1. Description

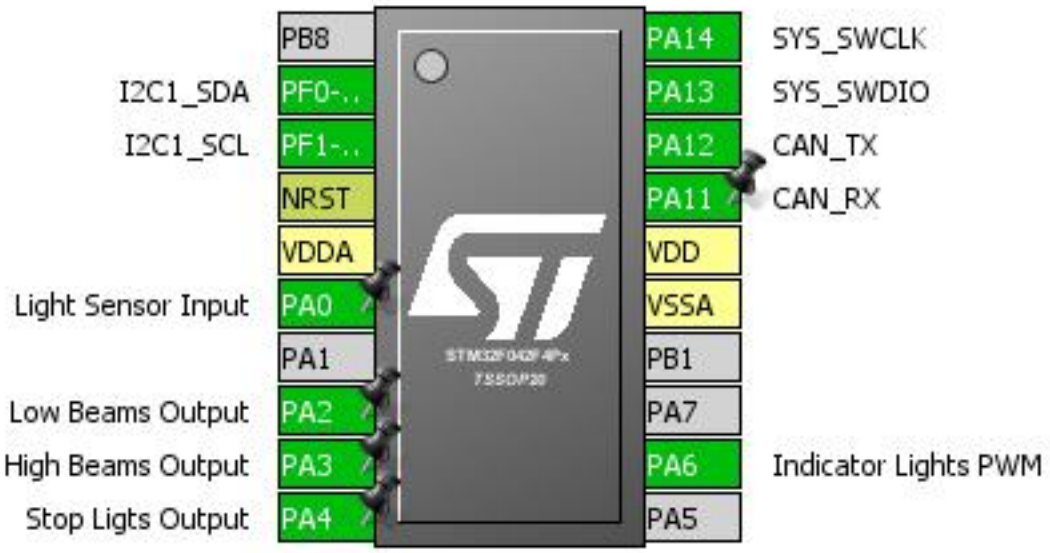
1.1. Project

Project Name	CAN_LED_Driver
Board Name	custom
Generated with:	STM32CubeMX 4.26.0
Date	09/27/2018

1.2. MCU

MCU Series	STM32F0
MCU Line	STM32F0x2
MCU name	STM32F042F4Px
MCU Package	TSSOP20
MCU Pin number	20

2. Pinout Configuration

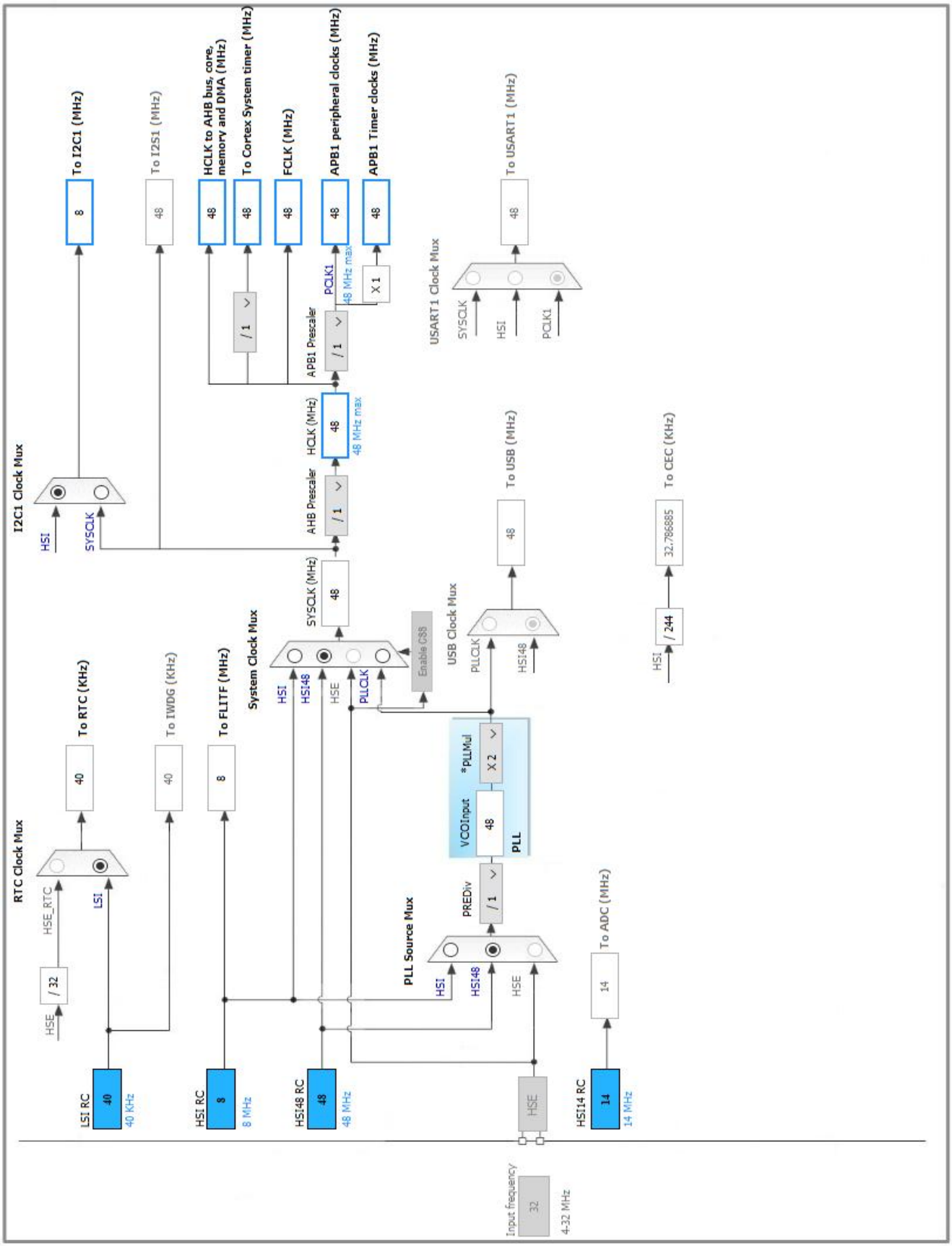


3. Pins Configuration

Pin Number TSSOP20	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
2	PF0-OSC_IN	I/O	I2C1_SDA	
3	PF1-OSC_OUT	I/O	I2C1_SCL	
4	NRST	Reset		
5	VDDA	Power		
6	PA0 *	I/O	GPIO_Input	Light Sensor Input
8	PA2 *	I/O	GPIO_Output	Low Beams Output
9	PA3 *	I/O	GPIO_Output	High Beams Output
10	PA4 *	I/O	GPIO_Output	Stop Ligts Output
12	PA6	I/O	TIM3_CH1	Indicator Lights PWM
15	VSSA	Power		
16	VDD	Power		
17	PA11	I/O	CAN_RX	
18	PA12	I/O	CAN_TX	
19	PA13	I/O	SYS_SWDIO	
20	PA14	I/O	SYS_SWCLK	

* 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	**333.3333333333333 ***
Time Quanta in Bit Segment 1	**3 Times ***
Time Quanta in Bit Segment 2	**5 Times ***
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	Standard Mode
I2C Speed Frequency (KHz)	100
Rise Time (ns)	0
Fall Time (ns)	0
Coefficient of Digital Filter	0
Analog Filter	Enabled
Timing	0x2000090E

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. RTC

mode: Activate Clock Source

5.3.1. Parameter Settings:

General:

Hour Format	Hourformat 24
Asynchronous Predivider value	127
Synchronous Predivider value	255

5.4. SYS

mode: Debug Serial Wire

mode: Pins PA11/12 instead of pins PA9/10

Timebase Source: SysTick

5.5. TIM3

Channel1: PWM Generation CH1

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
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)

PWM Generation Channel 1:

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

*** 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 and no pull-down	**High ***	
	PA12	CAN_TX	Alternate Function Push Pull	No pull-up and no pull-down	**High ***	
I2C1	PF0-OSC_IN	I2C1_SDA	Alternate Function Open Drain	Pull-up	**High ***	
	PF1-OSC_OUT	I2C1_SCL	Alternate Function Open Drain	Pull-up	**High ***	
SYS	PA13	SYS_SWDIO	n/a	n/a	n/a	
	PA14	SYS_SWCLK	n/a	n/a	n/a	
TIM3	PA6	TIM3_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	Indicator Lights PWM
GPIO	PA0	GPIO_Input	Input mode	No pull-up and no pull-down	n/a	Light Sensor Input
	PA2	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Low Beams Output
	PA3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	High Beams Output
	PA4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	Stop Ligts Output

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
System service call via SWI instruction	true	0	0
Pendable request for system service	true	0	0
System tick timer	true	0	0
PVD and VDDIO2 supply comparator interrupts through EXTI lines 16 and 31	unused		
Flash global interrupt	unused		
RCC and CRS global interrupts	unused		
TIM3 global interrupt	unused		
I2C1 event global interrupt / I2C1 wake-up interrupt through EXTI line 23	unused		
HDMI-CEC and CAN global interrupts / HDMI-CEC wake-up interrupt through EXTI line 27	unused		

*** User modified value**

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F0
Line	STM32F0x2
MCU	STM32F042F4Px
Datasheet	025832_Rev5

7.2. Parameter Selection

Temperature	25
Vdd	3.6

8. Software Project

8.1. Project Settings

Name	Value
Project Name	CAN_LED_Driver
Project Folder	C:\OneDrive\Dokumenty\!Studia\Projektowanie Ukadów
Toolchain / IDE	EWARM
Firmware Package Name and Version	STM32Cube FW_F0 V1.9.0

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	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