Arribada turtle gps tag Lora

Lora module addon board for the Arribada turtle gps tag with 22S module

CONTENTS:

Version Revision:

DESIGN CONSIDERATIONS

DESIGN NOTE:
Example text for informational
design notes.

**DESIGN NOTE:
Example text for critical
design notes.**

**LAYOUT NOTE:
Example text for critical
layout guidelines.**

Irnas	www.irnas.eu
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PAGE2 - MCU, LORA

MCU

U1 — STM32L072CZ

Pin	Signal		Pin	Signal
48	VDD	PA0	10	LORA_BUSY
24	VDD	PA1	11	RXEN
9	VDDA	PA2	12	TXEN
1	VDD	PA3	13	DIO1
36	VDD_USB	PA4	14	SPI1_NSS
8	VSSA	PA5	15	SPI1_SCK
		PA6	16	SPI1_MISO
		PA7	17	SPI1_MOSI
47	VSS	PA8	29	DIO2
23	VSS	PA9	30	USART1_TX
35	VSS	PA10	31	USART1_RX
		PA11	32	USB_N
		PA12	33	USB_P
44	BOOT0	PA13	34	SWDIO
7	NRST	PA14	37	SWCLK
		PA15	38	LORA_RST
5	PH0-OSC_IN	PB0	18	MCU_IO1
6	PH1-OSC_OUT	PB1	19	MCU_IO2
		PB2	20	MCU_IO3
3	PC14-OSC32_IN	PB3	39	USART1_RTS
4	PC15-OSC32_OUT	PB4	40	USART1_CTS
2	PC13	PB5	41	ACCEL_INT
		PB6	42	MCU_IO4
		PB7	43	LED1
		PB8	45	I2C1_SCL
		PB9	46	I2C1_SDA
		PB10	21	LED2
		PB11		
		PB12	25	SPI2_NSS
		PB13	26	SPI2_SCK
		PB14	27	SPI2_MISO
		PB15	28	SPI2_MOSI

VCC VCC FB1 BLM21PG221SN1D
C4 1uF, C5 1uF, C6 100nF, C7 100nF, C8 100nF, C9 100nF — GND

P4 Header 2 (2,1) VCC BOOT0 R11 10k GND

OSC32_IN / OSC32_OUT — X1 32.768KHZ, C11 20pF, C12 20pF — GND

NRST S1 (1,3,2,4) C13 100nF GND

R9 220R, Y1 16MHz, C14 20pF, C15 20pF — GND

TAG PROGRAMMING

VCC — CON3
1 NRST 2 SWDIO
3 SWCLK
5 6 USART1_TX
GND

D1 R4 470R LED1
D2 R5 470R LED2
VCC

USB

R19 1M, C16 330pF
CON2 microUSB
U4 USBLC6-2SC6
USB_A_N R24 27R USB_N
USB_A_P R25 27R USB_P
USB_CON_P, USB_CON_N
FB2 BLM21PG221SN1D
C17 100nF, C18 100nF — GND
USB_V

LORA MODULE

U2 — E22-900M22S

Pin	Signal		Pin	Signal
9	VCC	ANT	21	
15	NRST	NSS	19	SPI1_NSS
1	GND	SCK	18	SPI1_SCK
2	GND	MOSI	17	SPI1_MOSI
3	GND	MISO	16	SPI1_MISO
4	GND			
5	GND	RXEN	6	RXEN
10	GND	TXEN	7	
11	GND			
12	GND	BUSY	14	LORA_BUSY
22	GND			
20	GND	DIO2	8	
		DIO1	13	

C2 100nF, C3 1uF — GND, LORA_RST

R23 0R, C1 2.2uF, L1 NC, L2 NC, L3 4.3nH — GND TXEN
R1 0R, R2 0R, R3 0R — NC, DIO2, DIO1

A1 — FEED B_SEL — SR42I010-R

U6 — MPU-9250

Pin	Signal		Pin	Signal
8	VDD_IO	SDA/SDI	24	I2C1_SDA
13	VDD	SCL/SCLK	23	I2C1_SCL
10	REGOUT	AD0/SDO	9	
		nCS	22	
12	INT			
11	FSYNC	NC	17,16,15,14	
7	AUX_CL	NC	6,5,4,3,2	
21	AUX_DA			
1	RESV			
19	RESV			
20	RESV			
18	GND			
25	PAD			

C21 100nF ACCEL_INT, R22 10k — GND
R10 0R, R21 0R NC
C22 10nF, C23 100nF — GND

EEPROM WITH EUI

VCC R6 4k7, R7 4k7
I2C1_SCL, I2C1_SDA
U3 — 24AA02E48T-I/OT
1 SCL | VCC 4
3 SDA |
5 NC | VSS 2
C10 100nF — GND

EXPANSION CONNECTOR

VCC — CON1 53261-1471

Signal	R			CON1 pin
SPI1_SCK	R13 0R	CLK		3
SPI1_MISO	R14 0R	MISO		4
SPI1_MOSI	R15 0R	MOSI		5
SPI1_NSS	R16 0R	CS		6
		USART1_RTS		7
		USART1_RX		8
		USART1_TX		9
		USART1_CTS		10
TXEN	R12 0R	MCU_IO1		11
RXEN	R17 0R	MCU_IO2		12
LORA_BUSY	R18 0R	MCU_IO3		13
LORA_RST	R20 0R	MCU_IO4		14

H1 2.2mm, H2 2.2mm, H3 2.2mm, H4 2.2mm

P3 Header 6:
1 SPI2_NSS, 2 SPI2_SCK, 3 SPI2_MISO, 4 SPI2_MOSI, 5, 6 — VCC GND

P2 Header 4: 1 USART1_TX, 2 USART1_RX, 3, 4 — VCC GND
P1 Header 4: 1 I2C1_SCL, 2 I2C1_SDA, 3, 4 — VCC GND

U5 — TPS78326DDCT
USB_V — 1 IN | OUT 5
3 EN | GND 4, GND 2
C20 1uF, R8 10k, C19 2.2uF — GND VCC