1. Description

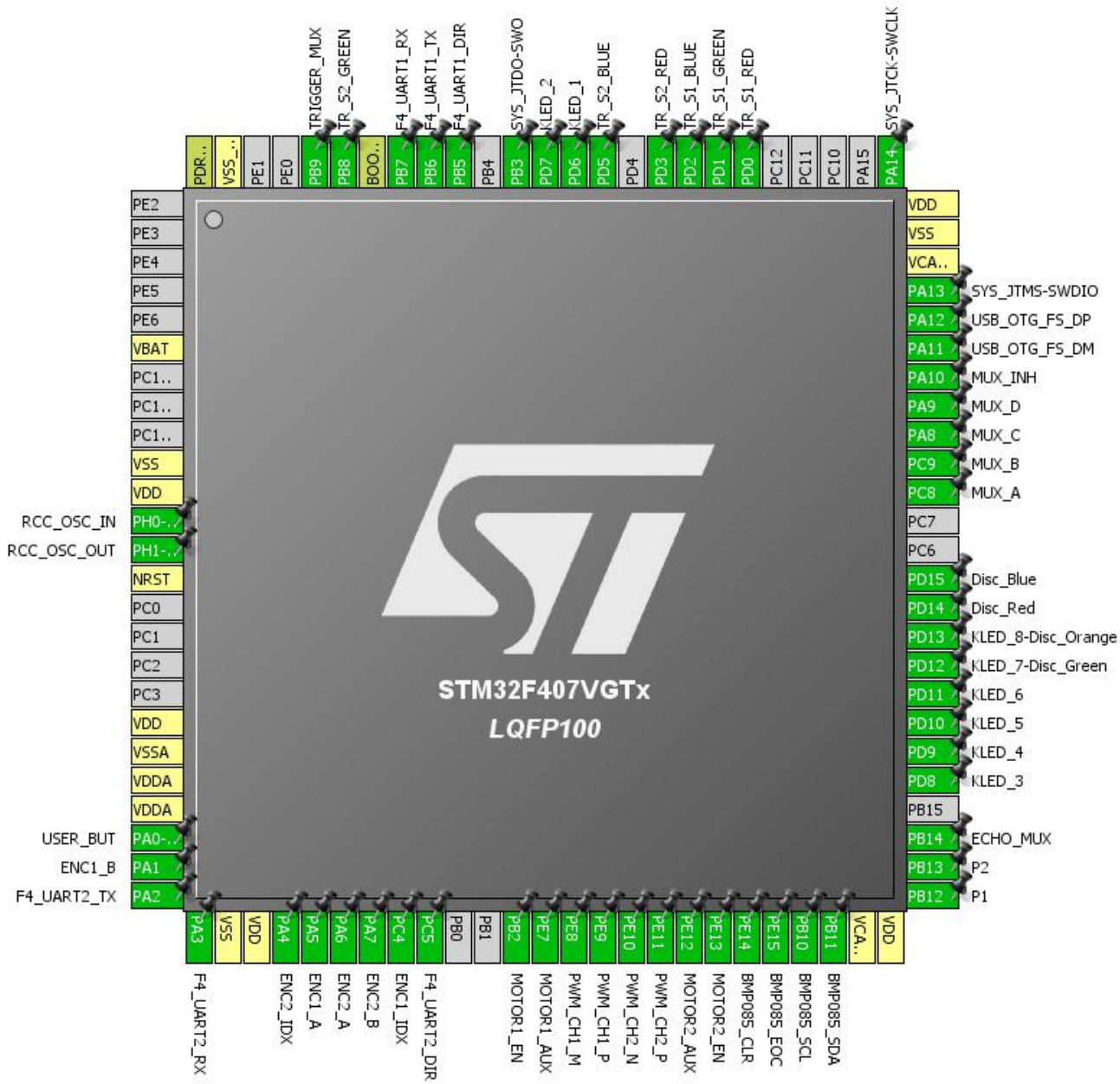
1.1. Project

Project Name	Sonar-Module
Generated with:	STM32CubeMX 4.3.0
Date	08/28/2014

1.2. MCU

MCU Serie	STM32F4
MCU Line	STM32F407/417
MCU name	STM32F407VGTx
MCU Package	LQFP100
MCU Pin number	100

2. Pinout Configuration



3. IPs and Middlewares Configuration

IP	Mode	Fonction	Pin
I2C2	I2C: I2C	I2C2_SCL	PB10
		I2C2_SDA	PB11
RCC	High Speed Clock (HSE): Crystal/Ceramic Resonator	RCC_OSC_IN	PH0-OSC_IN
		RCC_OSC_OUT	PH1-OSC_OUT
SYS	Debug: SWD and Asynchronous Trace	SYS_JTMS-SWDIO	PA13
		SYS_JTCK-SWCLK	PA14
		SYS_JTDO-SWO	PB3
TIM1	Channel1: PWM Generation CH1 CH1N	TIM1_CH1	PE9
		TIM1_CH1N	PE8
	Channel2: PWM Generation CH2 CH2N	TIM1_CH2	PE11
		TIM1_CH2N	PE10
TIM2	Combined Channels: Encoder Mode	TIM2_CH1	PA5
		TIM2_CH2	PA1
TIM3	Combined Channels: Encoder Mode	TIM3_CH1	PA6
		TIM3_CH2	PA7
TIM7	Activated	N/A	N/A
TIM11	Activated	N/A	N/A
	Channel1: PWM Generation CH1	TIM11_CH1	PB9
	One Pulse Mode	N/A	N/A
TIM12	Slave Mode: Reset Mode	N/A	N/A
	Trigger Source: TI1FP1	TIM12_CH1	PB14
	Clock Source	N/A	N/A
	Channel1: Input Capture direct mode	TIM12_CH1	PB14
	Channel2: Input Capture indirect mode	TIM12_CH1	PB14
USART1	Mode: Asynchronous	USART1_RX	PB7
		USART1_TX	PB6
USART2	Mode: Asynchronous	USART2_RX	PA3
		USART2_TX	PA2
USB_OTG_FS	Mode: Device_Only	USB_OTG_FS_DM	PA11
		USB_OTG_FS_DP	PA12

MiddleWare	Mode
USB_DEVICE	Class For FS IP: Communication Device Class (Virtual Port Com)

4. Pins Configuration

Pin	Pos	Function(s)	Label
PH0-OSC_IN	12	RCC_OSC_IN	
PH1-OSC_OUT	13	RCC_OSC_OUT	
PA0-WKUP *	23	GPIO_Input	USER_BUT
PA1	24	TIM2_CH2	ENC1_B
PA2	25	USART2_TX	F4_UART2_TX
PA3	26	USART2_RX	F4_UART2_RX
PA4 *	29	GPIO_Input	ENC2_IDX
PA5	30	TIM2_CH1	ENC1_A
PA6	31	TIM3_CH1	ENC2_A
PA7	32	TIM3_CH2	ENC2_B
PC4 *	33	GPIO_Input	ENC1_IDX
PC5 *	34	GPIO_Output	F4_UART2_DIR
PB2 *	37	GPIO_Output	MOTOR1_EN
PE7 *	38	GPIO_Output	MOTOR1_AUX
PE8	39	TIM1_CH1N	PWM_CH1_M
PE9	40	TIM1_CH1	PWM_CH1_P
PE10	41	TIM1_CH2N	PWM_CH2_N
PE11	42	TIM1_CH2	PWM_CH2_P
PE12 *	43	GPIO_Output	MOTOR2_AUX
PE13 *	44	GPIO_Output	MOTOR2_EN
PE14 *	45	GPIO_Output	BMP085_CLR
PE15 *	46	GPIO_Input	BMP085_EOC
PB10	47	I2C2_SCL	BMP085_SCL
PB11	48	I2C2_SDA	BMP085_SDA
PB12 *	51	GPIO_Input	P1
PB13 *	52	GPIO_Input	P2
PB14	53	TIM12_CH1	ECHO_MUX
PD8 *	55	GPIO_Output	KLED_3
PD9 *	56	GPIO_Output	KLED_4
PD10 *	57	GPIO_Output	KLED_5
PD11 *	58	GPIO_Output	KLED_6
PD12 *	59	GPIO_Output	KLED_7-Disc_Green
PD13 *	60	GPIO_Output	KLED_8-Disc_Orange
PD14 *	61	GPIO_Output	Disc_Red
PD15 *	62	GPIO_Output	Disc_Blue
PC8 *	65	GPIO_Output	MUX_A
PC9 *	66	GPIO_Output	MUX_B
PA8 *	67	GPIO_Output	MUX_C
PA9 *	68	GPIO_Output	MUX_D

Pin	Pos	Function(s)	Label
PA10 *	69	GPIO_Output	MUX_INH
PA11	70	USB_OTG_FS_DM	
PA12	71	USB_OTG_FS_DP	
PA13	72	SYS_JTMS-SWDIO	
PA14	76	SYS_JTCK-SWCLK	
PD0 *	81	GPIO_Output	TR_S1_RED
PD1 *	82	GPIO_Output	TR_S1_GREEN
PD2 *	83	GPIO_Output	TR_S1_BLUE
PD3 *	84	GPIO_Output	TR_S2_RED
PD5 *	86	GPIO_Output	TR_S2_BLUE
PD6 *	87	GPIO_Output	KLED_1
PD7 *	88	GPIO_Output	KLED_2
PB3	89	SYS_JTDO-SWO	
PB5 *	91	GPIO_Output	F4_UART1_DIR
PB6	92	USART1_TX	F4_UART1_TX
PB7	93	USART1_RX	F4_UART1_RX
PB8 *	95	GPIO_Output	TR_S2_GREEN
PB9	96	TIM11_CH1	TRIGGER_MUX

* The pin is affected with an I/O function

5. Power Plugin report

5.1. Microcontroller Selection

Serie	STM32F4
Line	STM32F407/417
MCU	STM32F407VGTx
Datasheet	022152_Rev5

5.2. Parameter Selection

Temperature	25
Vdd	3.3

5.3. Battery Selection

Battery	Not set
Capacity	0.0 mAh
Self discharge	0.0 %/month
Nominal voltage	0.0 V
Max Cont Current	0.0 mA
Max Pulse Current	0.0 mA
Cells in series	1
Cells in parallel	1

6. Software Project

6.1. Project Settings

Name	Value
Project Name	Sonar-Module
Project Folder	C:\devel\GitHub\RoboDiscovery-F4\Firmware
Toolchain / IDE	EWARM 6.70
Firmware Package Name and Version	STM32Cube FW_F4 V1.3.0

6.2. Code Generation Settings

Name	Value
STM32Cube Firmware Library Package	Copy all used libraries into the project folder
Generate peripheral initialization as a pair of '.c/.h' files	Yes
Backup previously generated files when re-generating	Yes
Delete previously generated files when not re-generated	No
Set all free pins as analog (to optimize the power consumption)	No

6.3. Toolchains Settings

Name	Value
Compiler Optimizations	Balanced Size/Speed