1. Description

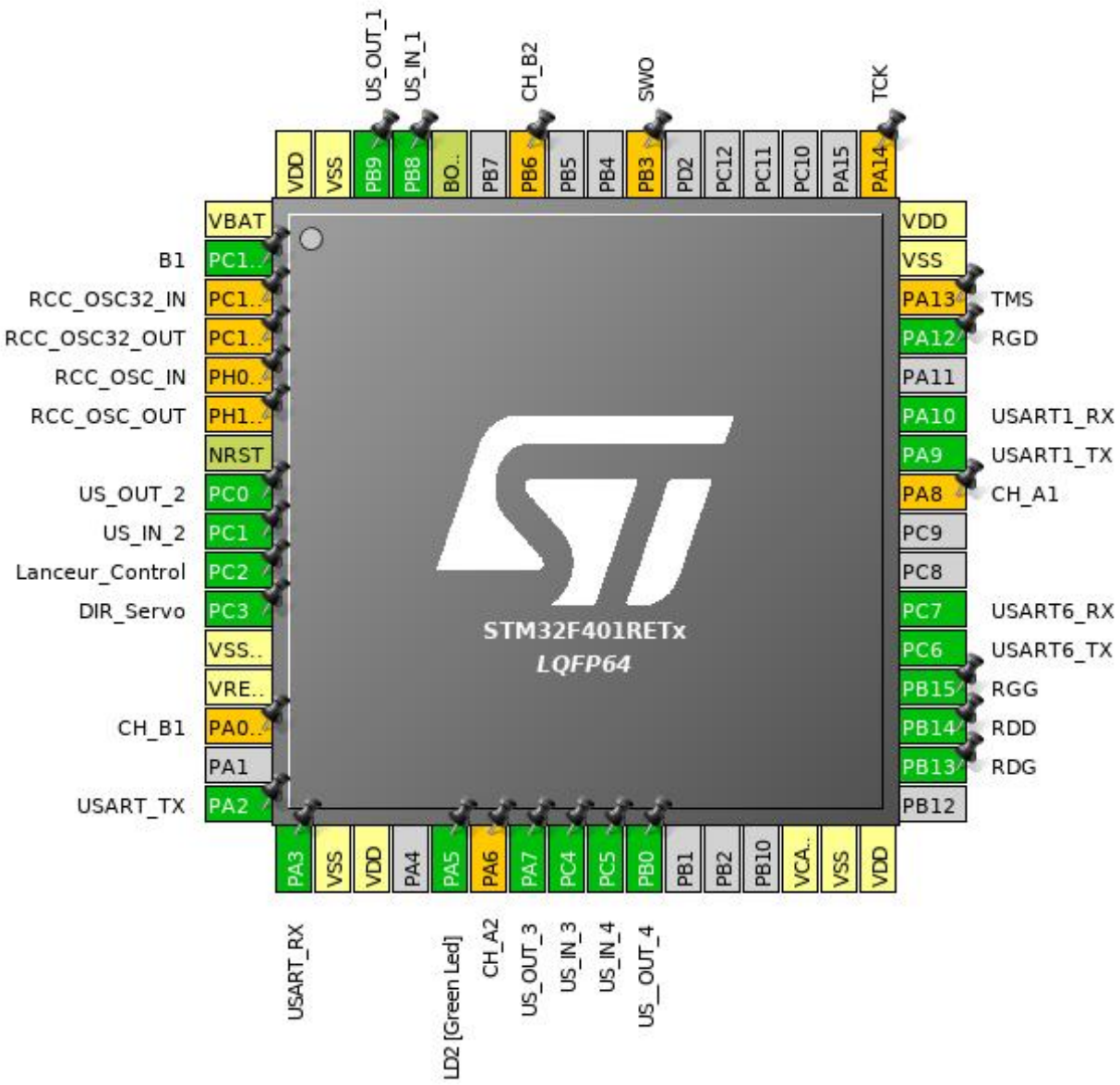
1.1. Project

Project Name	NucleoF401
Board Name	NUCLEO-F401RE
Generated with:	STM32CubeMX 4.25.0
Date	05/04/2018

1.2. MCU

MCU Series	STM32F4
MCU Line	STM32F401
MCU name	STM32F401RETx
MCU Package	LQFP64
MCU Pin number	64

2. Pinout Configuration



3. Pins Configuration

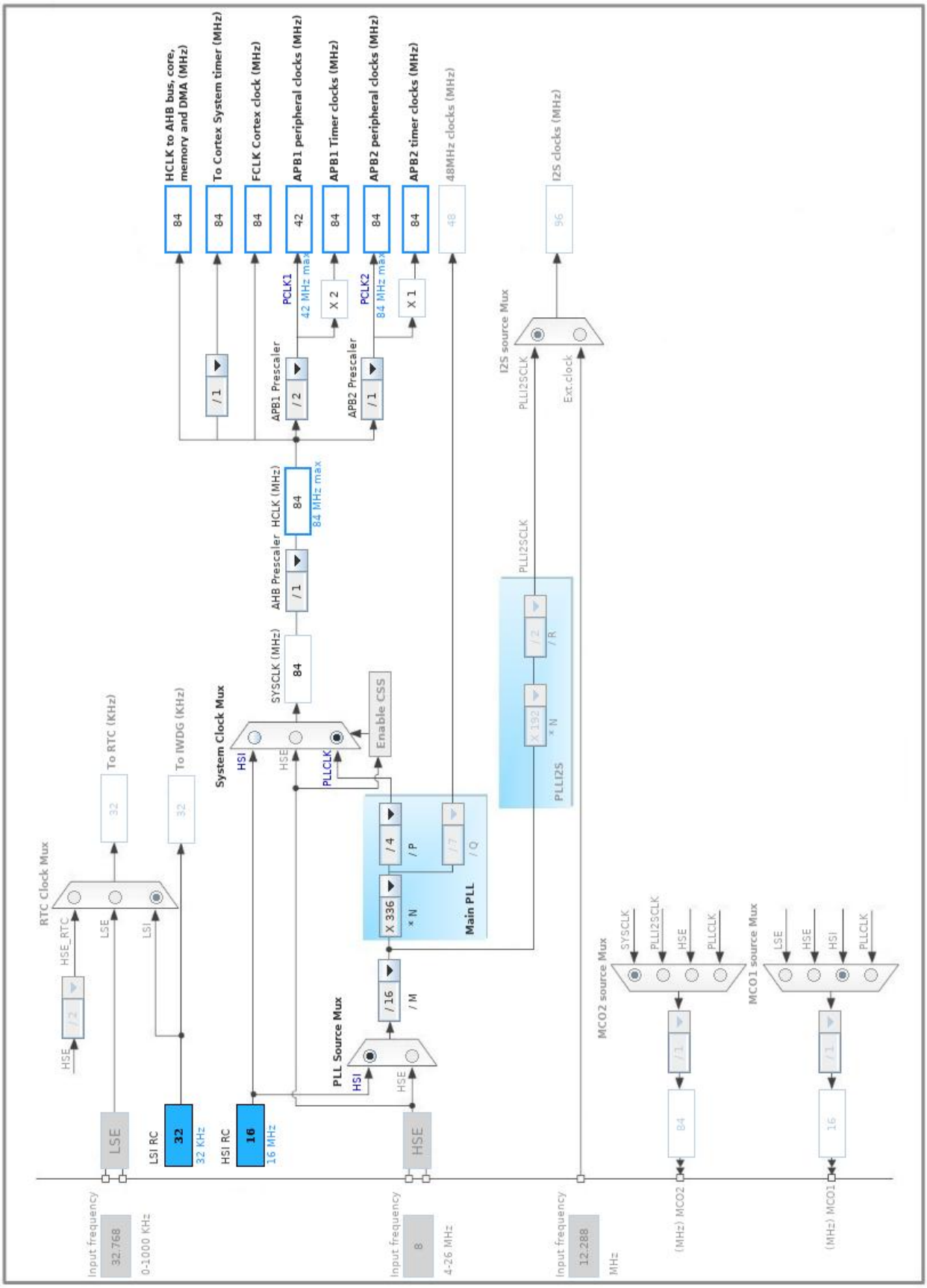
Pin Number LQFP64	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VBAT	Power		
2	PC13-ANTI_TAMP	I/O	GPIO_EXTI13	B1
3	PC14-OSC32_IN *	I/O	RCC_OSC32_IN	
4	PC15-OSC32_OUT *	I/O	RCC_OSC32_OUT	
5	PH0 - OSC_IN *	I/O	RCC_OSC_IN	
6	PH1 - OSC_OUT *	I/O	RCC_OSC_OUT	
7	NRST	Reset		
8	PC0 **	I/O	GPIO_Output	US_OUT_2
9	PC1	I/O	GPIO_EXTI1	US_IN_2
10	PC2 **	I/O	GPIO_Output	Lanceur_Control
11	PC3 **	I/O	GPIO_Output	DIR_Servo
12	VSSA/VREF-	Power		
13	VREF+	Power		
14	PA0-WKUP *	I/O	TIM2_CH1	CH_B1
16	PA2	I/O	USART2_TX	USART_TX
17	PA3	I/O	USART2_RX	USART_RX
18	VSS	Power		
19	VDD	Power		
21	PA5 **	I/O	GPIO_Output	LD2 [Green Led]
22	PA6 *	I/O	TIM3_CH1	CH_A2
23	PA7 **	I/O	GPIO_Output	US_OUT_3
24	PC4	I/O	GPIO_EXTI4	US_IN_3
25	PC5	I/O	GPIO_EXTI5	US_IN_4
26	PB0 **	I/O	GPIO_Output	US__OUT_4
30	VCAP1	Power		
31	VSS	Power		
32	VDD	Power		
34	PB13 **	I/O	GPIO_Output	RDG
35	PB14 **	I/O	GPIO_Output	RDD
36	PB15 **	I/O	GPIO_Output	RGG
37	PC6	I/O	USART6_TX	
38	PC7	I/O	USART6_RX	
41	PA8 *	I/O	TIM1_CH1	CH_A1
42	PA9	I/O	USART1_TX	
43	PA10	I/O	USART1_RX	
45	PA12 **	I/O	GPIO_Output	RGD

Pin Number LQFP64	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
46	PA13 *	I/O	SYS_JTMS-SWDIO	TMS
47	VSS	Power		
48	VDD	Power		
49	PA14 *	I/O	SYS_JTCK-SWCLK	TCK
55	PB3 *	I/O	SYS_JTDO-SWO	SWO
58	PB6 *	I/O	TIM4_CH1	CH_B2
60	BOOT0	Boot		
61	PB8	I/O	GPIO_EXTI8	US_IN_1
62	PB9 **	I/O	GPIO_Output	US_OUT_1
63	VSS	Power		
64	VDD	Power		

** The pin is affected with an I/O function

* The pin is affected with a peripheral function but no peripheral mode is activated

4. Clock Tree Configuration



5. IPs and Middleware Configuration

5.1. SYS

Timebase Source: SysTick

5.2. TIM3

Clock Source : Internal Clock

5.2.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**42000-1 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**1000-1 ***
Internal Clock Division (CKD)	No Division

Trigger Output (TRGO) Parameters:

Master/Slave Mode (MSM bit)	Disable (Trigger input effect not delayed)
Trigger Event Selection	Reset (UG bit from TIMx_EGR)

5.3. USART1

Mode: Asynchronous

5.3.1. Parameter Settings:

Basic Parameters:

Baud Rate	**1000000 ***
Word Length	8 Bits (including Parity)
Parity	None
Stop Bits	1

Advanced Parameters:

Data Direction	Receive and Transmit
Over Sampling	16 Samples

5.4. USART2

Mode: Asynchronous

5.4.1. Parameter Settings:

Basic Parameters:

Baud Rate	115200
Word Length	8 Bits (including Parity)
Parity	None
Stop Bits	1

Advanced Parameters:

Data Direction	Receive and Transmit
Over Sampling	16 Samples

5.5. USART6

Mode: Asynchronous

5.5.1. Parameter Settings:

Basic Parameters:

Baud Rate	115200
Word Length	8 Bits (including Parity)
Parity	None
Stop Bits	1

Advanced Parameters:

Data Direction	Receive and Transmit
Over Sampling	16 Samples

*** User modified value**

6. System Configuration

6.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
USART1	PA9	USART1_TX	Alternate Function Push Pull	Pull-up	**Very High ***	
	PA10	USART1_RX	Alternate Function Push Pull	Pull-up	**Very High ***	
USART2	PA2	USART2_TX	Alternate Function Push Pull	*	Low	USART_TX
	PA3	USART2_RX	Alternate Function Push Pull	*	Low	USART_RX
USART6	PC6	USART6_TX	Alternate Function Push Pull	Pull-up	**Very High ***	
	PC7	USART6_RX	Alternate Function Push Pull	Pull-up	**Very High ***	
Single Mapped Signals	PC14-OSC32_IN	RCC_OSC32_IN	n/a	n/a	n/a	
	PC15-OSC32_OUT	RCC_OSC32_OUT	n/a	n/a	n/a	
	PH0 - OSC_IN	RCC_OSC_IN	n/a	n/a	n/a	
	PH1 - OSC_OUT	RCC_OSC_OUT	n/a	n/a	n/a	
	PA0-WKUP	TIM2_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	CH_B1
	PA6	TIM3_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	CH_A2
	PA8	TIM1_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	CH_A1
	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	TMS
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	TCK
	PB3	SYS_JTDO-SWO	n/a	n/a	n/a	SWO
	PB6	TIM4_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	CH_B2
GPIO	PC13-ANTI_TAMP	GPIO_EXTI13	**External Interrupt Mode with Falling edge trigger detection**	No pull-up and no pull-down	n/a	B1
	PC0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	US_OUT_2
	PC1	GPIO_EXTI1	**External Interrupt**	No pull-up and no pull-down	n/a	US_IN_2

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
			Mode with Rising/Falling edge			
	PC2	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Lanceur_Control
	PC3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	DIR_Servo
	PA5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LD2 [Green Led]
	PA7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	US_OUT_3
	PC4	GPIO_EXTI4	**External Interrupt Mode with Rising/Falling edge**	No pull-up and no pull-down	n/a	US_IN_3
	PC5	GPIO_EXTI5	**External Interrupt Mode with Rising/Falling edge**	No pull-up and no pull-down	n/a	US_IN_4
	PB0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	US__OUT_4
	PB13	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	RDG
	PB14	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	RDD
	PB15	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	RGG
	PA12	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	RGD
	PB8	GPIO_EXTI8	**External Interrupt Mode with Rising/Falling edge**	No pull-up and no pull-down	n/a	US_IN_1
	PB9	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	US_OUT_1

6.2. DMA configuration

nothing configured in DMA service

6.3. NVIC configuration

Interrupt Table	Enable	Preenmption Priority	SubPriority
Non maskable interrupt	true	0	0
Hard fault interrupt	true	0	0
Memory management fault	true	0	0
Pre-fetch fault, memory access fault	true	0	0
Undefined instruction or illegal state	true	0	0
System service call via SWI instruction	true	0	0
Debug monitor	true	0	0
Pendable request for system service	true	0	0
System tick timer	true	0	0
EXTI line1 interrupt	true	0	0
EXTI line4 interrupt	true	0	0
EXTI line[9:5] interrupts	true	0	0
TIM3 global interrupt	true	0	0
EXTI line[15:10] interrupts	true	0	0
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
USART1 global interrupt	unused		
USART2 global interrupt	unused		
USART6 global interrupt	unused		
FPU global interrupt	unused		

*** User modified value**

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F4
Line	STM32F401
MCU	STM32F401RETx
Datasheet	025644_Rev3

7.2. Parameter Selection

Temperature	25
Vdd	null

8. Software Pack Report

9. Software Project

9.1. Project Settings

Name	Value
Project Name	NucleoF401
Project Folder	/home/robotronik/Documents/cdfr-2018-1A/Programmation/FINAL
Toolchain / IDE	Makefile
Firmware Package Name and Version	STM32Cube FW_F4 V1.21.0

9.2. Code Generation Settings

Name	Value
STM32Cube Firmware Library Package	Copy only the necessary library files
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	Yes
Set all free pins as analog (to optimize the power consumption)	Yes