1. Description

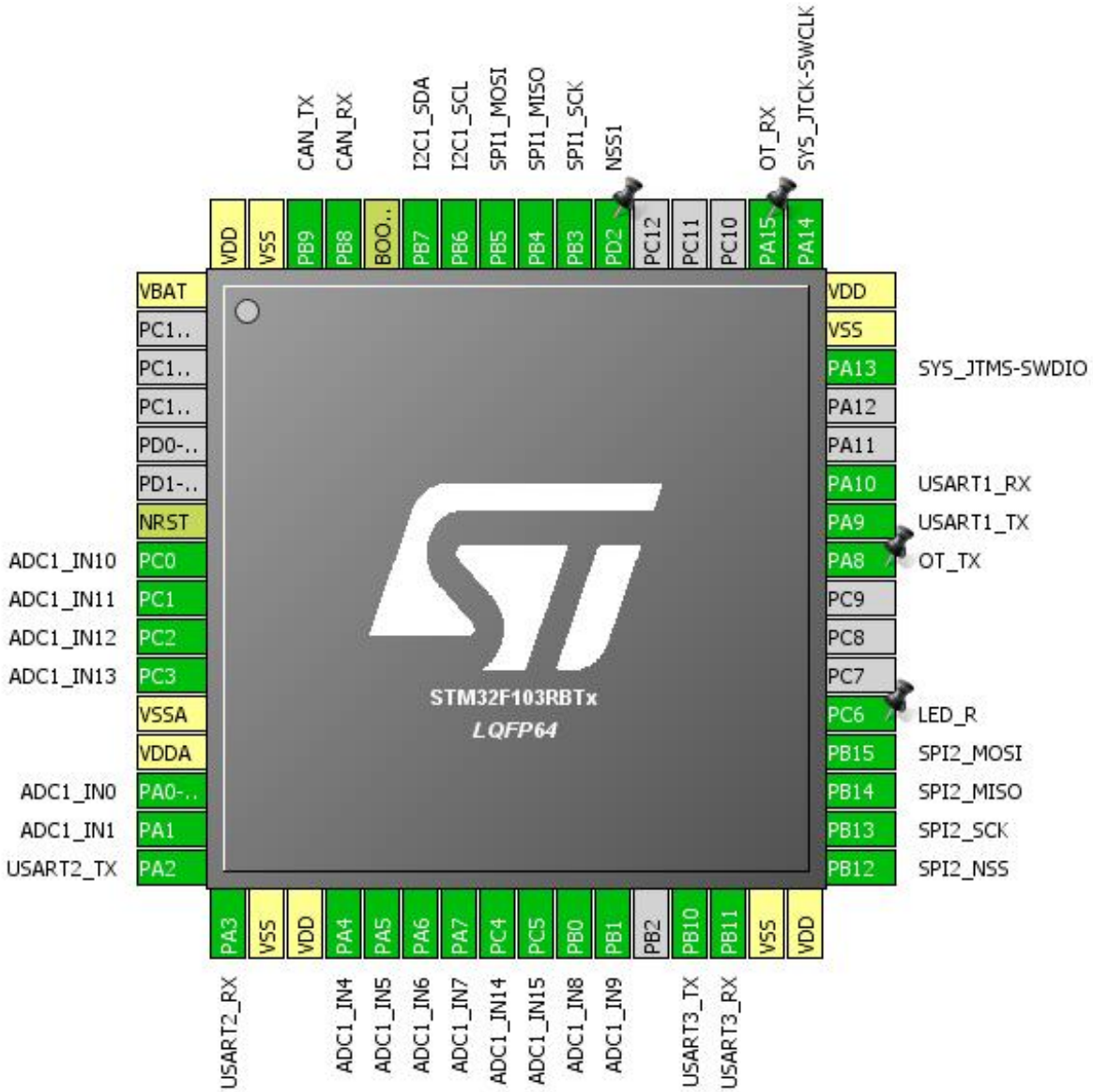
1.1. Project

Project Name	OTH
Board Name	OTH
Generated with:	STM32CubeMX 4.24.0
Date	04/15/2018

1.2. MCU

MCU Series	STM32F1
MCU Line	STM32F103
MCU name	STM32F103RBTx
MCU Package	LQFP64
MCU Pin number	64

2. Pinout Configuration



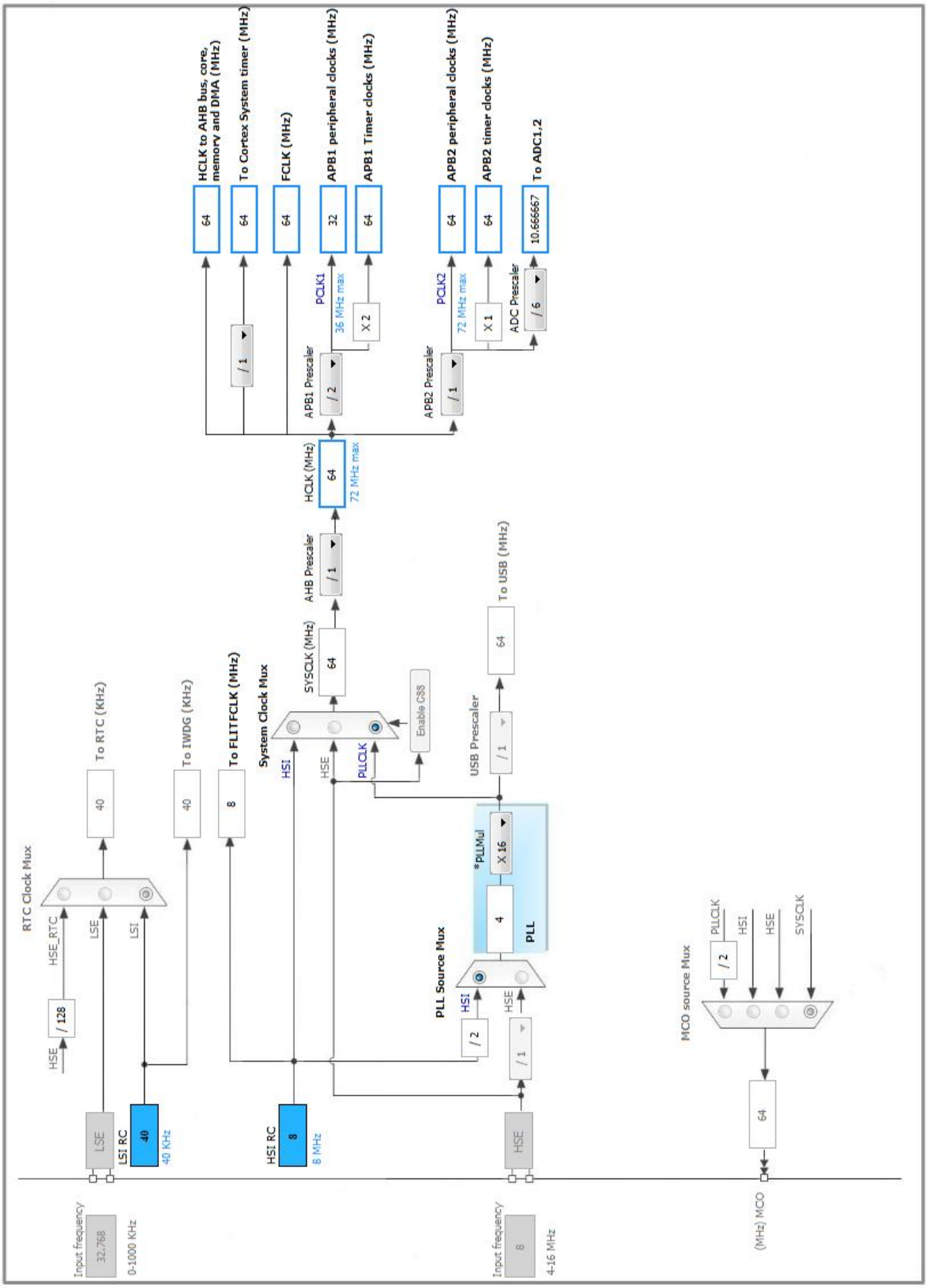
3. Pins Configuration

Pin Number LQFP64	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VBAT	Power		
7	NRST	Reset		
8	PC0	I/O	ADC1_IN10	
9	PC1	I/O	ADC1_IN11	
10	PC2	I/O	ADC1_IN12	
11	PC3	I/O	ADC1_IN13	
12	VSSA	Power		
13	VDDA	Power		
14	PA0-WKUP	I/O	ADC1_IN0	
15	PA1	I/O	ADC1_IN1	
16	PA2	I/O	USART2_TX	
17	PA3	I/O	USART2_RX	
18	VSS	Power		
19	VDD	Power		
20	PA4	I/O	ADC1_IN4	
21	PA5	I/O	ADC1_IN5	
22	PA6	I/O	ADC1_IN6	
23	PA7	I/O	ADC1_IN7	
24	PC4	I/O	ADC1_IN14	
25	PC5	I/O	ADC1_IN15	
26	PB0	I/O	ADC1_IN8	
27	PB1	I/O	ADC1_IN9	
29	PB10	I/O	USART3_TX	
30	PB11	I/O	USART3_RX	
31	VSS	Power		
32	VDD	Power		
33	PB12	I/O	SPI2_NSS	
34	PB13	I/O	SPI2_SCK	
35	PB14	I/O	SPI2_MISO	
36	PB15	I/O	SPI2_MOSI	
37	PC6 *	I/O	GPIO_Output	LED_R
41	PA8 *	I/O	GPIO_Output	OT_TX
42	PA9	I/O	USART1_TX	
43	PA10	I/O	USART1_RX	
46	PA13	I/O	SYS_JTMS-SWDIO	
47	VSS	Power		

Pin Number LQFP64	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
48	VDD	Power		
49	PA14	I/O	SYS_JTCK-SWCLK	
50	PA15 *	I/O	GPIO_Input	OT_RX
54	PD2 *	I/O	GPIO_Output	NSS1
55	PB3	I/O	SPI1_SCK	
56	PB4	I/O	SPI1_MISO	
57	PB5	I/O	SPI1_MOSI	
58	PB6	I/O	I2C1_SCL	
59	PB7	I/O	I2C1_SDA	
60	BOOT0	Boot		
61	PB8	I/O	CAN_RX	
62	PB9	I/O	CAN_TX	
63	VSS	Power		
64	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: IN4
mode: IN5
mode: IN6
mode: IN7
mode: IN8
mode: IN9
mode: IN10
mode: IN11
mode: IN12
mode: IN13
mode: IN14
mode: IN15

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 0
Sampling Time	1.5 Cycles

ADC_Injected_ConversionMode:

Number Of Conversions	0

WatchDog:

Enable Analog WatchDog Mode	false

5.2. CAN

mode: Mode

5.2.1. Parameter Settings:

Bit Timings Parameters:

Prescaler (for Time Quantum)	16
Time Quantum	**500.0 ***
Time Quanta in Bit Segment 1	1 Time
Time Quanta in Bit Segment 2	1 Time
Time for one Bit	**1500 ***
ReSynchronization Jump Width	1 Time

Basic Parameters:

Time Triggered Communication Mode	Disable
Automatic Bus-Off Management	Disable
Automatic Wake-Up Mode	Disable
No-Automatic Retransmission	Disable
Receive Fifo Locked Mode	Disable
Transmit Fifo Priority	Disable

Advanced Parameters:

Operating Mode	Normal

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. SPI1

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	**1000.0 KBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSS Signal Type	Software

5.5. SPI2

Mode: Full-Duplex Slave
Hardware NSS Signal: Hardware NSS Input Signal

5.5.1. Parameter Settings:

Basic Parameters:

Frame Format	Motorola
Data Size	8 Bits
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	2
Baud Rate	**16.0 MBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSS Signal Type	Input Hardware

5.6. SYS

Debug: Serial Wire

Timebase Source: SysTick

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

5.8. USART2

Mode: Asynchronous

5.8.1. 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

5.9. USART3

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

*** 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	PC0	ADC1_IN10	Analog mode	n/a	n/a	
	PC1	ADC1_IN11	Analog mode	n/a	n/a	
	PC2	ADC1_IN12	Analog mode	n/a	n/a	
	PC3	ADC1_IN13	Analog mode	n/a	n/a	
	PA0-WKUP	ADC1_IN0	Analog mode	n/a	n/a	
	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	
	PC4	ADC1_IN14	Analog mode	n/a	n/a	
	PC5	ADC1_IN15	Analog mode	n/a	n/a	
	PB0	ADC1_IN8	Analog mode	n/a	n/a	
	PB1	ADC1_IN9	Analog mode	n/a	n/a	
CAN	PB8	CAN_RX	Input mode	No pull-up and no pull-down	n/a	
	PB9	CAN_TX	Alternate Function Push Pull	n/a	**High ***	
I2C1	PB6	I2C1_SCL	Alternate Function Open Drain	n/a	**High ***	
	PB7	I2C1_SDA	Alternate Function Open Drain	n/a	**High ***	
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	PB12	SPI2_NSS	Input mode	No pull-up and no pull-down	n/a	
	PB13	SPI2_SCK	Input mode	No pull-up and no pull-down	n/a	
	PB14	SPI2_MISO	Alternate Function Push Pull	n/a	**High ***	
	PB15	SPI2_MOSI	Input mode	No pull-up and no pull-down	**n/a**	
SYS	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**	

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
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**	
GPIO	PC6	GPIO_Output	Output Push Pull	n/a	Low	LED_R
	PA8	GPIO_Output	Output Push Pull	n/a	Low	OT_TX
	PA15	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	OT_RX
	PD2	GPIO_Output	Output Push Pull	n/a	Low	NSS1

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
SPI1 global interrupt	true	0	0
SPI2 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		
USB high priority or CAN TX interrupts	unused		
USB low priority or CAN RX0 interrupts	unused		
CAN RX1 interrupt	unused		
CAN SCE interrupt	unused		
I2C1 event interrupt	unused		
I2C1 error 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	STM32F103RBTx
Datasheet	13587_Rev17

7.2. Parameter Selection

Temperature	25
Vdd	3.3

8. Software Project

8.1. Project Settings

Name	Value
Project Name	OTH
Project Folder	D:\STM32_workspace_9.0\OTH
Toolchain / IDE	TrueSTUDIO
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	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

9. Software Pack Report