1. Description

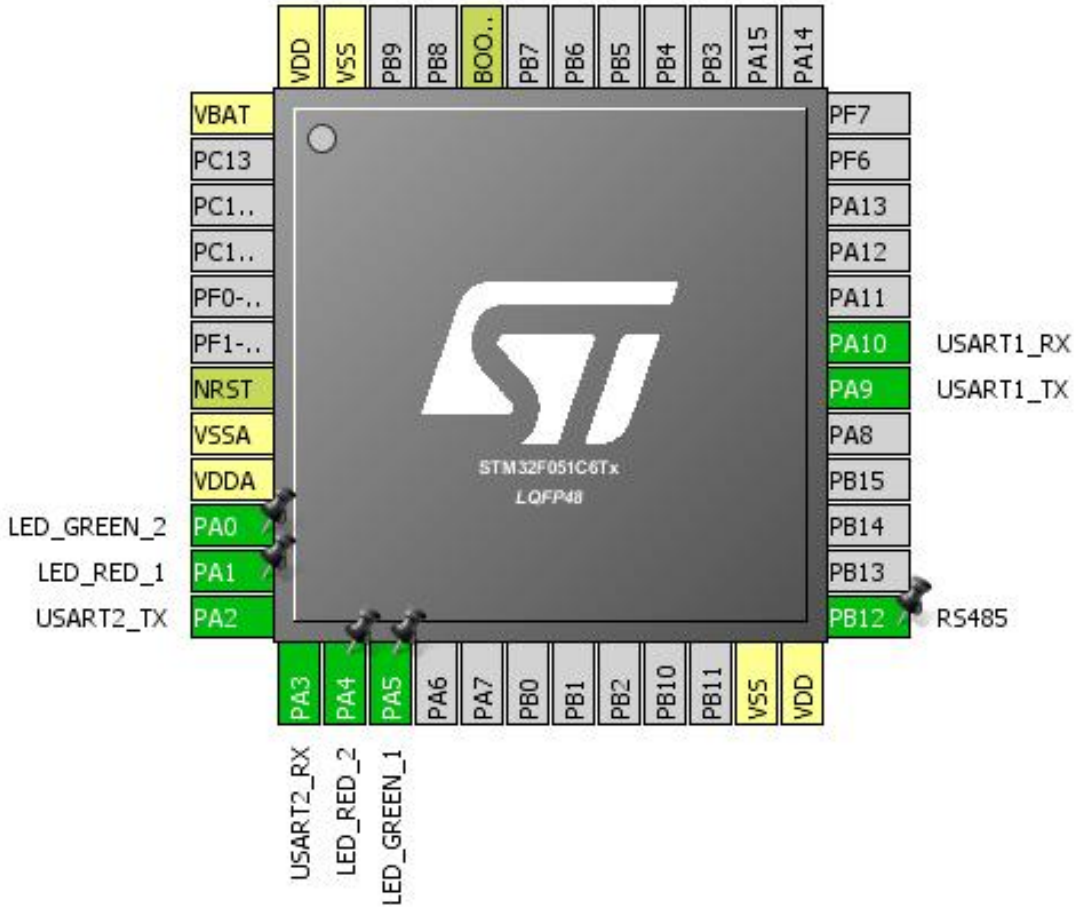
1.1. Project

Project Name	EkoTank
Board Name	EkoTank
Generated with:	STM32CubeMX 4.24.0
Date	01/25/2018

1.2. MCU

MCU Series	STM32F0
MCU Line	STM32F0x1
MCU name	STM32F051C6Tx
MCU Package	LQFP48
MCU Pin number	48

2. Pinout Configuration

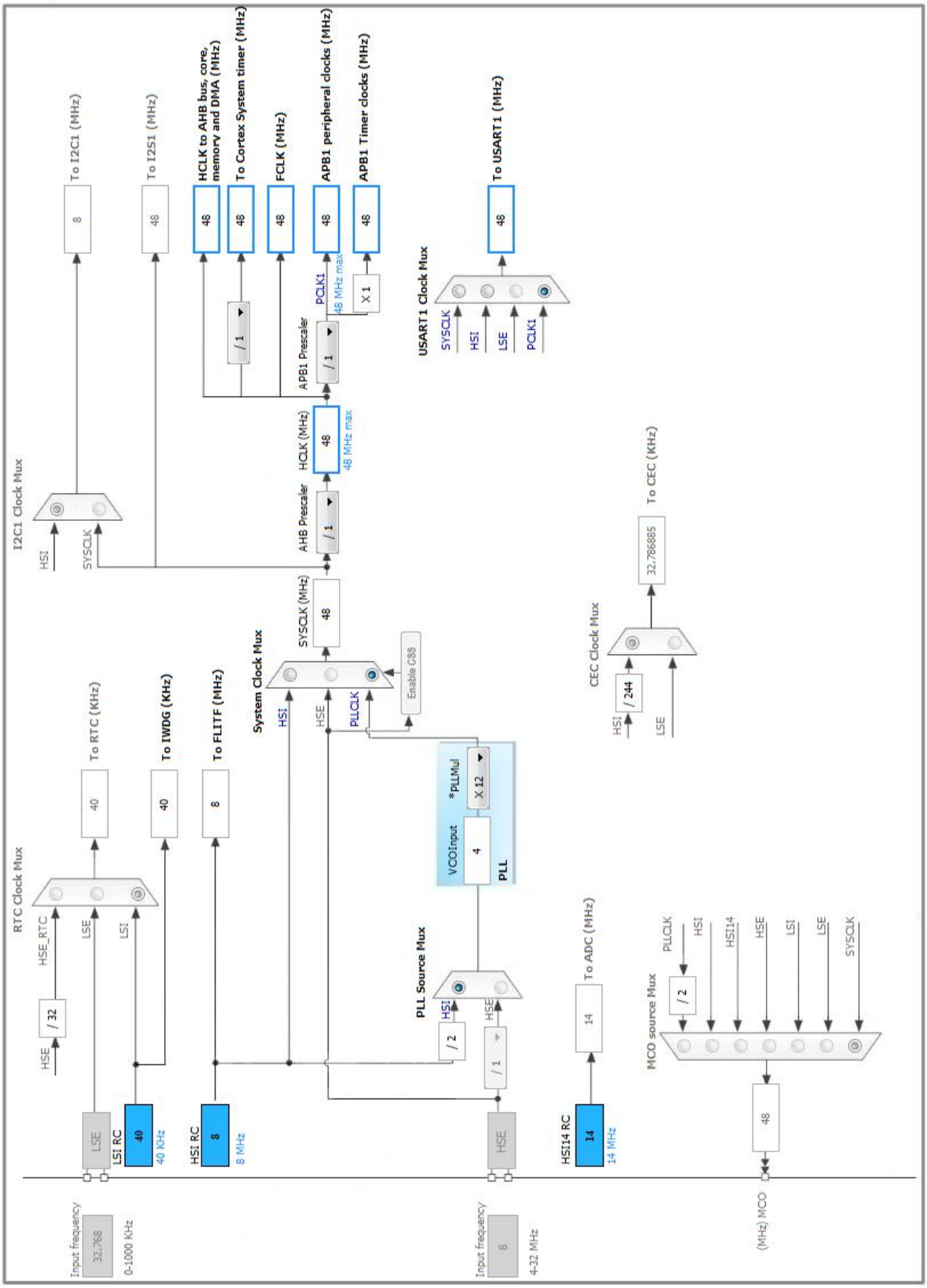


3. Pins Configuration

Pin Number LQFP48	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VBAT	Power		
7	NRST	Reset		
8	VSSA	Power		
9	VDDA	Power		
10	PA0 *	I/O	GPIO_Output	LED_GREEN_2
11	PA1 *	I/O	GPIO_Output	LED_RED_1
12	PA2	I/O	USART2_TX	
13	PA3	I/O	USART2_RX	
14	PA4 *	I/O	GPIO_Output	LED_RED_2
15	PA5 *	I/O	GPIO_Output	LED_GREEN_1
23	VSS	Power		
24	VDD	Power		
25	PB12 *	I/O	GPIO_Output	RS485
30	PA9	I/O	USART1_TX	
31	PA10	I/O	USART1_RX	
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. IWDG

mode: Activated

5.1.1. Parameter Settings:

Watchdog Clocking:

IWDG counter clock prescaler	**256 ***
IWDG window value	4095
IWDG down-counter reload value	4095

5.2. SYS

Timebase Source: SysTick

5.3. USART1

Mode: Asynchronous

5.3.1. 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

5.4. USART2

Mode: Asynchronous

5.4.1. 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:

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
USART1	PA9	USART1_TX	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	
	PA10	USART1_RX	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	
USART2	PA2	USART2_TX	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	
	PA3	USART2_RX	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	
GPIO	PA0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED_GREEN_2
	PA1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED_RED_1
	PA4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED_RED_2
	PA5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LED_GREEN_1
	PB12	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	RS485

6.2. DMA configuration

DMA request	Stream	Direction	Priority
USART2_RX	DMA1_Channel5	Peripheral To Memory	Low
USART1_RX	DMA1_Channel3	Peripheral To Memory	Low

USART2_RX: DMA1_Channel5 DMA request Settings:

Mode:	**Circular ***
Peripheral Increment:	Disable
Memory Increment:	**Enable ***
Peripheral Data Width:	Byte
Memory Data Width:	Byte

USART1_RX: DMA1_Channel3 DMA request Settings:

Mode:	**Circular ***
Peripheral Increment:	Disable
Memory Increment:	**Enable ***
Peripheral Data Width:	Byte
Memory Data Width:	Byte

6.3. NVIC configuration

Interrupt Table	Enable	Preenmption Priority	SubPriority
Non maskable interrupt	true	0	0
Hard fault interrupt	true	0	0
System service call via SWI instruction	true	0	0
Pendable request for system service	true	0	0
System tick timer	true	0	0
DMA1 channel 2 and 3 interrupts	true	0	0
DMA1 channel 4 and 5 interrupts	true	0	0
USART1 global interrupt / USART1 wake-up interrupt through EXTI line 25	true	0	0
USART2 global interrupt	true	0	0
PVD interrupt through EXTI Line16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		

*** User modified value**

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F0
Line	STM32F0x1
MCU	STM32F051C6Tx
Datasheet	022265_Rev7

7.2. Parameter Selection

Temperature	25
Vdd	3.3

8. Software Project

8.1. Project Settings

Name	Value
Project Name	EkoTank
Project Folder	C:\Users\Tomas\Desktop\Robota\STM32\EkoTank
Toolchain / IDE	TrueSTUDIO
Firmware Package Name and Version	STM32Cube FW_F0 V1.9.0

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)	No

9. Software Pack Report