1. Description

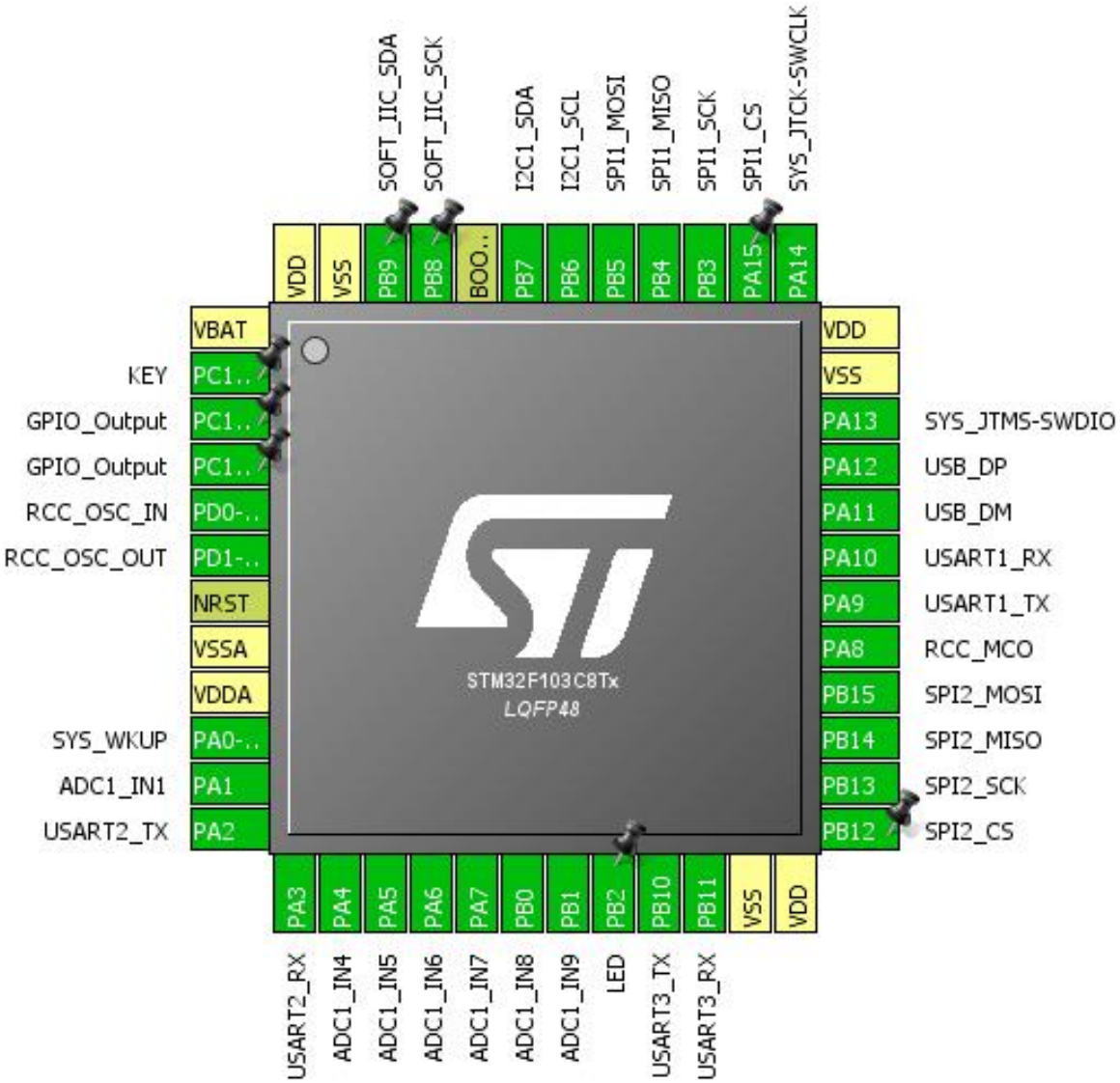
1.1. Project

Project Name	F103C8T6
Board Name	custom
Generated with:	STM32CubeMX 4.27.0
Date	08/21/2020

1.2. MCU

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

2. Pinout Configuration



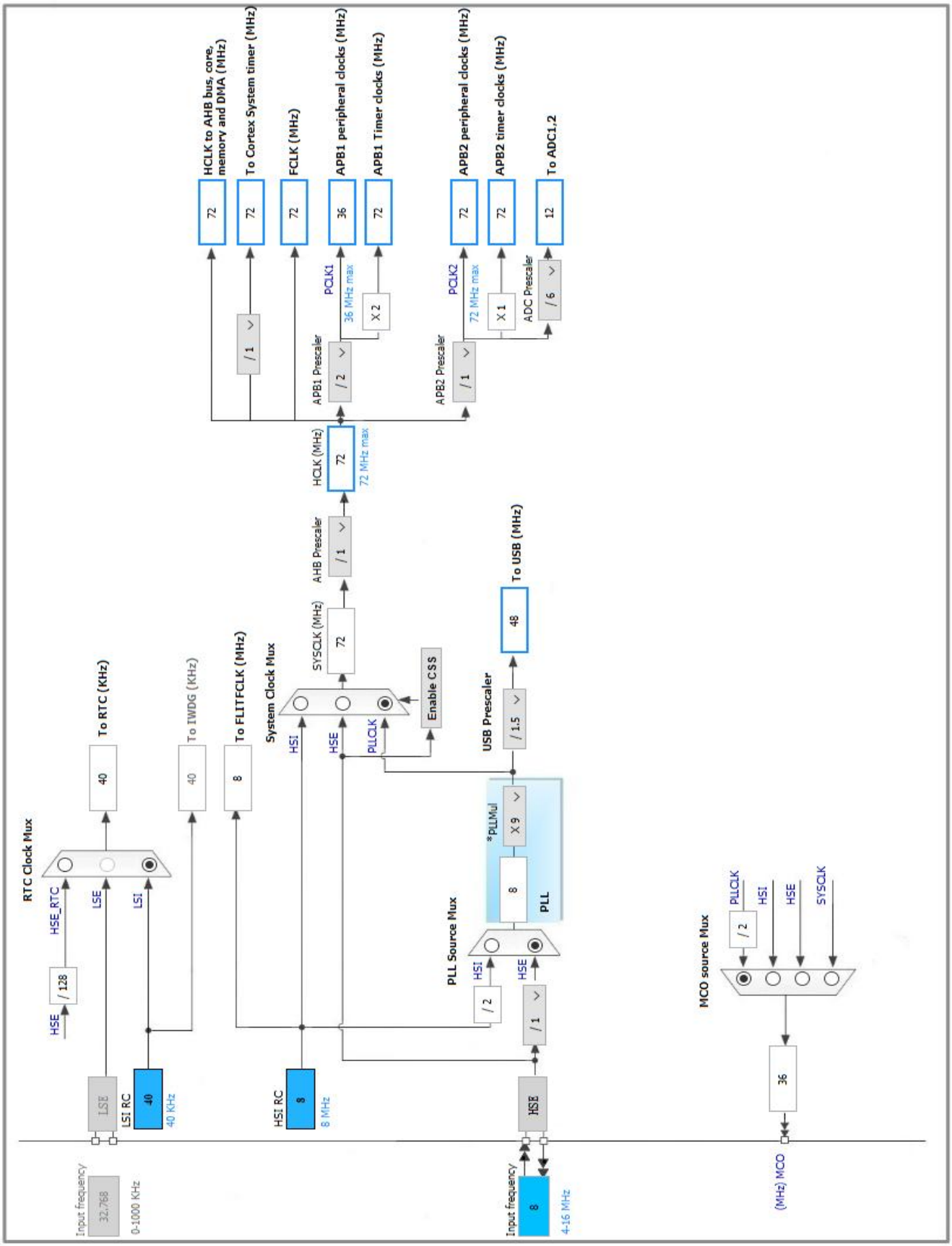
3. Pins Configuration

Pin Number LQFP48	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VBAT	Power		
2	PC13-TAMPER-RTC *	I/O	GPIO_Input	KEY
3	PC14-OSC32_IN *	I/O	GPIO_Output	
4	PC15-OSC32_OUT *	I/O	GPIO_Output	
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	SYS_WKUP	
11	PA1	I/O	ADC1_IN1	
12	PA2	I/O	USART2_TX	
13	PA3	I/O	USART2_RX	
14	PA4	I/O	ADC1_IN4	
15	PA5	I/O	ADC1_IN5	
16	PA6	I/O	ADC1_IN6	
17	PA7	I/O	ADC1_IN7	
18	PB0	I/O	ADC1_IN8	
19	PB1	I/O	ADC1_IN9	
20	PB2 *	I/O	GPIO_Output	LED
21	PB10	I/O	USART3_TX	
22	PB11	I/O	USART3_RX	
23	VSS	Power		
24	VDD	Power		
25	PB12 *	I/O	GPIO_Output	SPI2_CS
26	PB13	I/O	SPI2_SCK	
27	PB14	I/O	SPI2_MISO	
28	PB15	I/O	SPI2_MOSI	
29	PA8	I/O	RCC_MCO	
30	PA9	I/O	USART1_TX	
31	PA10	I/O	USART1_RX	
32	PA11	I/O	USB_DM	
33	PA12	I/O	USB_DP	
34	PA13	I/O	SYS_JTMS-SWDIO	
35	VSS	Power		
36	VDD	Power		

Pin Number LQFP48	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
37	PA14	I/O	SYS_JTCK-SWCLK	
38	PA15 *	I/O	GPIO_Output	SPI1_CS
39	PB3	I/O	SPI1_SCK	
40	PB4	I/O	SPI1_MISO	
41	PB5	I/O	SPI1_MOSI	
42	PB6	I/O	I2C1_SCL	
43	PB7	I/O	I2C1_SDA	
44	BOOT0	Boot		
45	PB8 *	I/O	GPIO_Output	SOFT_IIC_SCK
46	PB9 *	I/O	GPIO_Output	SOFT_IIC_SDA
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. ADC1

mode: IN1

mode: IN4

mode: IN5

mode: IN6

mode: IN7

mode: IN8

mode: IN9

mode: Temperature Sensor Channel

5.1.1. Parameter Settings:

ADCs_Common_Settings:

Mode	Independent mode

ADC_Settings:

Data Alignment	Right alignment
Scan Conversion Mode	Disabled
Continuous Conversion Mode	Disabled
Discontinuous Conversion Mode	Disabled

ADC_Regular_ConversionMode:

Enable Regular Conversions	Enable
Number Of Conversion	1
External Trigger Conversion Source	Regular Conversion launched by software
Rank	1
Channel	**Channel 4 ***
Sampling Time	1.5 Cycles

ADC_Injected_ConversionMode:

Number Of Conversions	0

WatchDog:

Enable Analog WatchDog Mode	false

5.2. CRC

mode: Activated

5.3. I2C1

I2C: I2C

5.3.1. Parameter Settings:

Master Features:

I2C Speed Mode	Standard Mode
I2C Clock Speed (Hz)	100000

Slave Features:

Clock No Stretch Mode	Disabled
Primary Address Length selection	7-bit
Dual Address Acknowledged	Disabled
Primary slave address	0
General Call address detection	Disabled

5.4. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

mode: Master Clock Output

5.4.1. 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

5.5. RTC

mode: Activate Clock Source

5.5.1. Parameter Settings:

Calendar Time:

Data Format	BCD data format

General:

Auto Predivider Calculation	Enabled
Asynchronous Predivider value	Automatic Predivider Calculation Enabled

Output	Alarm pulse signal on the TAMPER pin

5.6. SPI1

Mode: Full-Duplex Master

5.6.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	8 Bits
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	**4 ***
Baud Rate	**18.0 MBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSS Signal Type	Software

5.7. SPI2

Mode: Full-Duplex Master

5.7.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	8 Bits
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	2
Baud Rate	**18.0 MBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSS Signal Type	Software

5.8. SYS

Debug: Serial Wire

mode: System Wake-Up

Timebase Source: SysTick

5.9. USART1

Mode: Asynchronous

5.9.1. 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

5.10. USART2

Mode: Asynchronous

5.10.1. 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

5.11. USART3

Mode: Asynchronous

5.11.1. 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

5.12. USB

mode: Device (FS)

5.12.1. Parameter Settings:

Basic Parameters:

Speed	Full Speed 12MBit/s
Endpoint 0 Max Packet size	8 Bytes

Power Parameters:

Low Power	Disabled
Link Power Management	Disabled
Battery Charging	Disabled

*** User modified value**

6. System Configuration

6.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
ADC1	PA1	ADC1_IN1	Analog mode	n/a	n/a	
	PA4	ADC1_IN4	Analog mode	n/a	n/a	
	PA5	ADC1_IN5	Analog mode	n/a	n/a	
	PA6	ADC1_IN6	Analog mode	n/a	n/a	
	PA7	ADC1_IN7	Analog mode	n/a	n/a	
	PB0	ADC1_IN8	Analog mode	n/a	n/a	
	PB1	ADC1_IN9	Analog mode	n/a	n/a	
I2C1	PB6	I2C1_SCL	Alternate Function Open Drain	n/a	**High ***	
	PB7	I2C1_SDA	Alternate Function Open Drain	n/a	**High ***	
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	
	PA8	RCC_MCO	Alternate Function Push Pull	n/a	Low	
SPI1	PB3	SPI1_SCK	Alternate Function Push Pull	n/a	**High ***	
	PB4	SPI1_MISO	Input mode	No pull-up and no pull-down	**n/a**	
	PB5	SPI1_MOSI	Alternate Function Push Pull	n/a	**High ***	
SPI2	PB13	SPI2_SCK	Alternate Function Push Pull	n/a	**High ***	
	PB14	SPI2_MISO	Input mode	No pull-up and no pull-down	**n/a**	
	PB15	SPI2_MOSI	Alternate Function Push Pull	n/a	**High ***	
SYS	PA0-WKUP	SYS_WKUP	n/a	n/a	n/a	
	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
USART1	PA9	USART1_TX	Alternate Function Push Pull	n/a	**High ***	
	PA10	USART1_RX	Input mode	No pull-up and no pull-down	**n/a**	
USART2	PA2	USART2_TX	Alternate Function Push Pull	n/a	**High ***	
	PA3	USART2_RX	Input mode	No pull-up and no pull-down	**n/a**	
USART3	PB10	USART3_TX	Alternate Function Push Pull	n/a	**High ***	
	PB11	USART3_RX	Input mode	No pull-up and no pull-down	**n/a**	
USB	PA11	USB_DM	n/a	n/a	n/a	
	PA12	USB_DP	n/a	n/a	n/a	

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
GPIO	PC13-TAMPER-RTC	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	KEY
	PC14-OSC32_IN	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PC15-OSC32_OUT	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PB2	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED
	PB12	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SPI2_CS
	PA15	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SPI1_CS
	PB8	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SOFT_IIC_SCK
	PB9	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SOFT_IIC_SDA

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
PVD interrupt through EXTI line 16	unused		
RTC global interrupt	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
ADC1 and ADC2 global interrupts	unused		
USB high priority or CAN TX interrupts	unused		
USB low priority or CAN RX0 interrupts	unused		
I2C1 event interrupt	unused		
I2C1 error interrupt	unused		
SPI1 global interrupt	unused		
SPI2 global interrupt	unused		
USART1 global interrupt	unused		
USART2 global interrupt	unused		
USART3 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	F103C8T6
Project Folder	E:\Project_Code\STM32\STM32F103C8T6\103C8T6_2
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	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

9. Software Pack Report