltage: 3V3, Typical current: 2.6 mA  
Voltage: 3V3, Typical Standby current: 3.5 uA

Title			<b>Memory</b>
Size	Number	Revision	
A3			
Date:	9-05-2023	Sheet of	
File:	C:\Users\...\Memory.SchDoc	Drawn By:	<a href="#">James Chen</a>
7		8	

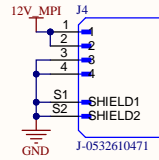
## MPI RS422 Transceiver + Connector



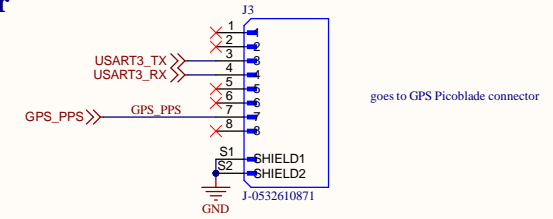
MPI Connector



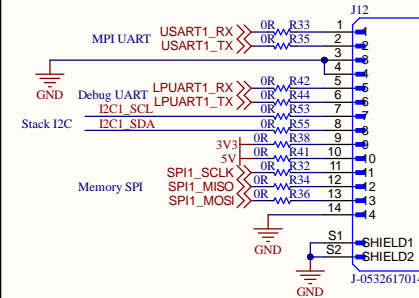
Power Connector



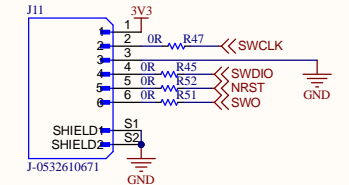
## GPS connector



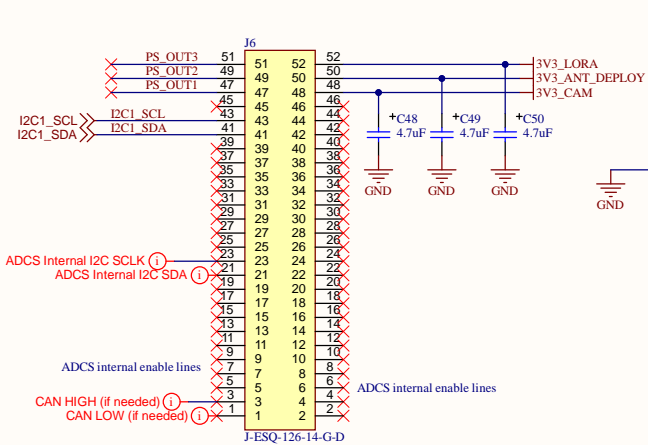
## Umbilical connector



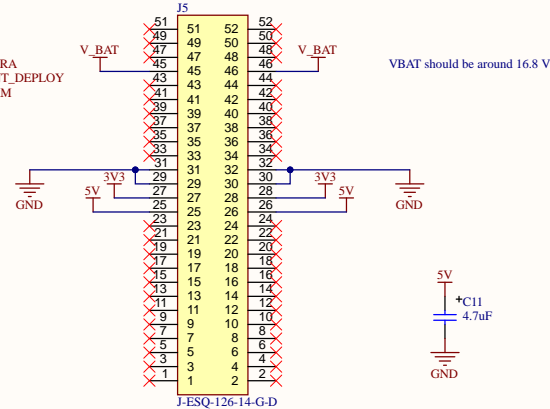
## Programming Connector



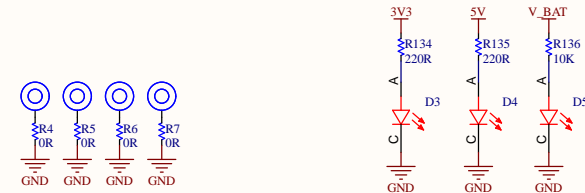
## H1 PC104 Connector



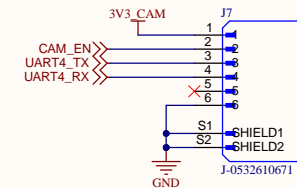
## H2 PC104 Connector



## Voltage indicator LED's

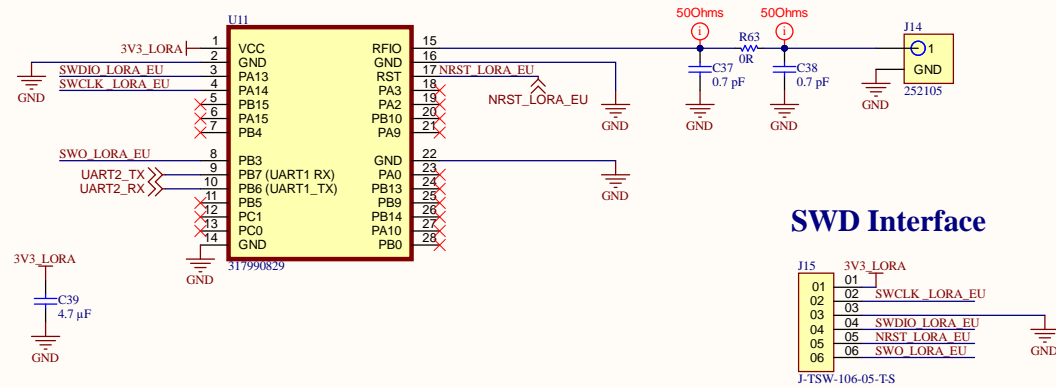


## Camera Connector

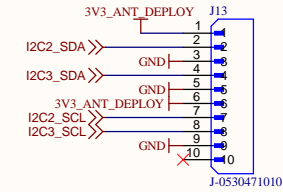


Title		
External Connectors		
Size	Number	Revision
A3		
Date:	9-05-2023	Sheet of
File:	C:\Users\...\External Connectors Sch.D	Drawn By: James Chen

## LoRa WAN US915 + Antenna



## Antenna Connector (9 pin)

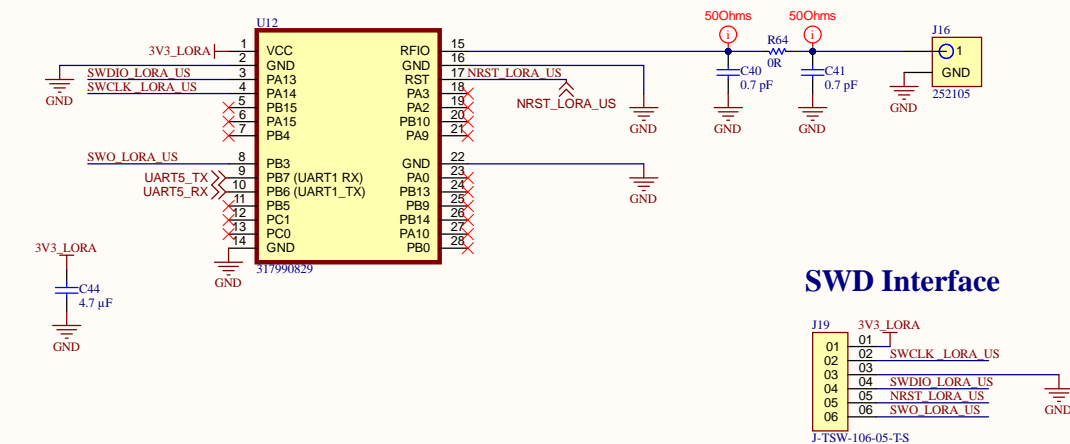


Two I2C? Duplicate and connect it?

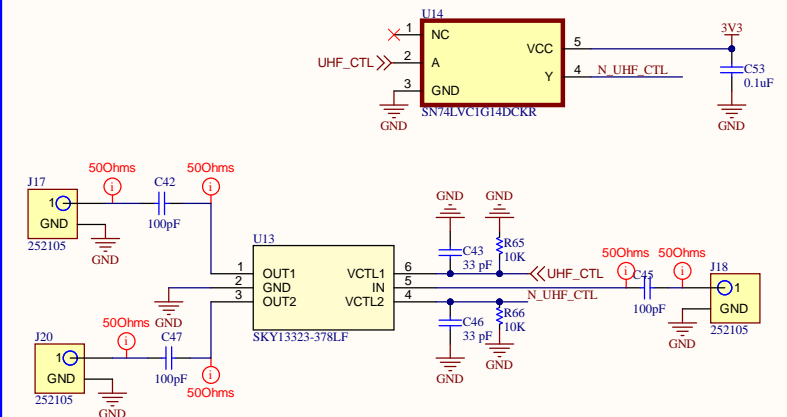
Voltage: 3V3, Typical Standby current: 13 mA

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

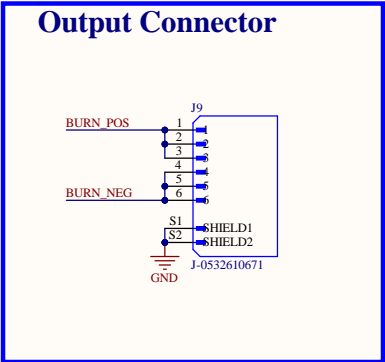
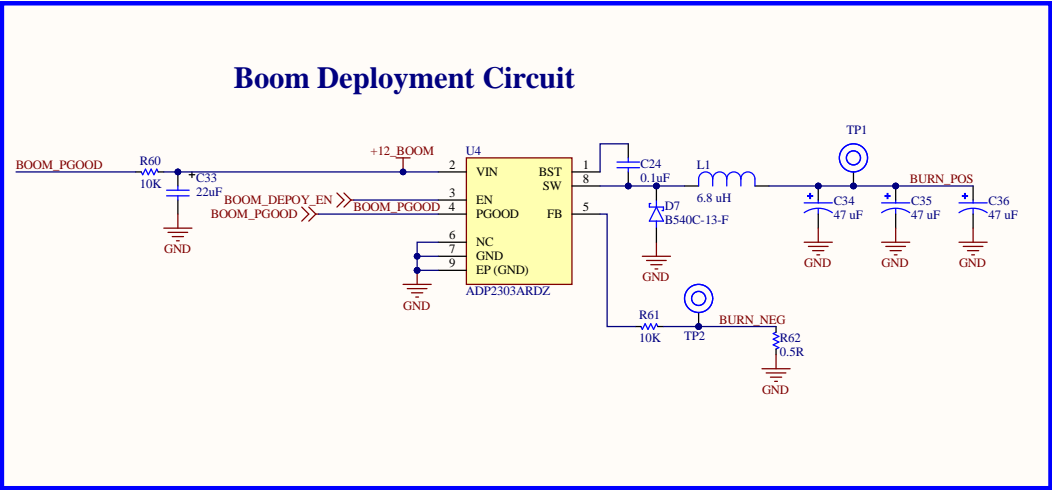
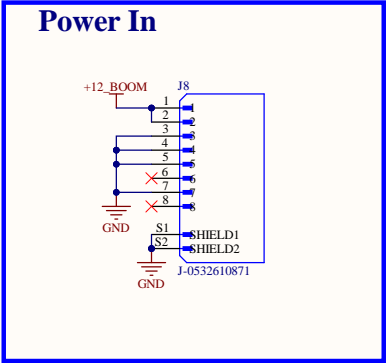
## LoRa WAN EU868 + Antenna



## UHF Dipole Switch



Title		
Antenna Deployment		
Size	Number	Revision
A3		
Date:	9-05-2023	Sheet of
File:	C:\Users\...Antenna and LoRa.SchDot	Drawn By: James Chen



Title		
Motor Control		
Size	Number	Revision
A3		
Date:	9-05-2023	Sheet of
File:	C:\Users\james\Documents\Boom Deployment.SchDoc	Drawn By: James Chen

Designator	Description	Manufacturer	Manufacturer Part #	Quantity
*1, *2, *3, *4 C1, C3, C4, C5, C6, C7, C8, C9, C10, C14, C15, C16, C17, C18, C19, C22, C23, C24, C25, C26, C27, C28, C29, C30, C32, C51, C53 C2, C31	*1, *2, *3, *4 0.1 uF ±10% 25V Ceramic Capacitor X7R 0603 (1608 Metric) CAP CER 1UF 25V X7R 0603	Samsung Electro- Mechanics Yageo	CL10B104KABNNN C CC0603KRX7R888 105	27 2
C11, C13, C48, C49, C50	4.7 uF Molded Tantalum Capacitors 20 V 1206 (3216 Metric) 400m	AVX Corporation	TAJMA75K020R0NJ	5
C12, C20	CAP CER 0.1UF 25V X7R 0402	YAGEO	CC0402K9X7R88B 104	2
C21	15 pf ±1% 50V Ceramic Capacitor XDC, NPO 0402 (1005 Metric)	YAGEO	CC0402FRNPO9B N150	1
C33	CAP TANT 22UF 10% 10V 1206	KYOCERA AVX	TPSA226K010T090 0	1
C34, C35, C36	CAP ALUM POLY 47UF 20% 25V SMD	Panasonic Electronic Components	25VVPF47M	3
C37, C38, C40, C41	CAP CER 0.1PF 50V NPO 0603	KEMET	CBR06C708B5GAC	4
C39, C44	CAP CER 4.7UF 16V X7R 0603	Murata Electronics	GRM188Z71C475R E211	2
C42, C45, C47	CAP CER 100PF 50V X7R 0603	YAGEO	CC0603KRX7R98B 101	3
C43, C46	CAP CER 33PF 50V X7R 0603	KEMET	C0403C330K5RAC 7867	2
D1, D2, D3, D4, D5, D6	Red 620nm LED Indication - Discrete 2-2V 0603 -1608 Metric	Rohm Semiconductor	SML-D121U1WT86	6
D7	DIODE SCHOTTKY 40V 5A SMC	Diodes Incorporated	8540C-13-F	1
J1, J2, J15, J19	CONN HEADER VERT 8POS 2.54MM	Samtec	TSW-106-05-T-S	4
J3, J8	CONN HEADER SMD 8/A 8POS 1.25MM			2
J4	CONN HEADER SMD 8/A 8POS 1.25MM			1
J5, J6	CONN SOCKET 52POS 0.1 GOLD PCB	Samtec Inc.	ESQ-126-14-G-D	2
J7, J9, J11	CONN HEADER SMD 8/A 8POS 1.25MM			3
J10, J13	CONN HEADER VERT 10POS 1.25MM	Molex	0530471010	2
J12	Connector Header Surface Mount, Right Angle 14 position 0.049" (1.25mm)	Molex	0532617014	1
J14, J16, J17, J18, J20	CONN MCX RCPT STR 50 OHM PCB	Amphenol RF	252105	5
L1	FIXED IND 6.8UH 8A 25.3 mOhm SMD	Vishay Dale	IHLPA040DZER68B M01	1
R1, R2, R3	220 Ohms ±0.5% 0.063W, 1/16W Chip Resistor 0603 (1608 Metric) - Thin Film	Susumu	RR0816P-221-D	3
R4, R5, R6, R7, R13, R14, R15, R16, R17, R22, R24, R26, R27, R28, R30, R31, R32, R33, R34, R35, R36, R37, R38, R41, R42, R43, R44, R45, R46, R47, R51, R52, R53, R55, R63, R64, R67, R68, R107, R109	0 Ohms Jumper 0.1W, 1/10W Chip Resistor 0603 (1608 Metric) Automotive AEC-Q200 Thick Film	Stackpole Electronics Inc	RMCF0603ZTOR00	40
R8, R11	RES SMD 1K OHM 1% 1/16W 0603	TE Connectivity Passive Product	CPF0603F1K0C1	2
R9, R10, R12, R18, R21, R23, R25, R29, R39, R40, R48, R50, R56, R57, R58, R59	22 Ohms ±0.5% 0.063W, 1/16W Chip Resistor 0603 (1608 Metric) - Thin Film	Susumu	RR0816Q-220-D	16
R19, R20, R49, R54, R91, R92	RES SMD 4.7K OHM 1% 1/10W 0603	Bourns Inc.	CR0603-FX- 4701ELF	6
R60, R61, R65, R66, R117, R118, R119, R120, R124, R125, R126, R127, R128, R129, R136	RES 10K OHM 1% 1/8W 0603, 10 kOhms ±0.1% 0.063W, 1/16W Chip Resistor 0603 (1608 Metric) - Thin Film	Stackpole Electronics Inc, TE Connectivity Passive Product	RNCP0603FTD10K 0, CPF0603B10KE	15
R62	RES 0.5 OHM 1% 1W 2010	Vishay Dale	WSL12010R5000F EA18	1
R130, R131	RES SMD 100 OHM 0.5% 1/16W 0603	Susumu	RR08P100DCT-ND	2
R134, R135	RES 220 OHM 5% 1/16W 0402	Yageo	RC0402JR- 07220RL	2
TP1, TP2	TEST POINT			2
U1	IC MCU 32BIT 2MB FLASH 144LOFP	STMicroelectronic s	STM32L4R5ZIT6	1
U2, U3, U5, U6	IC FLASH 1GBIT SPI/QUAD 1650nC	Cypress Semiconductor	S70FL01GSAGMF0 11	4
U4	IC REG BUCK ADJUSTABLE 3A BSOIC	Analog Devices Inc.	ADP2303ARDZ	1
U7, U8	IC FRAM 8MBIT SPI 40MHz 8E0FN	Cypress Semiconductor	CY15B10B0N- 40LPX0	2
U9	IC TMRSLR BIDIRECTIONAL 14TSSOP	Maxim Integrated	MAX3378EUD-T	1
U10	IC TRANSCIEVER FULL 1:1 1450C	Maxim Integrated Products	MAX3084EESD-T	1
U11, U12	LORA-E5 WIRELESS MODULE (TAPE RE	Sineed Technology Co., Ltd	317990829	2
U13	IC RF SWITCH SPDT 3GHz 4MLPD	Skyworks Solutions Inc.	SKY13323-378LF	1
U14	IC INVERT SCHMITT TCH 1IN SC70			1
V1	XTAL OSC TCXO 25.000MHz HCMOS	ECS Inc.	ECS-1XO-2520-33- 250-AN-1R	1
V2	XTAL OSC TCXO 32.768KHz CMOS	EPSON	1G-3841CE 32.768K0XB3	1