1. Description

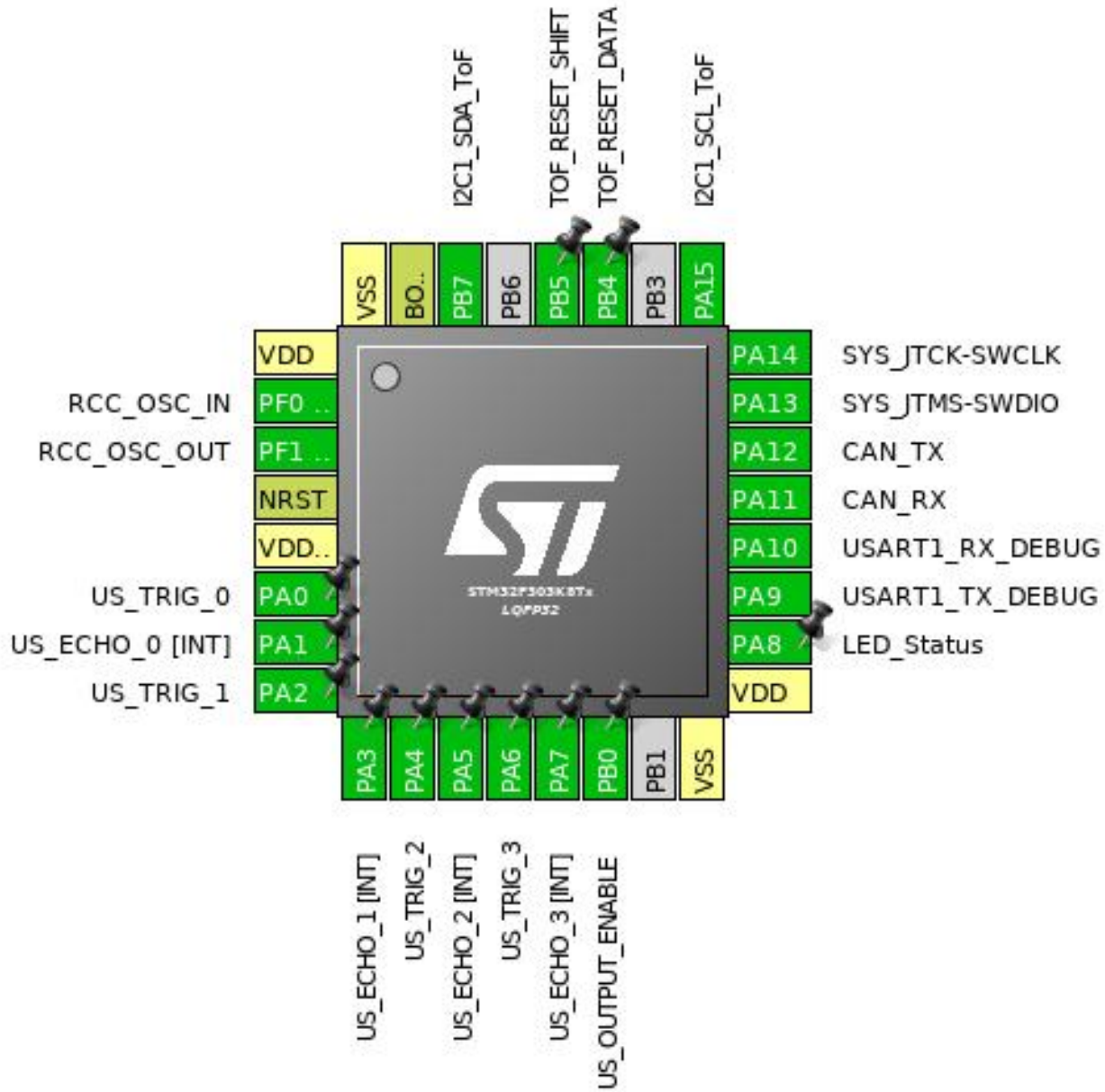
1.1. Project

Project Name	ToToF
Board Name	custom
Generated with:	STM32CubeMX 4.27.0
Date	02/07/2019

1.2. MCU

MCU Series	STM32F3
MCU Line	STM32F303
MCU name	STM32F303K8Tx
MCU Package	LQFP32
MCU Pin number	32

2. Pinout Configuration

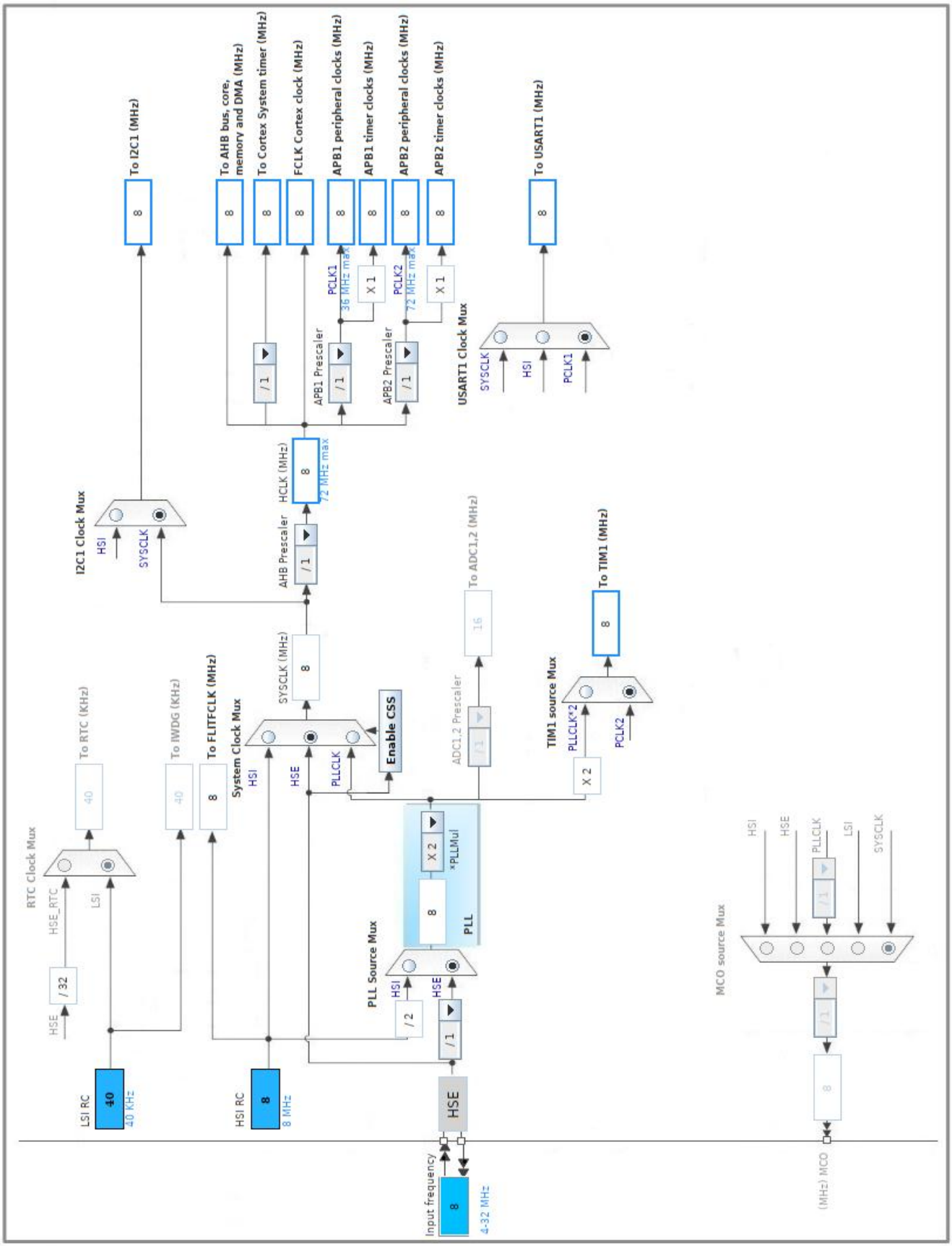


3. Pins Configuration

Pin Number LQFP32	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VDD	Power		
2	PF0 / OSC_IN	I/O	RCC_OSC_IN	
3	PF1 / OSC_OUT	I/O	RCC_OSC_OUT	
4	NRST	Reset		
5	VDDA/VREF+	Power		
6	PA0 *	I/O	GPIO_Output	US_TRIG_0
7	PA1	I/O	GPIO_EXTI1	US_ECHO_0 [INT]
8	PA2 *	I/O	GPIO_Output	US_TRIG_1
9	PA3	I/O	GPIO_EXTI3	US_ECHO_1 [INT]
10	PA4 *	I/O	GPIO_Output	US_TRIG_2
11	PA5	I/O	GPIO_EXTI5	US_ECHO_2 [INT]
12	PA6 *	I/O	GPIO_Output	US_TRIG_3
13	PA7	I/O	GPIO_EXTI7	US_ECHO_3 [INT]
14	PB0 *	I/O	GPIO_Output	US_OUTPUT_ENABLE
16	VSS	Power		
17	VDD	Power		
18	PA8 *	I/O	GPIO_Output	LED_Status
19	PA9	I/O	USART1_TX	USART1_TX_DEBUG
20	PA10	I/O	USART1_RX	USART1_RX_DEBUG
21	PA11	I/O	CAN_RX	
22	PA12	I/O	CAN_TX	
23	PA13	I/O	SYS_JTMS-SWDIO	
24	PA14	I/O	SYS_JTCK-SWCLK	
25	PA15	I/O	I2C1_SCL	I2C1_SCL_ToF
27	PB4 *	I/O	GPIO_Output	TOF_RESET_DATA
28	PB5 *	I/O	GPIO_Output	TOF_RESET_SHIFT
30	PB7	I/O	I2C1_SDA	I2C1_SDA_ToF
31	BOOT0	Boot		
32	VSS	Power		

* The pin is affected with an I/O function

4. Clock Tree Configuration



5. IPs and Middleware Configuration

5.1. CAN

mode: Mode

5.1.1. Parameter Settings:

Bit Timings Parameters:

Prescaler (for Time Quantum)	16
Time Quantum	**2000.0 ***
Time Quanta in Bit Segment 1	1 Time
Time Quanta in Bit Segment 2	1 Time
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

5.2. I2C1

I2C: I2C

5.2.1. Parameter Settings:

Timing configuration:

I2C Speed Mode	**Fast Mode ***
I2C Speed Frequency (KHz)	400
Rise Time (ns)	0
Fall Time (ns)	0
Coefficient of Digital Filter	0
Analog Filter	Enabled
Timing	**0x0000020B ***

Slave Features:

Clock No Stretch Mode	Disabled
General Call Address Detection	Disabled
Primary Address Length selection	7-bit

Dual Address Acknowledged	Disabled
Primary slave address	0

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)	0 WS (1 CPU cycle)

RCC Parameters:

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

5.4. SYS

Debug: Serial Wire

Timebase Source: SysTick

5.5. TIM1

Clock Source : Internal Clock

5.5.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	0
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	0
Internal Clock Division (CKD)	No Division
Repetition Counter (RCR - 16 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 TRGO	Reset (UG bit from TIMx_EGR)
Trigger Event Selection TRGO2	Reset (UG bit from TIMx_EGR)

5.6. TIM2

Clock Source : Internal Clock

5.6.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	0
Counter Mode	Up
Counter Period (AutoReload Register - 32 bits value)	0
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 TRGO	Reset (UG bit from TIMx_EGR)

5.7. USART1

Mode: Asynchronous

5.7.1. Parameter Settings:

Basic Parameters:

Baud Rate	38400
Word Length	8 Bits (including Parity)
Parity	None
Stop Bits	1

Advanced Parameters:

Data Direction	Receive and Transmit
Over Sampling	16 Samples
Single Sample	Disable

Advanced Features:

Auto Baudrate	Disable
TX Pin Active Level Inversion	Disable
RX Pin Active Level Inversion	Disable
Data Inversion	Disable
TX and RX Pins Swapping	Disable
Overrun	Enable
DMA on RX Error	Enable
MSB First	Disable

*** User modified value**

6. System Configuration

6.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
CAN	PA11	CAN_RX	Alternate Function Push Pull	No pull up pull down	**High ***	
	PA12	CAN_TX	Alternate Function Push Pull	No pull up pull down	**High ***	
I2C1	PA15	I2C1_SCL	Alternate Function Open Drain	Pull up	**High ***	I2C1_SCL_ToF
	PB7	I2C1_SDA	Alternate Function Open Drain	Pull up	**High ***	I2C1_SDA_ToF
RCC	PF0 / OSC_IN	RCC_OSC_IN	n/a	n/a	n/a	
	PF1 / 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	
USART1	PA9	USART1_TX	Alternate Function Push Pull	No pull up pull down	**High ***	USART1_TX_DEBUG
	PA10	USART1_RX	Alternate Function Push Pull	No pull up pull down	**High ***	USART1_RX_DEBUG
GPIO	PA0	GPIO_Output	Output Push Pull	No pull up pull down	Low	US_TRIG_0
	PA1	GPIO_EXTI1	External Interrupt Mode with Rising edge trigger detection	No pull up pull down	n/a	US_ECHO_0 [INT]
	PA2	GPIO_Output	Output Push Pull	No pull up pull down	Low	US_TRIG_1
	PA3	GPIO_EXTI3	External Interrupt Mode with Rising edge trigger detection	No pull up pull down	n/a	US_ECHO_1 [INT]
	PA4	GPIO_Output	Output Push Pull	No pull up pull down	Low	US_TRIG_2
	PA5	GPIO_EXTI5	External Interrupt Mode with Rising edge trigger detection	No pull up pull down	n/a	US_ECHO_2 [INT]
	PA6	GPIO_Output	Output Push Pull	No pull up pull down	Low	US_TRIG_3
	PA7	GPIO_EXTI7	External Interrupt Mode with Rising edge trigger detection	No pull up pull down	n/a	US_ECHO_3 [INT]
	PB0	GPIO_Output	Output Push Pull	No pull up pull down	Low	US_OUTPUT_ENABLE
	PA8	GPIO_Output	Output Push Pull	No pull up pull down	Low	LED_Status
	PB4	GPIO_Output	Output Push Pull	No pull up pull down	Low	TOF_RESET_DATA
	PB5	GPIO_Output	Output Push Pull	No pull up pull down	Low	TOF_RESET_SHIFT

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
Pre-fetch 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		
Flash global interrupt	unused		
RCC global interrupt	unused		
EXTI line 1 interrupt	unused		
EXTI line 3 interrupt	unused		
CAN TX interrupt	unused		
CAN RX0 interrupt	unused		
CAN RX1 interrupt	unused		
CAN SCE interrupt	unused		
EXTI line[9:5] interrupts	unused		
TIM1 break and TIM15 interrupts	unused		
TIM1 update and TIM16 interrupts	unused		
TIM1 trigger and commutation and TIM17 interrupts	unused		
TIM1 capture compare interrupt	unused		
TIM2 global interrupt	unused		
I2C1 event global interrupt / I2C1 wake-up interrupt through EXT line 23	unused		
I2C1 error interrupt	unused		
USART1 global interrupt / USART1 wake-up interrupt through EXT line 25	unused		
Floating point unit interrupt	unused		

*** User modified value**

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F3
Line	STM32F303
MCU	STM32F303K8Tx
Datasheet	025083_Rev5

7.2. Parameter Selection

Temperature	25
Vdd	3.6

8. Software Project

8.1. Project Settings

Name	Value
Project Name	ToToF
Project Folder	/home/antonin/Documents/Robotronik/cdfr2019/Programmation/Test_ToF/ToToF
Toolchain / IDE	Makefile
Firmware Package Name and Version	STM32Cube FW_F3 V1.10.0

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)	Yes

9. Software Pack Report