1. Description

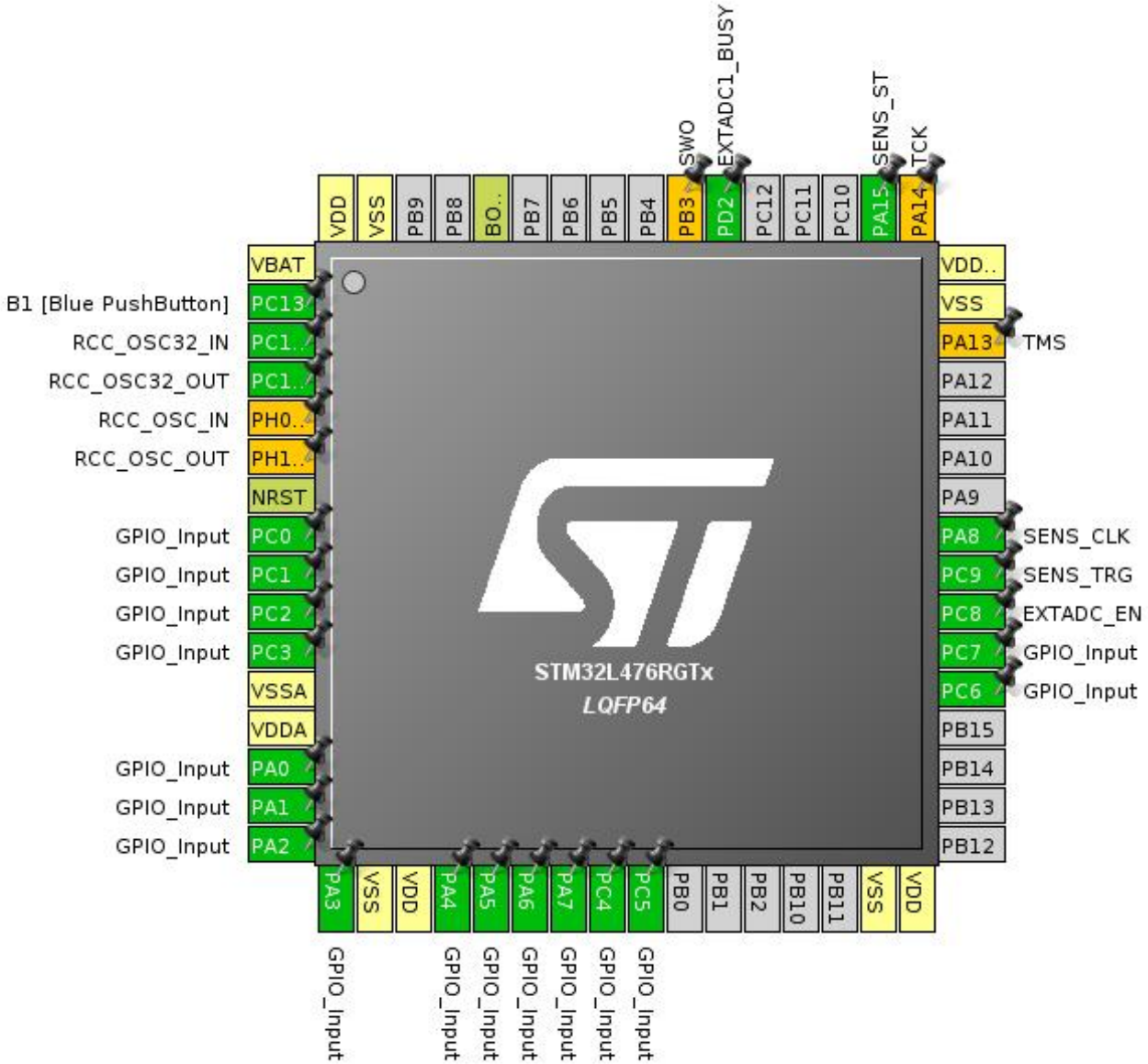
1.1. Project

Project Name	minispec_v_alpha_3
Board Name	NUCLEO-L476RG
Generated with:	STM32CubeMX 4.20.1
Date	05/16/2017

1.2. MCU

MCU Series	STM32L4
MCU Line	STM32L4x6
MCU name	STM32L476RGTx
MCU Package	LQFP64
MCU Pin number	64

2. Pinout Configuration



3. Pins Configuration

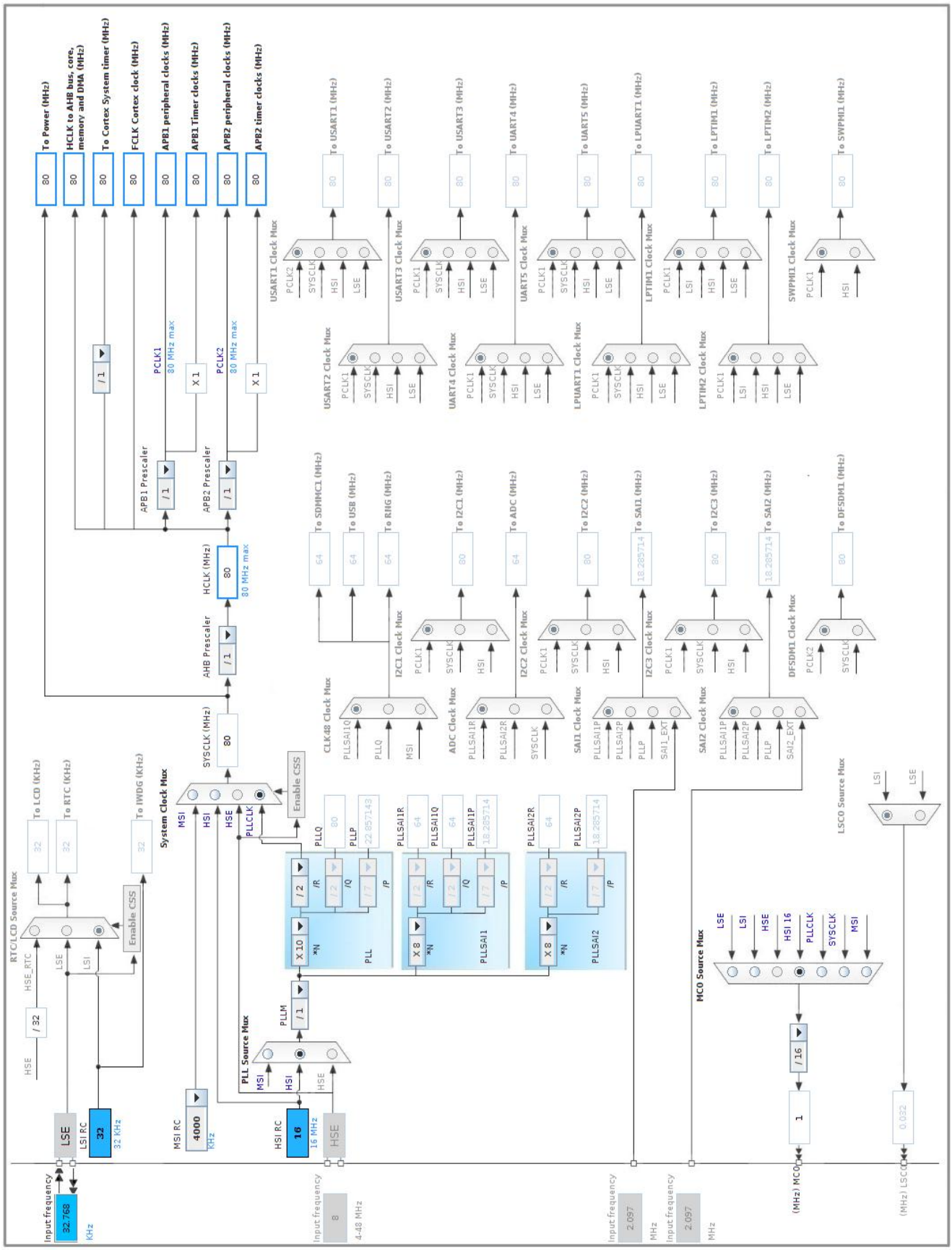
Pin Number LQFP64	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VBAT	Power		
2	PC13	I/O	GPIO_EXTI13	B1 [Blue PushButton]
3	PC14/OSC32_IN	I/O	RCC_OSC32_IN	
4	PC15/OSC32_OUT	I/O	RCC_OSC32_OUT	
5	PH0/OSC_IN *	I/O	RCC_OSC_IN	
6	PH1/OSC_OUT *	I/O	RCC_OSC_OUT	
7	NRST	Reset		
8	PC0 **	I/O	GPIO_Input	
9	PC1 **	I/O	GPIO_Input	
10	PC2 **	I/O	GPIO_Input	
11	PC3 **	I/O	GPIO_Input	
12	VSSA	Power		
13	VDDA	Power		
14	PA0 **	I/O	GPIO_Input	
15	PA1 **	I/O	GPIO_Input	
16	PA2 **	I/O	GPIO_Input	
17	PA3 **	I/O	GPIO_Input	
18	VSS	Power		
19	VDD	Power		
20	PA4 **	I/O	GPIO_Input	
21	PA5 **	I/O	GPIO_Input	
22	PA6 **	I/O	GPIO_Input	
23	PA7 **	I/O	GPIO_Input	
24	PC4 **	I/O	GPIO_Input	
25	PC5 **	I/O	GPIO_Input	
31	VSS	Power		
32	VDD	Power		
37	PC6 **	I/O	GPIO_Input	
38	PC7 **	I/O	GPIO_Input	
39	PC8 **	I/O	GPIO_Output	EXTADC_EN
40	PC9	I/O	GPIO_EXTI9	SENS_TRG
41	PA8	I/O	RCC_MCO	SENS_CLK
46	PA13 *	I/O	SYS_JTMS-SWDIO	TMS
47	VSS	Power		
48	VDDUSB	Power		
49	PA14 *	I/O	SYS_JTCK-SWCLK	TCK

Pin Number LQFP64	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
50	PA15	I/O	TIM2_CH1	SENS_ST
54	PD2	I/O	GPIO_EXTI2	EXTADC1_BUSY
55	PB3 *	I/O	SYS_JTDO-SWO	SWO
60	BOOT0	Boot		
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. RCC

Low Speed Clock (LSE) : Crystal/Ceramic Resonator
mode: Master Clock Output

5.1.1. Parameter Settings:

System Parameters:	
VDD voltage (V)	3.3
Instruction Cache	Enabled
Prefetch Buffer	**Enabled ***
Data Cache	Enabled
Flash Latency(WS)	4 WS (5 CPU cycle)
RCC Parameters:	
HSI Calibration Value	16
MSI Calibration Value	0
MSI Auto Calibration	Disabled
HSE Startup Timout Value (ms)	100
LSE Startup Timout Value (ms)	5000
Power Parameters:	
Power Regulator Voltage Scale	Power Regulator Voltage Scale 1

5.2. SYS

Timebase Source: SysTick

5.3. TIM2

Clock Source : Internal Clock
Channel1: PWM Generation CH1
mode: One Pulse Mode

5.3.1. Parameter Settings:

Counter Settings:	
Prescaler (PSC - 16 bits value)	**80 ***

Counter Mode	Up
Counter Period (AutoReload Register - 32 bits value)	**60 ***
Internal Clock Division (CKD)	No Division

Trigger Output (TRGO) Parameters:

Master/Slave Mode	Disable (no sync between this TIM (Master) and its Slaves
Trigger Event Selection TRGO	Reset (UG bit from TIMx_EGR)

Clear Input:

Clear Input Source	Disable

PWM Generation Channel 1:

Mode	**PWM mode 2 ***
Pulse (32 bits value)	**10 ***
Fast Mode	Disable
CH Polarity	High

*** User modified value**

6. System Configuration

6.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
RCC	PC14/OSC32_IN	RCC_OSC32_IN	n/a	n/a	n/a	
	PC15/OSC32_OUT	RCC_OSC32_OUT	n/a	n/a	n/a	
	PA8	RCC_MCO	Alternate Function Push Pull	No pull-up and no pull-down	Low	SENS_CLK
TIM2	PA15	TIM2_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	SENS_ST
Single Mapped Signals	PH0/OSC_IN	RCC_OSC_IN	n/a	n/a	n/a	
	PH1/OSC_OUT	RCC_OSC_OUT	n/a	n/a	n/a	
	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
GPIO	PC13	GPIO_EXTI13	**External Interrupt Mode with Falling edge trigger detection**	No pull-up and no pull-down	n/a	B1 [Blue PushButton]
	PC0	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PC1	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PC2	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PC3	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PA0	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PA1	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PA2	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PA3	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PA4	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PA5	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PA6	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PA7	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PC4	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PC5	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PC6	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
	PC7	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PC8	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	EXTADC_EN
	PC9	GPIO_EXTI9	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	SENS_TRG
	PD2	GPIO_EXTI2	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	EXTADC1_BUSY

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
Prefetch 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 line2 interrupt	true	0	0
EXTI line[9:5] interrupts	true	0	0
TIM2 global interrupt	true	0	0
EXTI line[15:10] interrupts	true	0	0
PVD/PVM1/PVM2/PVM3/PVM4 interrupts through EXTI lines 16/35/36/37/38	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
FPU global interrupt	unused		

*** User modified value**

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32L4
Line	STM32L4x6
MCU	STM32L476RGTx
Datasheet	025976_Rev4

7.2. Parameter Selection

Temperature	25
Vdd	3.0

8. Software Project

8.1. Project Settings

Name	Value
Project Name	minispec_v_alpha_3
Project Folder	/home/rg/ufz/1 MICRO SPEC 2.0/software_devl/minispec_v_alpha_3
Toolchain / IDE	SW4STM32
Firmware Package Name and Version	STM32Cube FW_L4 V1.7.0

8.2. 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	No
Delete previously generated files when not re-generated	Yes
Set all free pins as analog (to optimize the power consumption)	No