1. Description

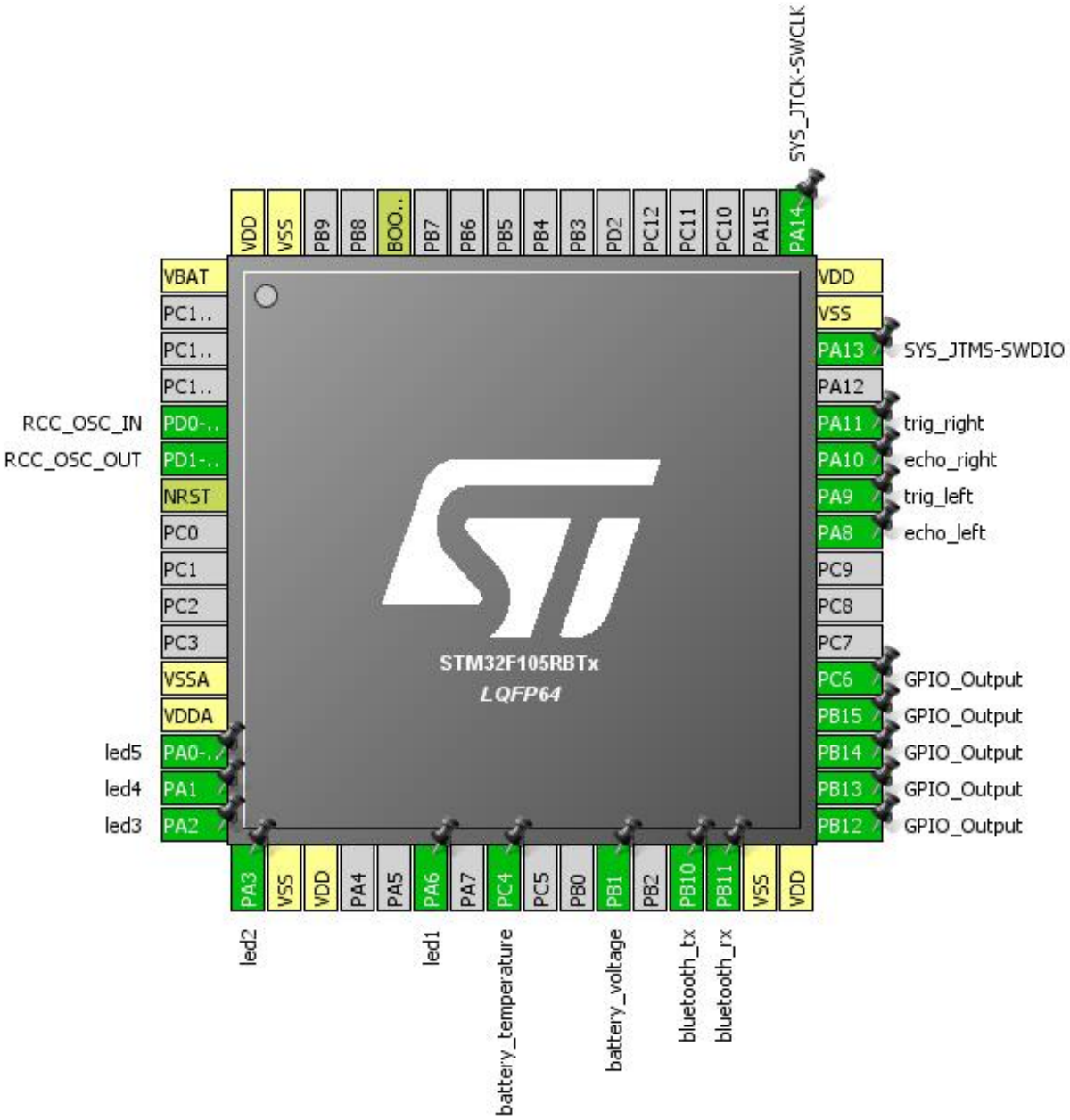
1.1. Project

Project Name	Samochodzik
Board Name	No information
Generated with:	STM32CubeMX 4.25.1
Date	05/15/2018

1.2. MCU

MCU Series	STM32F1
MCU Line	STM32F105/107
MCU name	STM32F105RBTx
MCU Package	LQFP64
MCU Pin number	64

2. Pinout Configuration

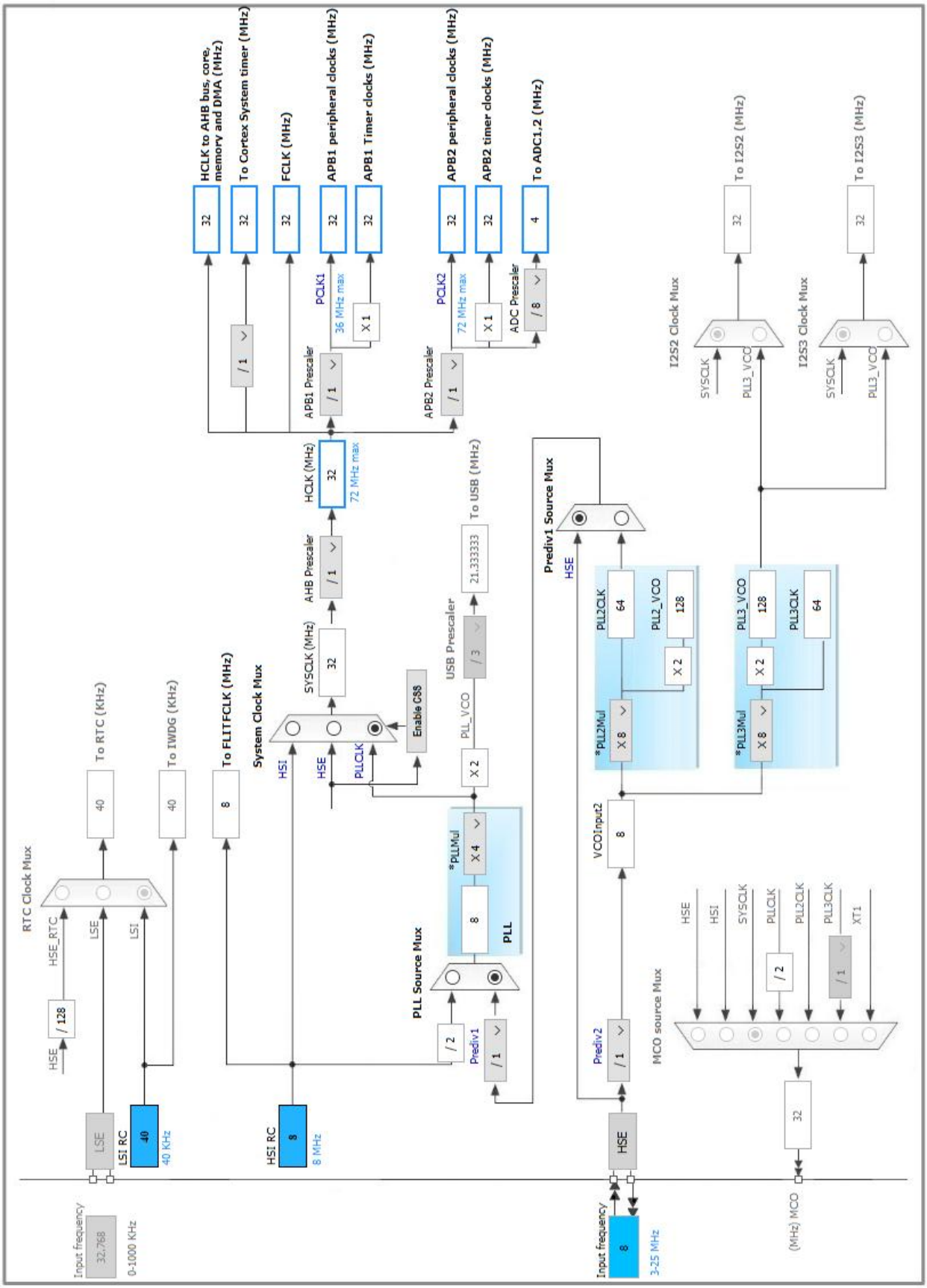


3. Pins Configuration

Pin Number LQFP64	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VBAT	Power		
5	PD0-OSC_IN	I/O	RCC_OSC_IN	
6	PD1-OSC_OUT	I/O	RCC_OSC_OUT	
7	NRST	Reset		
12	VSSA	Power		
13	VDDA	Power		
14	PA0-WKUP *	I/O	GPIO_Output	led5
15	PA1 *	I/O	GPIO_Output	led4
16	PA2 *	I/O	GPIO_Output	led3
17	PA3 *	I/O	GPIO_Output	led2
18	VSS	Power		
19	VDD	Power		
22	PA6 *	I/O	GPIO_Output	led1
24	PC4	I/O	ADC1_IN14	battery_temperature
27	PB1	I/O	ADC2_IN9	battery_voltage
29	PB10	I/O	USART3_TX	bluetooth_tx
30	PB11	I/O	USART3_RX	bluetooth_rx
31	VSS	Power		
32	VDD	Power		
33	PB12 *	I/O	GPIO_Output	
34	PB13 *	I/O	GPIO_Output	
35	PB14 *	I/O	GPIO_Output	
36	PB15 *	I/O	GPIO_Output	
37	PC6 *	I/O	GPIO_Output	
41	PA8	I/O	TIM1_CH1	echo_left
42	PA9	I/O	TIM1_CH2	trig_left
43	PA10	I/O	TIM1_CH3	echo_right
44	PA11	I/O	TIM1_CH4	trig_right
46	PA13	I/O	SYS_JTMS-SWDIO	
47	VSS	Power		
48	VDD	Power		
49	PA14	I/O	SYS_JTCK-SWCLK	
60	BOOT0	Boot		
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: IN14

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 14
Sampling Time	1.5 Cycles

ADC_Injected_ConversionMode:

Number Of Conversions	0

WatchDog:

Enable Analog WatchDog Mode	false

5.2. ADC2

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
Instruction Cache	Enabled
Prefetch Buffer	Enabled
Data Cache	Enabled
Flash Latency(WS)	1 WS (2 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

Channel1: Input Capture direct mode
Channel2: PWM Generation CH2
Channel3: Input Capture direct mode
Channel4: PWM Generation CH4

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 - 8 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	Reset (UG bit from TIMx_EGR)

Break And Dead Time management - BRK Configuration:

BRK State	Disable
BRK Polarity	High

Break And Dead Time management - Output Configuration:

Automatic Output State	Disable
Off State Selection for Run Mode (OSSR)	Disable
Off State Selection for Idle Mode (OSSI)	Disable
Lock Configuration	Off

Input Capture Channel 1:

Polarity Selection	Rising Edge
IC Selection	Direct
Prescaler Division Ratio	No division
Input Filter (4 bits value)	0

PWM Generation Channel 2:

Mode	PWM mode 1
Pulse (16 bits value)	0
Fast Mode	Disable
CH Polarity	High
CH Idle State	Reset

Input Capture Channel 3:

Polarity Selection	Rising Edge
IC Selection	Direct
Prescaler Division Ratio	No division

Input Filter (4 bits value)	0

PWM Generation Channel 4:

Mode	PWM mode 1
Pulse (16 bits value)	0
Fast Mode	Disable
CH Polarity	High
CH Idle State	Reset

5.6. USART3

Mode: Asynchronous

5.6.1. 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	PC4	ADC1_IN14	Analog mode	n/a	n/a	battery_temperature
ADC2	PB1	ADC2_IN9	Analog mode	n/a	n/a	battery_voltage
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	
SYS	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
TIM1	PA8	TIM1_CH1	Input mode	No pull-up and no pull-down	n/a	echo_left
	PA9	TIM1_CH2	Alternate Function Push Pull	n/a	Low	trig_left
	PA10	TIM1_CH3	Input mode	No pull-up and no pull-down	n/a	echo_right
	PA11	TIM1_CH4	Alternate Function Push Pull	n/a	Low	trig_right
USART3	PB10	USART3_TX	Alternate Function Push Pull	n/a	**High ***	bluetooth_tx
	PB11	USART3_RX	Input mode	No pull-up and no pull-down	**n/a**	bluetooth_rx
GPIO	PA0-WKUP	GPIO_Output	Output Push Pull	n/a	Low	led5
	PA1	GPIO_Output	Output Push Pull	n/a	Low	led4
	PA2	GPIO_Output	Output Push Pull	n/a	Low	led3
	PA3	GPIO_Output	Output Push Pull	n/a	Low	led2
	PA6	GPIO_Output	Output Push Pull	n/a	Low	led1
	PB12	GPIO_Output	Output Push Pull	n/a	Low	
	PB13	GPIO_Output	Output Push Pull	n/a	Low	
	PB14	GPIO_Output	Output Push Pull	n/a	Low	
	PB15	GPIO_Output	Output Push Pull	n/a	Low	
	PC6	GPIO_Output	Output Push Pull	n/a	Low	

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		
Flash global interrupt	unused		
RCC global interrupt	unused		
ADC1 and ADC2 global interrupts	unused		
TIM1 break interrupt	unused		
TIM1 update interrupt	unused		
TIM1 trigger and commutation interrupts	unused		
TIM1 capture compare interrupt	unused		
USART3 global interrupt	unused		

*** User modified value**

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F1
Line	STM32F105/107
MCU	STM32F105RBTx
Datasheet	15274 Rev10

7.2. Parameter Selection

Temperature	25
Vdd	3.3

8. Software Pack Report