1. Description

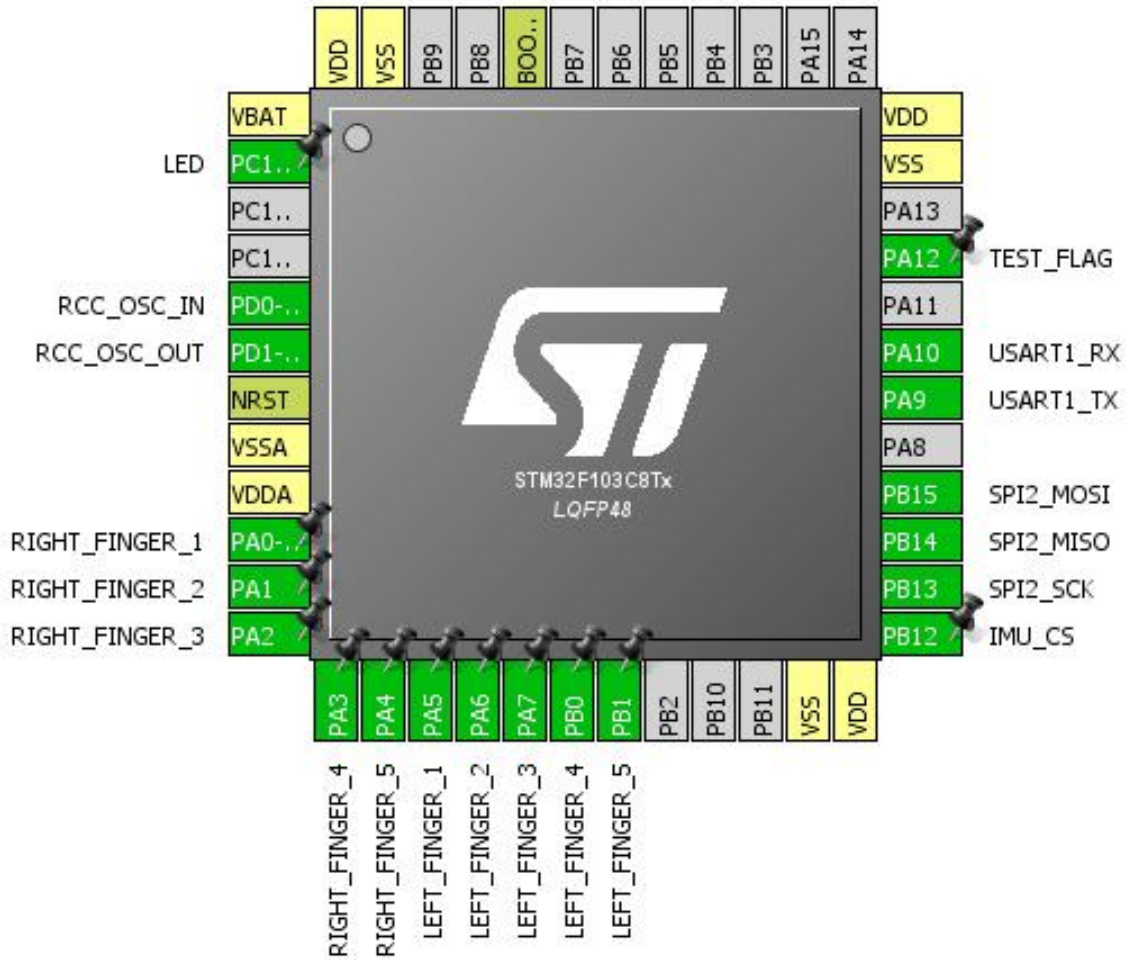
1.1. Project

Project Name	t3
Board Name	t3
Generated with:	STM32CubeMX 4.23.0
Date	05/17/2018

1.2. MCU

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

2. Pinout Configuration

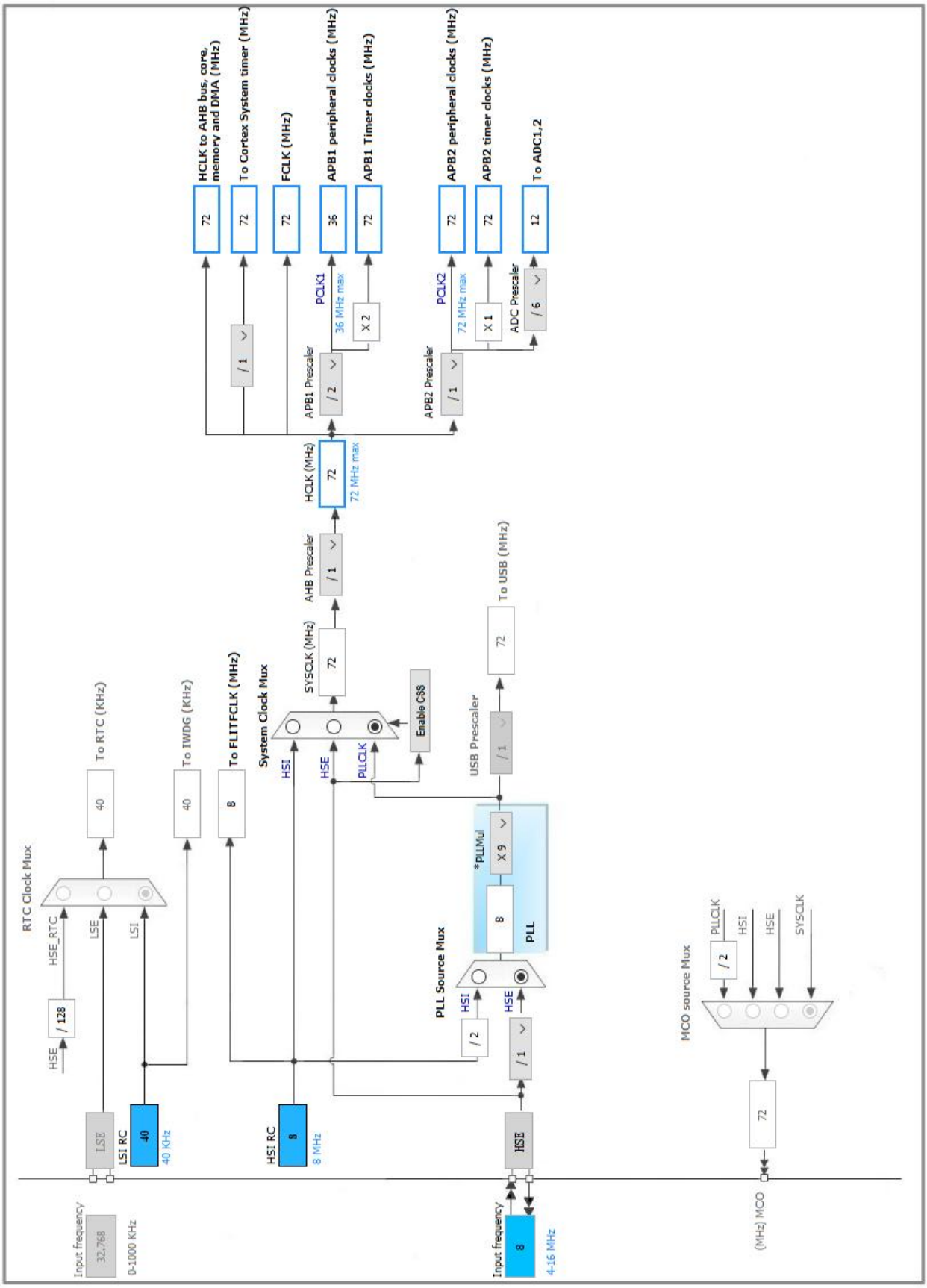


3. Pins Configuration

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
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	ADC1_IN0	RIGHT_FINGER_1
11	PA1	I/O	ADC1_IN1	RIGHT_FINGER_2
12	PA2	I/O	ADC1_IN2	RIGHT_FINGER_3
13	PA3	I/O	ADC1_IN3	RIGHT_FINGER_4
14	PA4	I/O	ADC1_IN4	RIGHT_FINGER_5
15	PA5	I/O	ADC2_IN5	LEFT_FINGER_1
16	PA6	I/O	ADC2_IN6	LEFT_FINGER_2
17	PA7	I/O	ADC2_IN7	LEFT_FINGER_3
18	PB0	I/O	ADC2_IN8	LEFT_FINGER_4
19	PB1	I/O	ADC2_IN9	LEFT_FINGER_5
23	VSS	Power		
24	VDD	Power		
25	PB12 *	I/O	GPIO_Output	IMU_CS
26	PB13	I/O	SPI2_SCK	
27	PB14	I/O	SPI2_MISO	
28	PB15	I/O	SPI2_MOSI	
30	PA9	I/O	USART1_TX	
31	PA10	I/O	USART1_RX	
33	PA12 *	I/O	GPIO_Output	TEST_FLAG
35	VSS	Power		
36	VDD	Power		
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. ADC1

mode: IN0

mode: IN1

mode: IN2

mode: IN3

mode: IN4

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	**Disable ***

ADC_Injected_ConversionMode:

Number Of Conversions	0

5.2. ADC2

mode: IN5

mode: IN6

mode: IN7

mode: IN8

mode: IN9

5.2.1. 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 9 ***
Sampling Time	1.5 Cycles

ADC_Injected_ConversionMode:

Number Of Conversions	0

WatchDog:

Enable Analog WatchDog Mode	false

5.3. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

5.3.1. 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

5.4. SPI2

Mode: Full-Duplex Master

5.4.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	8 Bits
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	**64 ***
Baud Rate	**562.5 KBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSS Signal Type	Software

5.5. SYS

Debug: No Debug

Timebase Source: SysTick

5.6. TIM2

Clock Source : Internal Clock

5.6.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**72-1 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**1000-1 ***
Internal Clock Division (CKD)	No Division
auto-reload preload	Disable

Trigger Output (TRGO) Parameters:

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

5.7. USART1

Mode: Asynchronous

5.7.1. 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
ADC1	PA0-WKUP	ADC1_IN0	Analog mode	n/a	n/a	RIGHT_FINGER_1
	PA1	ADC1_IN1	Analog mode	n/a	n/a	RIGHT_FINGER_2
	PA2	ADC1_IN2	Analog mode	n/a	n/a	RIGHT_FINGER_3
	PA3	ADC1_IN3	Analog mode	n/a	n/a	RIGHT_FINGER_4
	PA4	ADC1_IN4	Analog mode	n/a	n/a	RIGHT_FINGER_5
ADC2	PA5	ADC2_IN5	Analog mode	n/a	n/a	LEFT_FINGER_1
	PA6	ADC2_IN6	Analog mode	n/a	n/a	LEFT_FINGER_2
	PA7	ADC2_IN7	Analog mode	n/a	n/a	LEFT_FINGER_3
	PB0	ADC2_IN8	Analog mode	n/a	n/a	LEFT_FINGER_4
	PB1	ADC2_IN9	Analog mode	n/a	n/a	LEFT_FINGER_5
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	
SPI2	PB13	SPI2_SCK	Alternate Function Push Pull	n/a	**High ***	
	PB14	SPI2_MISO	Input mode	*****	**n/a**	
	PB15	SPI2_MOSI	Alternate Function Push Pull	**n/a**	**High ***	
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**	
GPIO	PC13-TAMPER-RTC	GPIO_Output	Output Push Pull	n/a	Low	LED
	PB12	GPIO_Output	Output Push Pull	n/a	Low	IMU_CS
	PA12	GPIO_Output	Output Push Pull	n/a	Low	TEST_FLAG

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
TIM2 global interrupt	true	0	0
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
ADC1 and ADC2 global interrupts	unused		
SPI2 global 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	t3
Project Folder	F:\WorkSpace_2018\MusicHand\Code\t4\t3
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 all used libraries into the project folder
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