1. Description

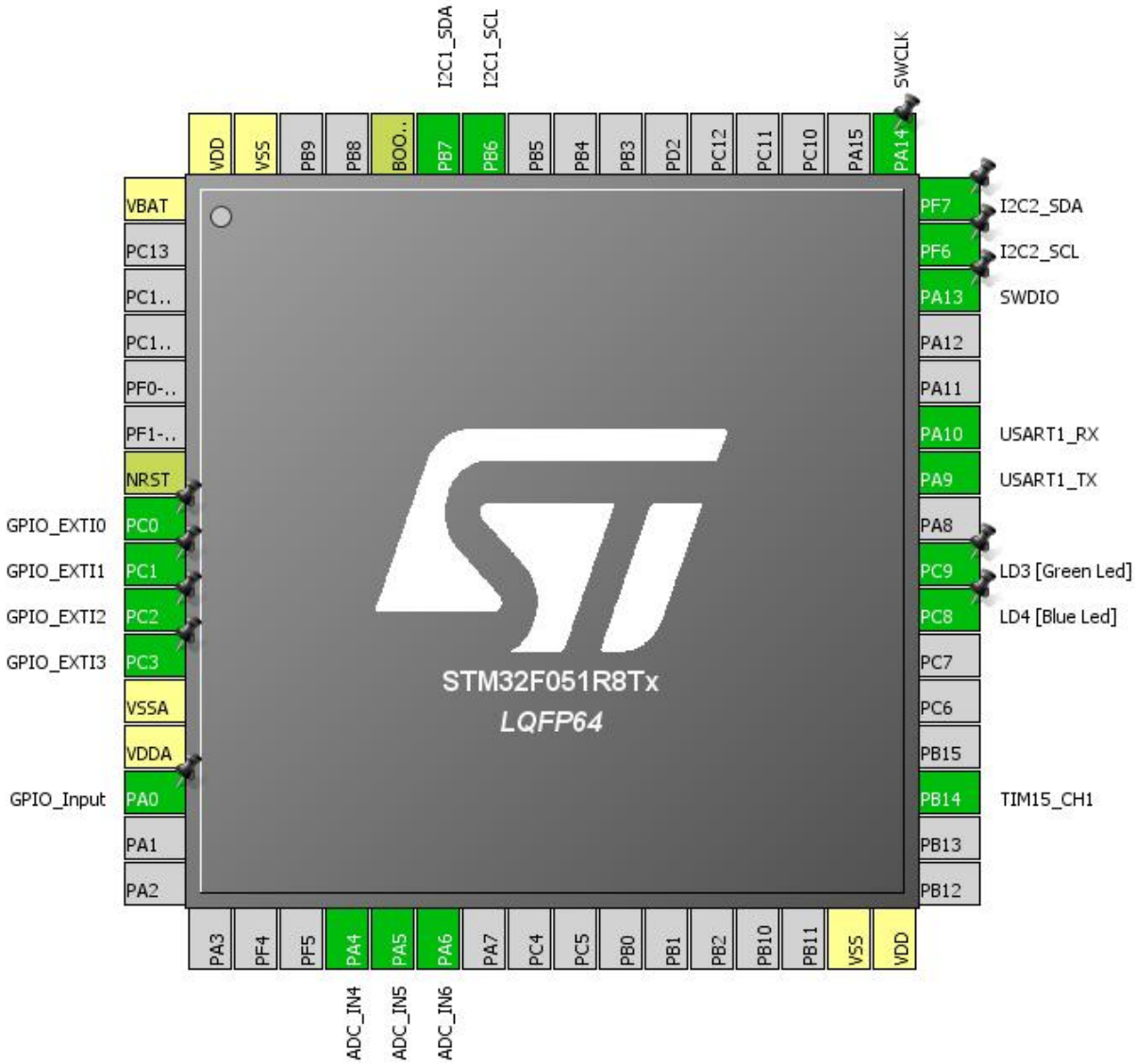
1.1. Project

Project Name	BlendC_Exercise
Board Name	STM32F0DISCOVERY
Generated with:	STM32CubeMX 4.24.0
Date	06/20/2018

1.2. MCU

MCU Series	STM32F0
MCU Line	STM32F0x1
MCU name	STM32F051R8Tx
MCU Package	LQFP64
MCU Pin number	64

2. Pinout Configuration

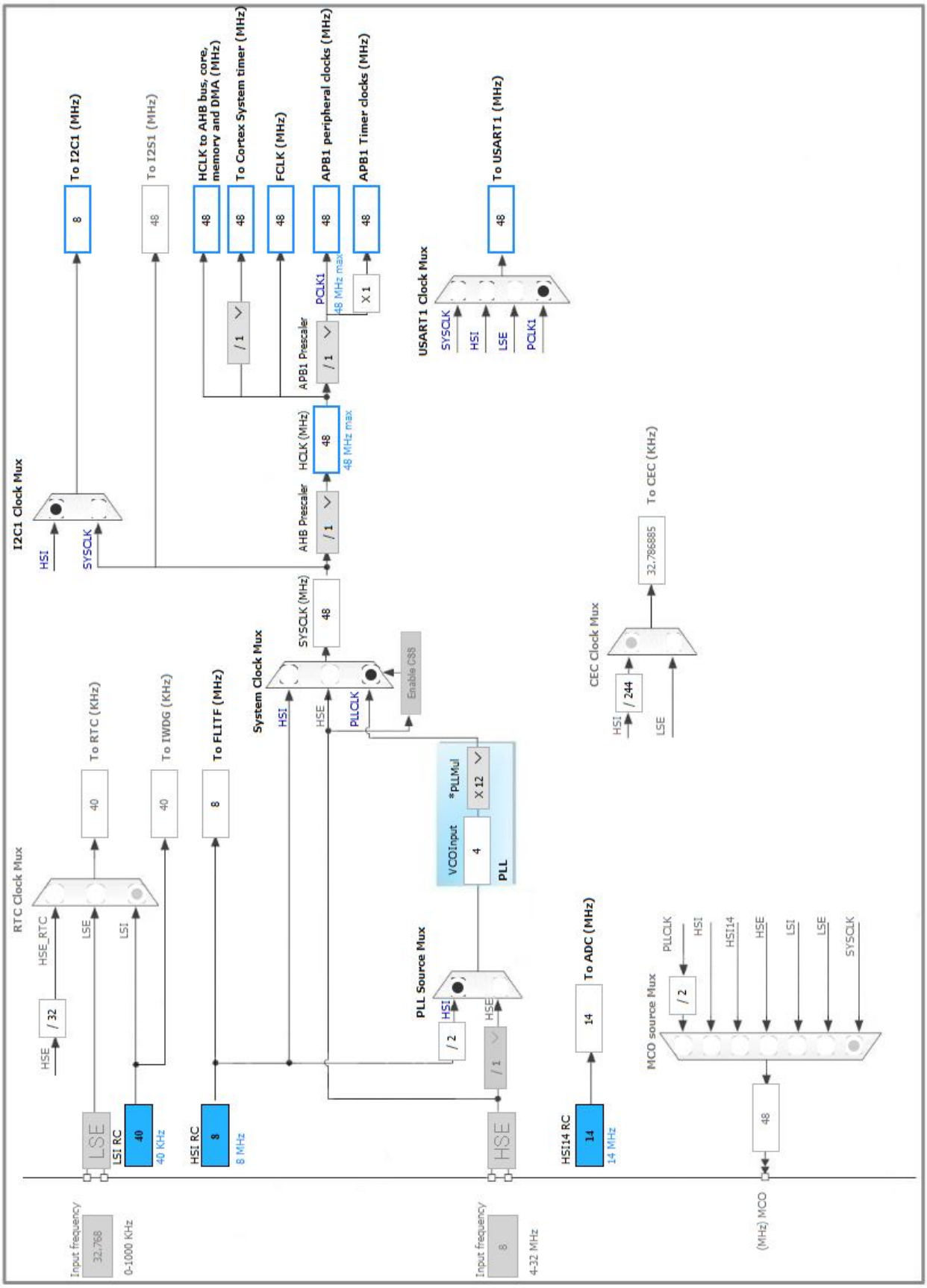


3. Pins Configuration

Pin Number LQFP64	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VBAT	Power		
7	NRST	Reset		
8	PC0	I/O	GPIO_EXTI0	
9	PC1	I/O	GPIO_EXTI1	
10	PC2	I/O	GPIO_EXTI2	
11	PC3	I/O	GPIO_EXTI3	
12	VSSA	Power		
13	VDDA	Power		
14	PA0 *	I/O	GPIO_Input	
20	PA4	I/O	ADC_IN4	
21	PA5	I/O	ADC_IN5	
22	PA6	I/O	ADC_IN6	
31	VSS	Power		
32	VDD	Power		
35	PB14	I/O	TIM15_CH1	
39	PC8 *	I/O	GPIO_Output	LD4 [Blue Led]
40	PC9 *	I/O	GPIO_Output	LD3 [Green Led]
42	PA9	I/O	USART1_TX	
43	PA10	I/O	USART1_RX	
46	PA13	I/O	SYS_SWDIO	SWDIO
47	PF6	I/O	I2C2_SCL	
48	PF7	I/O	I2C2_SDA	
49	PA14	I/O	SYS_SWCLK	SWCLK
58	PB6	I/O	I2C1_SCL	
59	PB7	I/O	I2C1_SDA	
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. ADC

mode: IN4

mode: IN5

mode: IN6

5.1.1. Parameter Settings:

ADC_Settings:

Clock Prescaler	Asynchronous clock mode
Resolution	**ADC 10-bit resolution ***
Data Alignment	Right alignment
Scan Conversion Mode	Forward
Continuous Conversion Mode	Disabled
Discontinuous Conversion Mode	Disabled
DMA Continuous Requests	Disabled
End Of Conversion Selection	End of single conversion
Overrun behaviour	Overrun data preserved
Low Power Auto Wait	Disabled
Low Power Auto Power Off	Disabled

ADC_Regular_ConversionMode:

Sampling Time	1.5 Cycles
External Trigger Conversion Source	Regular Conversion launched by software
External Trigger Conversion Edge	None

WatchDog:

Enable Analog WatchDog Mode	false

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. I2C2

mode: I2C

5.3.1. 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	**0x2010091A ***

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

5.4. SYS

mode: Debug Serial Wire

Timebase Source: SysTick

5.5. TIM15

mode: Clock Source

Channel1: PWM Generation CH1

5.5.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**2 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**639 ***
Internal Clock Division (CKD)	No Division
Repetition Counter (RCR - 8 bits value)	**9 ***
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

PWM Generation Channel 1:

Mode	PWM mode 1
Pulse (16 bits value)	**319 ***
Fast Mode	Disable
CH Polarity	High
CH Idle State	Reset

5.6. USART1

Mode: Asynchronous

5.6.1. Parameter Settings:

Basic Parameters:

Baud Rate	**9600 ***
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
ADC	PA4	ADC_IN4	Analog mode	No pull-up and no pull-down	n/a	
	PA5	ADC_IN5	Analog mode	No pull-up and no pull-down	n/a	
	PA6	ADC_IN6	Analog mode	No pull-up and no pull-down	n/a	
I2C1	PB6	I2C1_SCL	Alternate Function Open Drain	Pull-up	**High ***	
	PB7	I2C1_SDA	Alternate Function Open Drain	Pull-up	**High ***	
I2C2	PF6	I2C2_SCL	Alternate Function Open Drain	Pull-up	**High ***	
	PF7	I2C2_SDA	Alternate Function Open Drain	Pull-up	**High ***	
SYS	PA13	SYS_SWDIO	n/a	n/a	n/a	SWDIO
	PA14	SYS_SWCLK	n/a	n/a	n/a	SWCLK
TIM15	PB14	TIM15_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	
USART1	PA9	USART1_TX	Alternate Function Push Pull	**Pull-up ***	**High ***	
	PA10	USART1_RX	Alternate Function Push Pull	**Pull-up ***	**High ***	
GPIO	PC0	GPIO_EXTI0	External Interrupt Mode with Rising edge trigger detection	**Pull-up ***	n/a	
	PC1	GPIO_EXTI1	External Interrupt Mode with Rising edge trigger detection	**Pull-up ***	n/a	
	PC2	GPIO_EXTI2	External Interrupt Mode with Rising edge trigger detection	**Pull-up ***	n/a	
	PC3	GPIO_EXTI3	External Interrupt Mode with Rising edge trigger detection	**Pull-up ***	n/a	
	PA0	GPIO_Input	Input mode	**Pull-up ***	n/a	
	PC8	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LD4 [Blue Led]
	PC9	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LD3 [Green Led]

6.2. DMA configuration

DMA request	Stream	Direction	Priority
ADC	DMA1_Channel1	Peripheral To Memory	Low

ADC: DMA1_Channel1 DMA request Settings:

Mode:	Normal
Peripheral Increment:	Disable
Memory Increment:	**Enable ***
Peripheral Data Width:	**Word ***
Memory Data Width:	**Word ***

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
EXTI line 0 and 1 interrupts	true	2	0
EXTI line 2 and 3 interrupts	true	2	0
DMA1 channel 1 interrupt	true	0	0
TIM15 global interrupt	true	0	0
USART1 global interrupt / USART1 wake-up interrupt through EXTI line 25	true	1	0
PVD interrupt through EXTI Line16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
ADC and COMP interrupts (COMP interrupts through EXTI lines 21 and 22)	unused		
I2C1 event global interrupt / I2C1 wake-up interrupt through EXTI line 23	unused		
I2C2 global interrupt	unused		

*** User modified value**

7. Power Consumption Calculator report

7.1. Microcontroller Selection

Series	STM32F0
Line	STM32F0x1
MCU	STM32F051R8Tx
Datasheet	022265_Rev7

7.2. Parameter Selection

Temperature	25
Vdd	3.3

8. Software Project

8.1. Project Settings

Name	Value
Project Name	BlendC_Exercise
Project Folder	C:\Users\dimee\Desktop\Study\Study) ARM STM32\CubeMX\BlendC_Exercise
Toolchain / IDE	MDK-ARM V5
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