1. Description

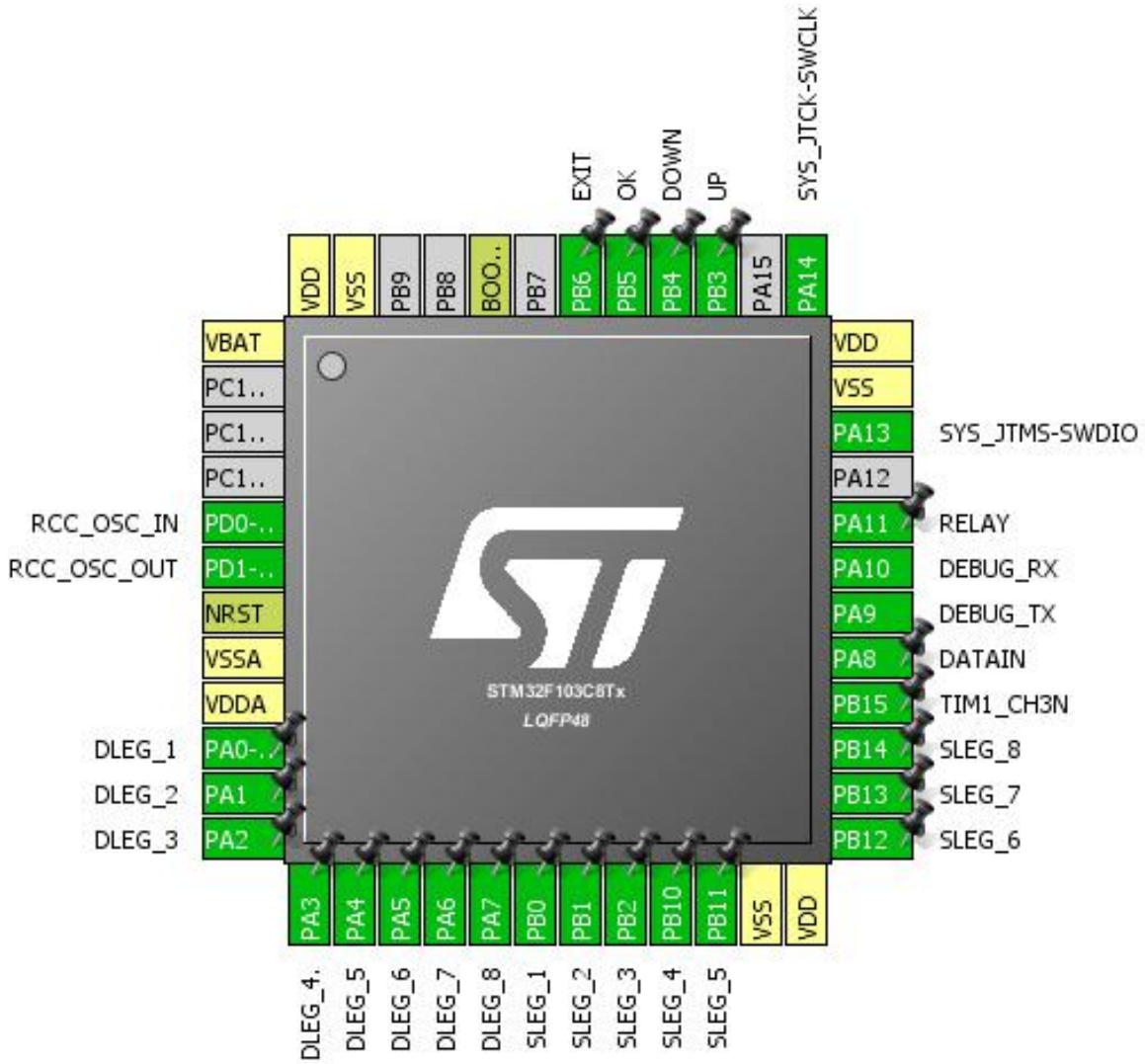
1.1. Project

Project Name	T023
Board Name	custom
Generated with:	STM32CubeMX 4.27.0
Date	09/18/2019

1.2. MCU

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

2. Pinout Configuration



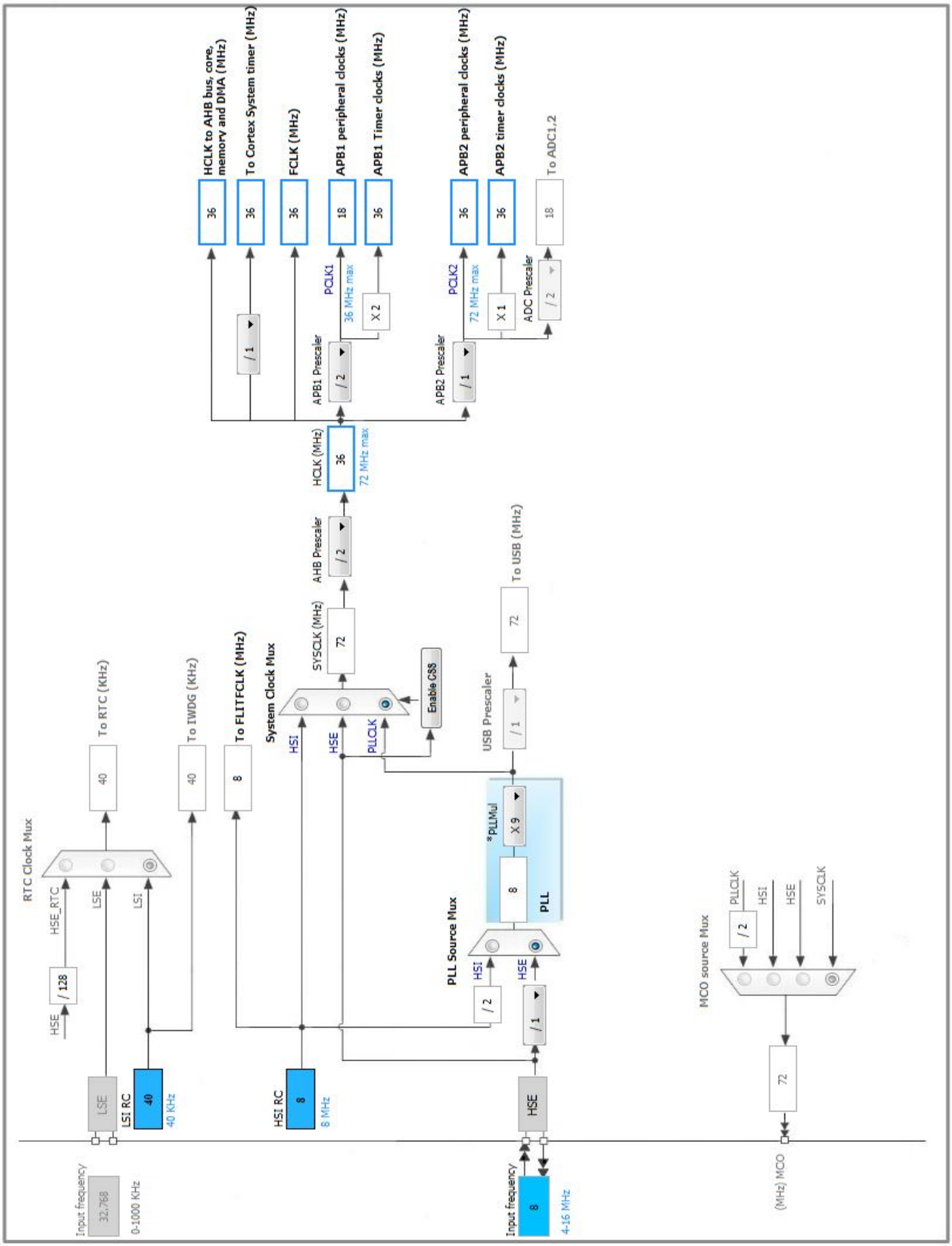
3. Pins Configuration

Pin Number LQFP48	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VBAT	Power		
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	GPIO_Output	DLEG_1
11	PA1 *	I/O	GPIO_Output	DLEG_2
12	PA2 *	I/O	GPIO_Output	DLEG_3
13	PA3 *	I/O	GPIO_Output	DLEG_4.
14	PA4 *	I/O	GPIO_Output	DLEG_5
15	PA5 *	I/O	GPIO_Output	DLEG_6
16	PA6 *	I/O	GPIO_Output	DLEG_7
17	PA7 *	I/O	GPIO_Output	DLEG_8
18	PB0 *	I/O	GPIO_Output	SLEG_1
19	PB1 *	I/O	GPIO_Output	SLEG_2
20	PB2 *	I/O	GPIO_Output	SLEG_3
21	PB10 *	I/O	GPIO_Output	SLEG_4
22	PB11 *	I/O	GPIO_Output	SLEG_5
23	VSS	Power		
24	VDD	Power		
25	PB12 *	I/O	GPIO_Output	SLEG_6
26	PB13 *	I/O	GPIO_Output	SLEG_7
27	PB14 *	I/O	GPIO_Output	SLEG_8
28	PB15	I/O	TIM1_CH3N	
29	PA8 *	I/O	GPIO_Input	DATAIN
30	PA9	I/O	USART1_TX	DEBUG_TX
31	PA10	I/O	USART1_RX	DEBUG_RX
32	PA11 *	I/O	GPIO_Output	RELAY
34	PA13	I/O	SYS_JTMS-SWDIO	
35	VSS	Power		
36	VDD	Power		
37	PA14	I/O	SYS_JTCK-SWCLK	
39	PB3 *	I/O	GPIO_Input	UP
40	PB4 *	I/O	GPIO_Input	DOWN
41	PB5 *	I/O	GPIO_Input	OK

Pin Number LQFP48	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
42	PB6 *	I/O	GPIO_Input	EXIT
44	BOOT0	Boot		
47	VSS	Power		
48	VDD	Power		

* The pin is affected with an I/O function

4. Clock Tree Configuration



5. IPs and Middleware Configuration

5.1. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

5.1.1. Parameter Settings:

System Parameters:

VDD voltage (V)	3.3
Prefetch Buffer	Enabled
Flash Latency(WS)	2 WS (3 CPU cycle)

RCC Parameters:

HSI Calibration Value	16
HSE Startup Timout Value (ms)	100
LSE Startup Timout Value (ms)	5000

5.2. SYS

Debug: Serial Wire

Timebase Source: SysTick

5.3. TIM1

Clock Source : Internal Clock

Channel3: PWM Generation CH3N

5.3.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**35 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**999 ***
Internal Clock Division (CKD)	No Division
Repetition Counter (RCR - 8 bits value)	0
auto-reload preload	Disable

Trigger Output (TRGO) Parameters:

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

Break And Dead Time management - BRK Configuration:

BRK State	Disable
BRK Polarity	High

Break And Dead Time management - Output Configuration:

Automatic Output State	Disable
Off State Selection for Run Mode (OSSR)	Disable
Off State Selection for Idle Mode (OSSI)	Disable
Lock Configuration	Off

PWM Generation Channel 3N:

Mode	PWM mode 1
Pulse (16 bits value)	0
Fast Mode	**Enable ***
CHN Polarity	High
CHN Idle State	Reset

5.4. TIM4

mode: Clock Source

5.4.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**179 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**99 ***
Internal Clock Division (CKD)	No Division
auto-reload preload	Disable

Trigger Output (TRGO) Parameters:

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

5.5. USART1

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
RCC	PD0-OSC_IN	RCC_OSC_IN	n/a	n/a	n/a	
	PD1-OSC_OUT	RCC_OSC_OUT	n/a	n/a	n/a	
SYS	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
TIM1	PB15	TIM1_CH3N	Alternate Function Push Pull	n/a	Low	
USART1	PA9	USART1_TX	Alternate Function Push Pull	n/a	**High ***	DEBUG_TX
	PA10	USART1_RX	Input mode	No pull-up and no pull-down	**n/a**	DEBUG_RX
GPIO	PA0-WKUP	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	DLEG_1
	PA1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	DLEG_2
	PA2	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	DLEG_3
	PA3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	DLEG_4.
	PA4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	DLEG_5
	PA5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	DLEG_6
	PA6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	DLEG_7
	PA7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	DLEG_8
	PB0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SLEG_1
	PB1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SLEG_2
	PB2	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SLEG_3
	PB10	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SLEG_4
	PB11	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SLEG_5
	PB12	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SLEG_6
	PB13	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SLEG_7
	PB14	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SLEG_8
	PA8	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	DATAIN
	PA11	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	RELAY
	PB3	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	UP
	PB4	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	DOWN
	PB5	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	OK
	PB6	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	EXIT

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
TIM4 global interrupt	true	0	0
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
TIM1 break interrupt	unused		
TIM1 update interrupt	unused		
TIM1 trigger and commutation interrupts	unused		
TIM1 capture compare interrupt	unused		
USART1 global interrupt	unused		

*** User modified value**

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F1
Line	STM32F103
MCU	STM32F103C8Tx
Datasheet	13587_Rev17

7.2. Parameter Selection

Temperature	25
Vdd	3.3

8. Software Project

8.1. Project Settings

Name	Value
Project Name	T023.1903
Project Folder	D:\Minhneo\Git\T023.1903
Toolchain / IDE	MDK-ARM V5
Firmware Package Name and Version	STM32Cube FW_F1 V1.6.1

8.2. Code Generation Settings

Name	Value
STM32Cube Firmware Library Package	Add necessary library files as reference in the toolchain project configuration file
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

9. Software Pack Report