1. Description

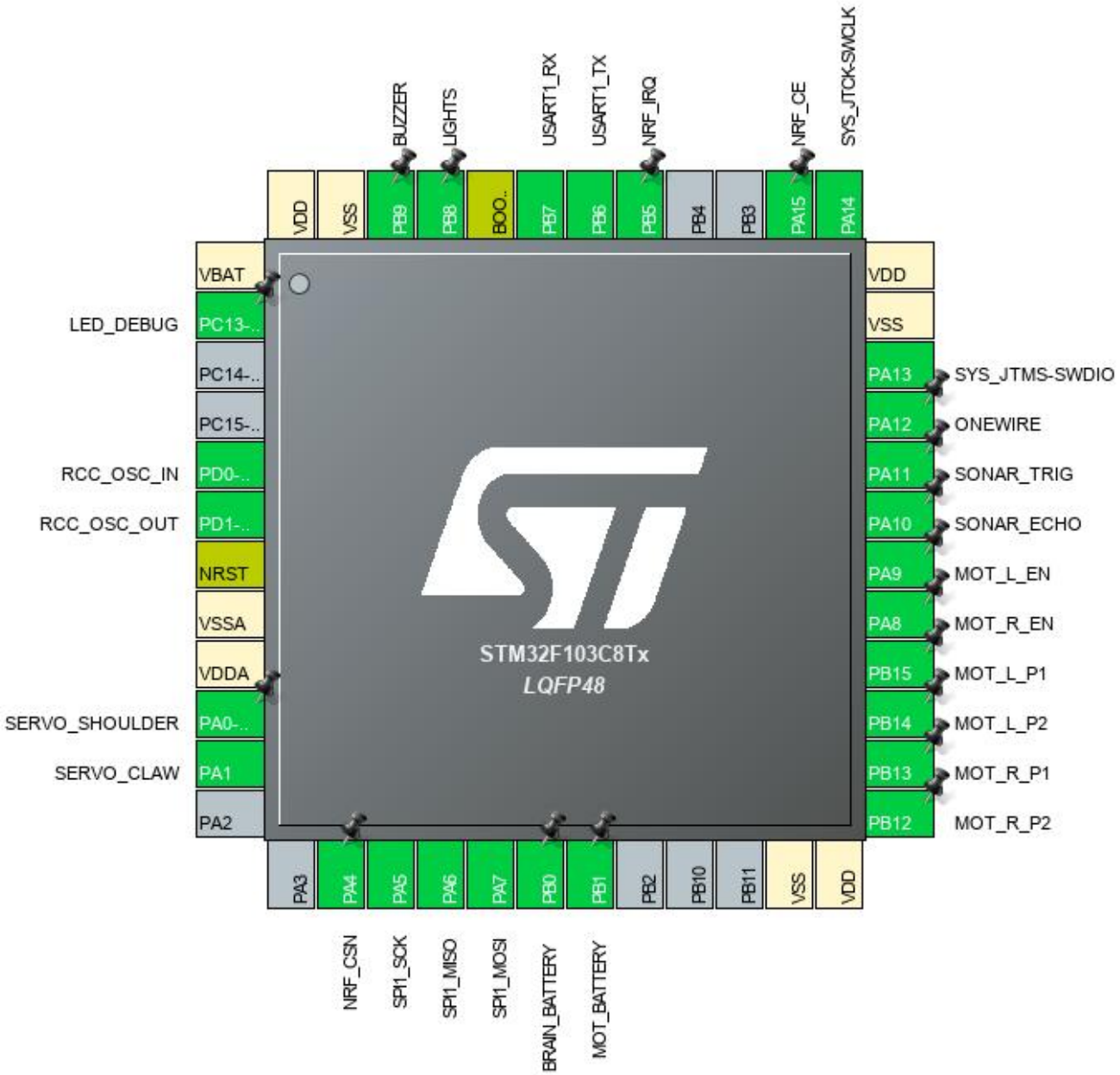
1.1. Project

Project Name	DUMRON
Board Name	custom
Generated with:	STM32CubeMX 5.3.0
Date	09/22/2019

1.2. MCU

MCU Series	STM32F1
MCU Line	STM32F103
MCU name	STM32F103C8Tx
MCU Package	LQFP48
MCU Pin number	48

2. Pinout Configuration



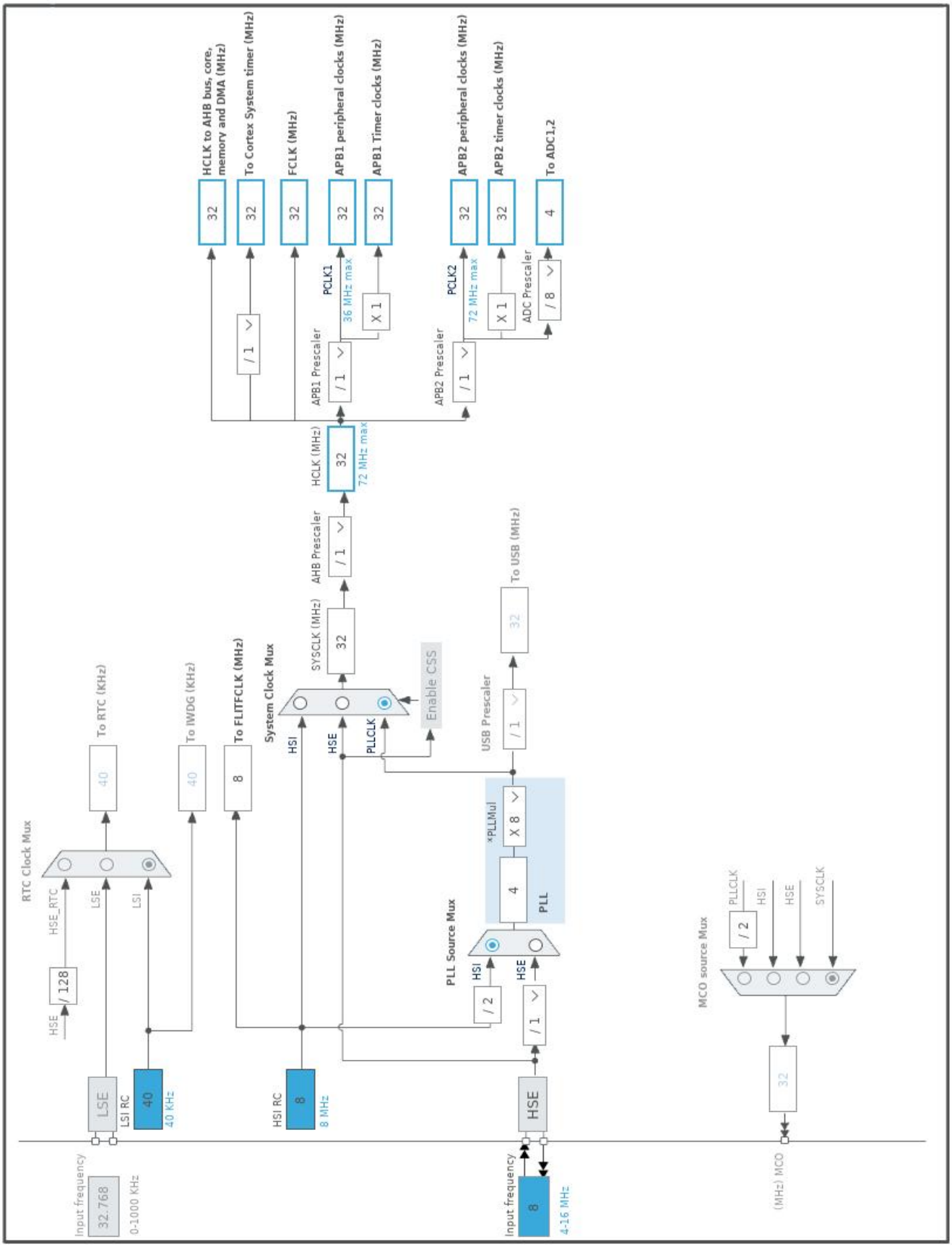
3. Pins Configuration

Pin Number LQFP48	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VBAT	Power		
2	PC13-TAMPER-RTC *	I/O	GPIO_Output	LED_DEBUG
5	PD0-OSC_IN	I/O	RCC_OSC_IN	
6	PD1-OSC_OUT	I/O	RCC_OSC_OUT	
7	NRST	Reset		
8	VSSA	Power		
9	VDDA	Power		
10	PA0-WKUP	I/O	TIM2_CH1	SERVO_SHOULDER
11	PA1	I/O	TIM2_CH2	SERVO_CLAW
14	PA4 *	I/O	GPIO_Output	NRF_CSN
15	PA5	I/O	SPI1_SCK	
16	PA6	I/O	SPI1_MISO	
17	PA7	I/O	SPI1_MOSI	
18	PB0	I/O	ADC1_IN8	BRAIN_BATTERY
19	PB1	I/O	ADC1_IN9	MOT_BATTERY
23	VSS	Power		
24	VDD	Power		
25	PB12 *	I/O	GPIO_Output	MOT_R_P2
26	PB13 *	I/O	GPIO_Output	MOT_R_P1
27	PB14 *	I/O	GPIO_Output	MOT_L_P2
28	PB15 *	I/O	GPIO_Output	MOT_L_P1
29	PA8	I/O	TIM1_CH1	MOT_R_EN
30	PA9	I/O	TIM1_CH2	MOT_L_EN
31	PA10 *	I/O	GPIO_Input	SONAR_ECHO
32	PA11 *	I/O	GPIO_Output	SONAR_TRIG
33	PA12 *	I/O	GPIO_Output	ONEWIRE
34	PA13	I/O	SYS_JTMS-SWDIO	
35	VSS	Power		
36	VDD	Power		
37	PA14	I/O	SYS_JTCK-SWCLK	
38	PA15 *	I/O	GPIO_Output	NRF_CE
41	PB5	I/O	GPIO_EXTI5	NRF_IRQ
42	PB6	I/O	USART1_TX	
43	PB7	I/O	USART1_RX	
44	BOOT0	Boot		
45	PB8 *	I/O	GPIO_Output	LIGHTS

Pin Number LQFP48	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
46	PB9 *	I/O	GPIO_Output	BUZZER
47	VSS	Power		
48	VDD	Power		

* The pin is affected with an I/O function

4. Clock Tree Configuration



5. Software Project

5.1. Project Settings

Name	Value
Project Name	DUMRON
Project Folder	/home/danya/STM32CubeIDE/workspace_1.0.2/DUMRON
Toolchain / IDE	STM32CubeIDE
Firmware Package Name and Version	STM32Cube FW_F1 V1.8.0

5.2. Code Generation Settings

Name	Value
STM32Cube MCU packages and embedded software	Copy only the necessary library files
Generate peripheral initialization as a pair of '.c/.h' files	No
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

6. Power Consumption Calculator report

6.1. Microcontroller Selection

Series	STM32F1
Line	STM32F103
MCU	STM32F103C8Tx
Datasheet	13587_Rev17

6.2. Parameter Selection

Temperature	25
Vdd	3.3

7. IPs and Middleware Configuration

7.1. ADC1

mode: IN8

mode: IN9

7.1.1. Parameter Settings:

n_Settings:

	Independent mode
	Right alignment
ode	Disabled
ion Mode	Disabled
ersion Mode	Disabled

ConversionMode:

versions	Enable
on	1
nversion Source	Regular Conversion launched by software
	1
	Channel 8
	1.5 Cycles

ConversionMode:

ons	0
hDog Mode	false

7.2. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

7.2.1. Parameter Settings:

eters:

	3.3
	Enabled
	1 WS (2 CPU cycle)

s:

e	16
Value (ms)	100
Value (ms)	5000

7.3. SPI1

Mode: Full-Duplex Master

7.3.1. Parameter Settings:

ers:

	Motorola
	8 Bits
	MSB First

ers:

Rate)	**64 ***
	500.0 KBits/s *
L)	Low
)	1 Edge

meters:

	Disabled
	Software

7.4. SYS

Debug: Serial Wire

Timebase Source: TIM4

7.5. TIM1

Clock Source : Internal Clock

Channel1: PWM Generation CH1

Channel2: PWM Generation CH2

7.5.1. Parameter Settings:

gs:

bits value)	**1023 ***
	Up
oReload Register - 16 bits value)	**255 ***
on (CKD)	No Division
RCR - 8 bits value)	0
	Disable

(TRGO) Parameters:

(MSM bit)	Disable (Trigger input effect not delayed)
ion	Reset (UG bit from TIMx_EGR)

d Time management - BRK Configuration:

	Disable
	High

d Time management - Output Configuration:

ate	Disable
or Run Mode (OSSR)	Disable
or Idle Mode (OSSI)	Disable
	Off

n Channel 1:

	PWM mode 1
	0
	Disable
	High
	Reset

n Channel 2:

	PWM mode 1
	0
	Disable
	High
	Reset

7.6. TIM2

Clock Source : Internal Clock

Channel1: PWM Generation CH1

Channel2: PWM Generation CH2

7.6.1. Parameter Settings:

gs:

bits value)	0
	Up
oReload Register - 16 bits value)	0
on (CKD)	No Division
	Disable

(TRGO) Parameters:

(MSM bit)	Disable (Trigger input effect not delayed)
ion	Reset (UG bit from TIMx_EGR)

n Channel 1:

PWM mode 1

0

Disable

High

n Channel 2:

PWM mode 1

0

Disable

High

7.7. USART1

Mode: Asynchronous

7.7.1. Parameter Settings:

rs:

115200

8 Bits (including Parity)

None

1

meters:

Receive and Transmit

16 Samples

7.8. FREERTOS

Interface: CMSIS_V1

7.8.1. Config parameters:

CMSIS v1

10.0.1

on 1.02

:

l Enabled

SystemCoreClock

80 *

	7
IZE	128
_LEN	16
S	Disabled
LD	Enabled
	Enabled
MUTEXES	Disabled
EMAPHORES	Disabled
_SIZE	8
_TASK_TAG	Disabled
RD_COMPATIBILITY	Enabled
ISED_TASK_SELECTION	Enabled
LE	Disabled
CATIONS	Enabled
HIGH_ADDRESS	Disabled

ement settings:

	Dynamic
E	**8192 ***
nt scheme	**heap_1 ***

related definitions:

	Disabled
	Disabled
LED_HOOK	Disabled
SK_STARTUP_HOOK	Disabled
CK_OVERFLOW	Disabled

ask stats gathering related definitions:

TIME_STATS	Disabled
LITY	Disabled
MATTING_FUNCTIONS	Disabled

ted definitions:

ES	Disabled
E_PRIORITIES	2

definitions:

	Disabled

g behaviour configuration:

_INTERRUPT_PRIORITY	15
SCALL_INTERRUPT_PRIORITY	5

7.8.2. Include parameters:

ons:

	Enabled
	Enabled
	Disabled *
urces	Disabled
	Enabled
	Disabled
	Enabled
State	Enabled
SR	Enabled
lder	Disabled
exHolder	Disabled
e	Disabled
nWaterMark	Disabled
skHandle	Disabled
	Disabled
romISR	Disabled
Call	Disabled
	Disabled
	Disabled

*** User modified value**

8. System Configuration

8.1. GPIO configuration

in	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	
B0	ADC1_IN8	Analog mode	n/a	n/a	
B1	ADC1_IN9	Analog mode	n/a	n/a	
SC_IN	RCC_OSC_IN	n/a	n/a	n/a	
SC_OUT	RCC_OSC_OUT	n/a	n/a	n/a	
A5	SPI1_SCK	Alternate Function Push Pull	n/a	**High ***	
A6	SPI1_MISO	Input mode	No pull-up and no pull-down	**n/a**	
A7	SPI1_MOSI	Alternate Function Push Pull	n/a	**High ***	
A13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
A14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
A8	TIM1_CH1	Alternate Function Push Pull	n/a	Low	
A9	TIM1_CH2	Alternate Function Push Pull	n/a	Low	
WKUP	TIM2_CH1	Alternate Function Push Pull	n/a	Low	
A1	TIM2_CH2	Alternate Function Push Pull	n/a	Low	
B6	USART1_TX	Alternate Function Push Pull	n/a	**High ***	
B7	USART1_RX	Input mode	No pull-up and no pull-down	**n/a**	
AMPER-TC	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
A4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
312	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
313	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
314	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
315	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
A10	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	
A11	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
A12	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
A15	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
B5	GPIO_EXTI5	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	
B8	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
B9	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	

8.2. DMA configuration

nothing configured in DMA service

8.3. NVIC configuration

Interrupt Table	Enable	Preenmption Priority	SubPriori
Non maskable interrupt	true	0	0
Hard fault interrupt	true	0	0
Memory management fault	true	0	0
refetch fault, memory access fault	true	0	0
ndefined instruction or illegal state	true	0	0
stem service call via SWI instruction	true	0	0
Debug monitor	true	0	0
endable request for system service	true	15	0
System tick timer	true	15	0
TIM4 global interrupt	true	0	0
VD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
ADC1 and ADC2 global interrupts	unused		
EXTI line[9:5] interrupts	unused		
TIM1 break interrupt	unused		
TIM1 update interrupt	unused		
1 trigger and commutation interrupts	unused		
TIM1 capture compare interrupt	unused		
TIM2 global interrupt	unused		
SPI1 global interrupt	unused		
USART1 global interrupt	unused		

*** User modified value**

9. Software Pack Report