



1. Description

1.1. Project

Project Name	I4_BCC
Board Name	NUCLEO-F411RE
Generated with:	STM32CubeMX 6.8.1
Date	05/30/2023

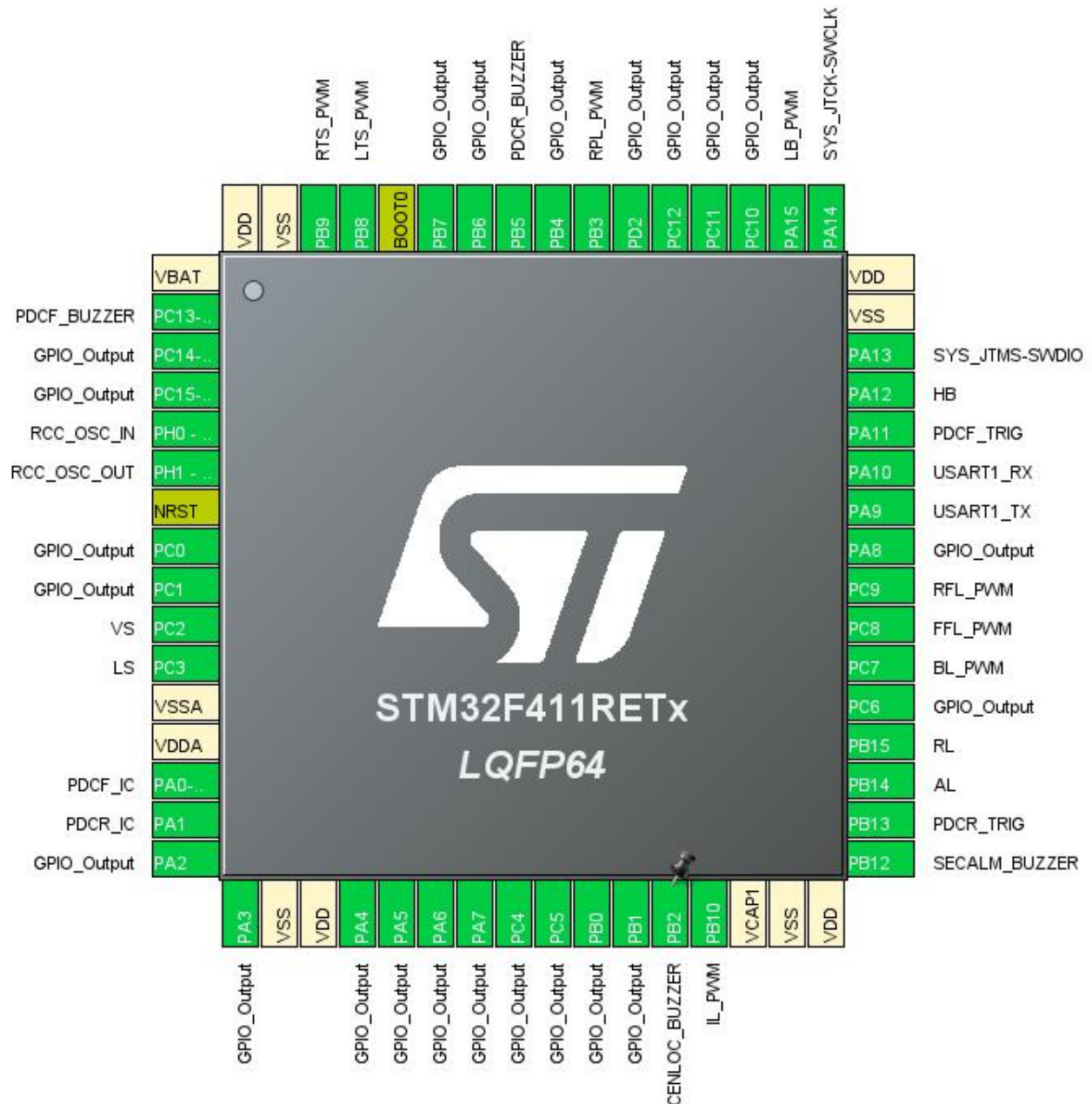
1.2. MCU

MCU Series	STM32F4
MCU Line	STM32F411
MCU name	STM32F411RETx
MCU Package	LQFP64
MCU Pin number	64

1.3. Core(s) information

Core(s)	Arm Cortex-M4
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2. Pinout Configuration



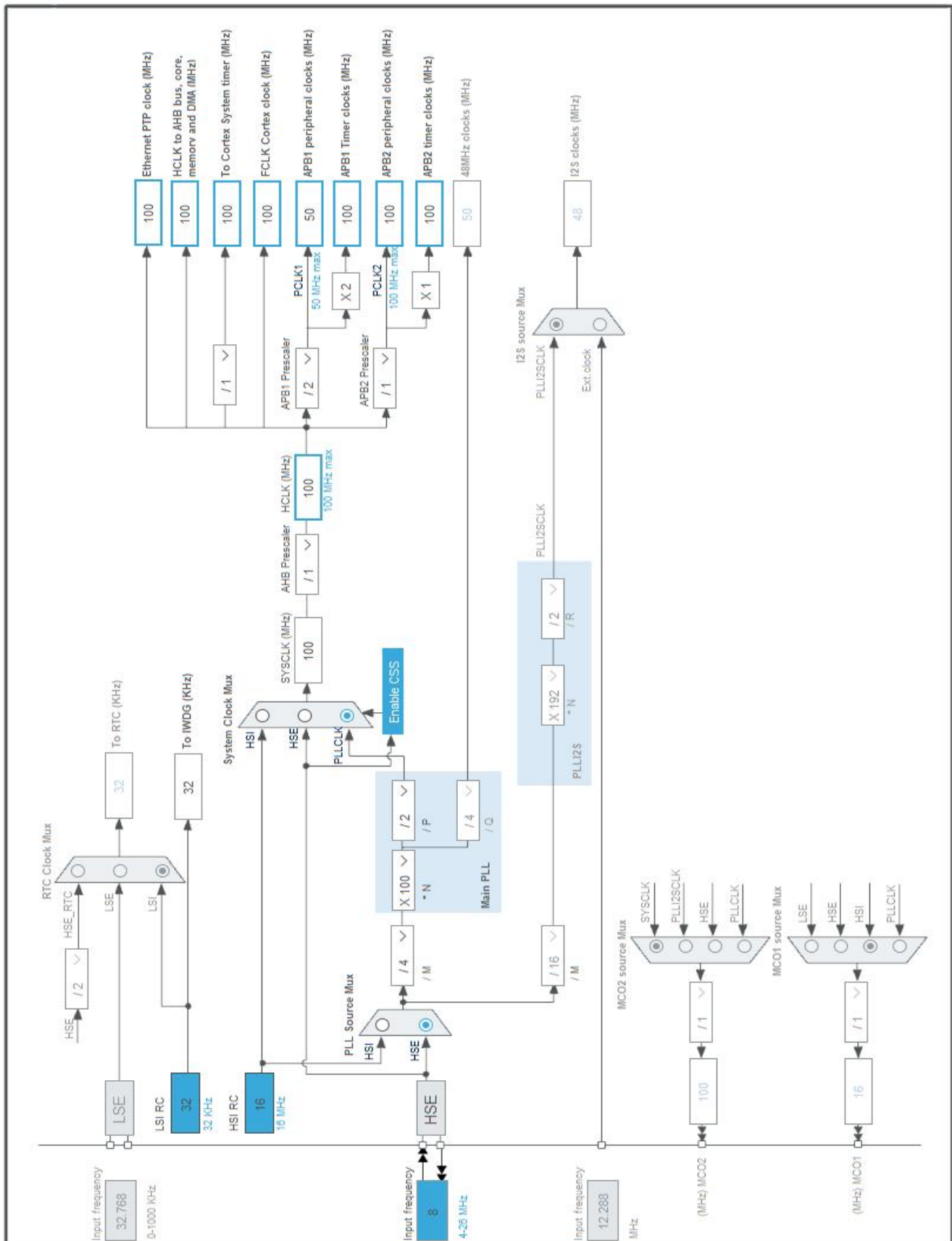
3. Pins Configuration

Pin Number LQFP64	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VBAT	Power		
2	PC13-ANTI_TAMP *	I/O	GPIO_Output	PDCF_BUZZER
3	PC14-OSC32_IN *	I/O	GPIO_Output	
4	PC15-OSC32_OUT *	I/O	GPIO_Output	
5	PH0 - OSC_IN	I/O	RCC_OSC_IN	
6	PH1 - OSC_OUT	I/O	RCC_OSC_OUT	
7	NRST	Reset		
8	PC0 *	I/O	GPIO_Output	
9	PC1 *	I/O	GPIO_Output	
10	PC2	I/O	ADC1_IN12	VS
11	PC3	I/O	ADC1_IN13	LS
12	VSSA	Power		
13	VDDA	Power		
14	PA0-WKUP	I/O	TIM5_CH1	PDCF_IC
15	PA1	I/O	TIM5_CH2	PDCR_IC
16	PA2 *	I/O	GPIO_Output	
17	PA3 *	I/O	GPIO_Output	
18	VSS	Power		
19	VDD	Power		
20	PA4 *	I/O	GPIO_Output	
21	PA5 *	I/O	GPIO_Output	
22	PA6 *	I/O	GPIO_Output	
23	PA7 *	I/O	GPIO_Output	
24	PC4 *	I/O	GPIO_Output	
25	PC5 *	I/O	GPIO_Output	
26	PB0 *	I/O	GPIO_Output	
27	PB1 *	I/O	GPIO_Output	
28	PB2 *	I/O	GPIO_Output	CENLOC_BUZZER
29	PB10	I/O	TIM2_CH3	IL_PWM
30	VCAP1	Power		
31	VSS	Power		
32	VDD	Power		
33	PB12 *	I/O	GPIO_Output	SECALM_BUZZER
34	PB13 *	I/O	GPIO_Output	PDCR_TRIG
35	PB14 *	I/O	GPIO_Output	AL
36	PB15 *	I/O	GPIO_Output	RL

Pin Number LQFP64	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
37	PC6 *	I/O	GPIO_Output	
38	PC7	I/O	TIM3_CH2	BL_PWM
39	PC8	I/O	TIM3_CH3	FFL_PWM
40	PC9	I/O	TIM3_CH4	RFL_PWM
41	PA8 *	I/O	GPIO_Output	
42	PA9	I/O	USART1_TX	
43	PA10	I/O	USART1_RX	
44	PA11 *	I/O	GPIO_Output	PDCF_TRIG
45	PA12 *	I/O	GPIO_Output	HB
46	PA13	I/O	SYS_JTMS-SWDIO	
47	VSS	Power		
48	VDD	Power		
49	PA14	I/O	SYS_JTCK-SWCLK	
50	PA15	I/O	TIM2_CH1	LB_PWM
51	PC10 *	I/O	GPIO_Output	
52	PC11 *	I/O	GPIO_Output	
53	PC12 *	I/O	GPIO_Output	
54	PD2 *	I/O	GPIO_Output	
55	PB3	I/O	TIM2_CH2	RPL_PWM
56	PB4 *	I/O	GPIO_Output	
57	PB5 *	I/O	GPIO_Output	PDCR_BUZZER
58	PB6 *	I/O	GPIO_Output	
59	PB7 *	I/O	GPIO_Output	
60	BOOT0	Boot		
61	PB8	I/O	TIM4_CH3	LTS_PWM
62	PB9	I/O	TIM4_CH4	RTS_PWM
63	VSS	Power		
64	VDD	Power		

* The pin is affected with an I/O function

4. Clock Tree Configuration



5. Software Project

5.1. Project Settings

Name	Value
Project Name	I4_BCC
Project Folder	C:\Users\Daniel\Documents\BMW\I4\I4_BCC_WORKSPACE\I4_BCC
Toolchain / IDE	STM32CubeIDE
Firmware Package Name and Version	STM32Cube FW_F4 V1.27.1
Application Structure	Advanced
Generate Under Root	Yes
Do not generate the main()	Yes
Minimum Heap Size	0x200
Minimum Stack Size	0x400

5.2. Code Generation Settings

Name	Value
STM32Cube MCU packages and embedded software	Add necessary library files as reference in the toolchain project configuration file
Generate peripheral initialization as a pair of '.c/.h' files	Yes
Backup previously generated files when re-generating	No
Keep User Code when re-generating	Yes
Delete previously generated files when not re-generated	Yes
Set all free pins as analog (to optimize the power consumption)	Yes
Enable Full Assert	No

5.3. Advanced Settings - Generated Function Calls

Rank	Function Name	Peripheral Instance Name
1	SystemClock_Config	RCC
2	MX_GPIO_Init	GPIO
3	MX_DMA_Init	DMA
4	MX_TIM2_Init	TIM2
5	MX_TIM3_Init	TIM3
6	MX_TIM4_Init	TIM4
7	MX_ADC1_Init	ADC1
8	MX_CRC_Init	CRC
9	MX_USART1_UART_Init	USART1
10	MX_TIM5_Init	TIM5
11	MX_IWDG_Init	IWDG

6. Power Consumption Calculator report

6.1. Microcontroller Selection

Series	STM32F4
Line	STM32F411
MCU	STM32F411RETx
Datasheet	DS10314_Rev6

6.2. Parameter Selection

Temperature	25
Vdd	1.7

6.3. Battery Selection

Battery	Li-SOCL2(A3400)
Capacity	3400.0 mAh
Self Discharge	0.08 %/month
Nominal Voltage	3.6 V
Max Cont Current	100.0 mA
Max Pulse Current	200.0 mA
Cells in series	1
Cells in parallel	1

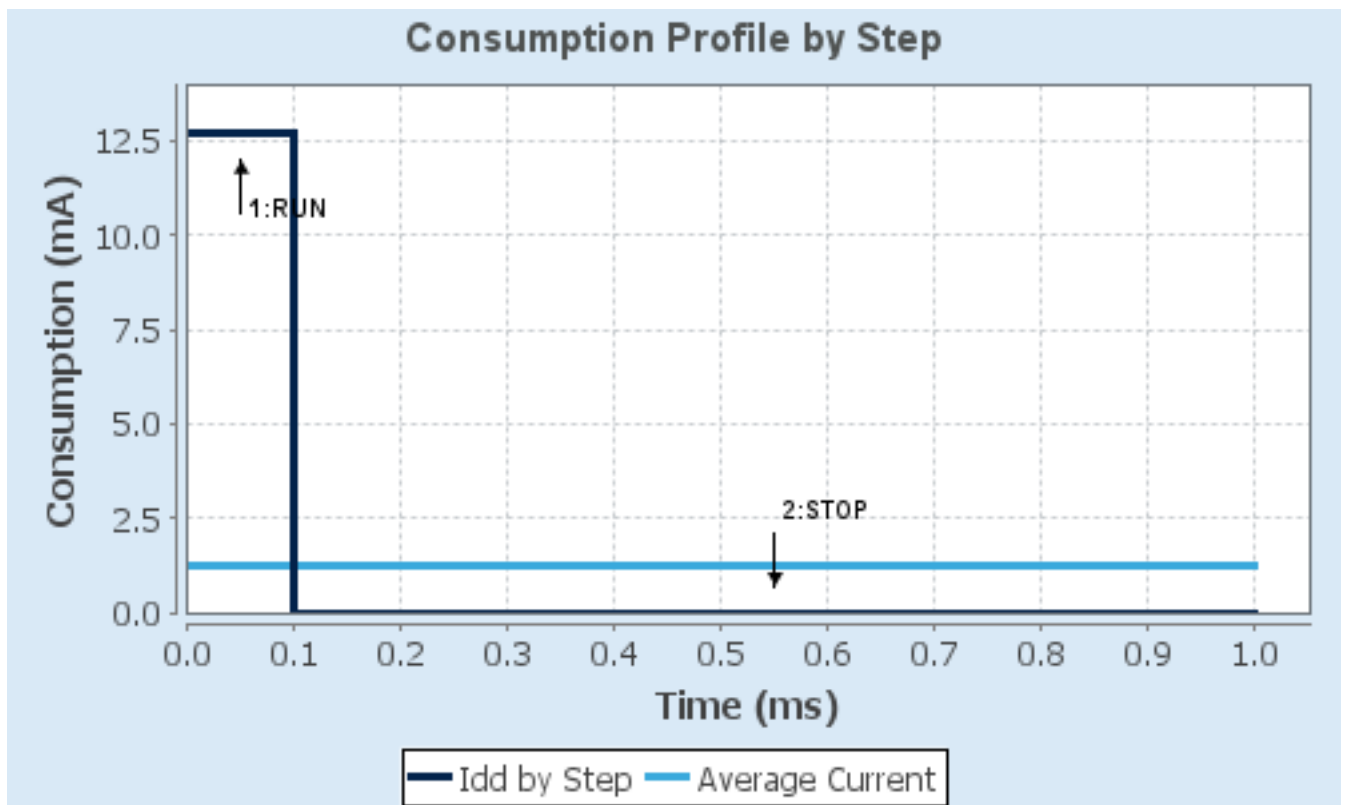
6.4. Sequence

Step	Step1	Step2
Mode	RUN	STOP
Vdd	1.7	1.7
Voltage Source	Battery	Battery
Range	Scale1-High	No Scale
Fetch Type	SRAM	n/a
CPU Frequency	100 MHz	0 Hz
Clock Configuration	HSE PLL	Regulator_LPLV Flash-PwrDwn
Clock Source Frequency	4 MHz	0 Hz
Peripherals		
Additional Cons.	0 mA	0 mA
Average Current	12.7 mA	9 μ A
Duration	0.1 ms	0.9 ms
DMIPS	125.0	0.0
Ta Max	103.99	105
Category	In DS Table	In DS Table

6.5. Results

Sequence Time	1 ms	Average Current	1.28 mA
Battery Life	3 months, 19 days, 6 hours	Average DMIPS	125.0 DMIPS

6.6. Chart



7. Peripherals and Middlewares Configuration

7.1. ADC1

mode: IN12

mode: IN13

mode: Temperature Sensor Channel

7.1.1. Parameter Settings:

ADCs_Common_Settings:

Mode Independent mode

ADC_Settings:

Clock Prescaler	PCLK2 divided by 8 *
Resolution	12 bits (15 ADC Clock cycles)
Data Alignment	Right alignment
Scan Conversion Mode	Enabled
Continuous Conversion Mode	Enabled *
Discontinuous Conversion Mode	Disabled
DMA Continuous Requests	Enabled *
End Of Conversion Selection	EOC flag at the end of single channel conversion

ADC_Regular_ConversionMode:

Number Of Conversion	3 *
External Trigger Conversion Source	Regular Conversion launched by software
External Trigger Conversion Edge	None
<u>Rank</u>	1
Channel	Channel 13 *
Sampling Time	480 Cycles *
<u>Rank</u>	2 *
Channel	Channel 12
Sampling Time	480 Cycles *
<u>Rank</u>	3 *
Channel	Channel Temperature Sensor *
Sampling Time	480 Cycles *

ADC_Injected_ConversionMode:

Number Of Conversions 0

WatchDog:

Enable Analog WatchDog Mode	true *
Watchdog Mode	Single regular channel
Analog WatchDog Channel	Channel Temperature Sensor *

High Threshold	4095 *
Low Threshold	0
Interrupt Mode	Enabled *

7.2. CRC

mode: Activated

7.3. IWDG

mode: Activated

7.3.1. Parameter Settings:

Clocking:

IWDG counter clock prescaler	128 *
IWDG down-counter reload value	64 *

7.4. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

7.4.1. Parameter Settings:

System Parameters:

VDD voltage (V)	3.3
Instruction Cache	Enabled
Prefetch Buffer	Enabled
Data Cache	Enabled
Flash Latency(WS)	3 WS (4 CPU cycle)

RCC Parameters:

HSI Calibration Value	16
TIM Prescaler Selection	Disabled
HSE Startup Timeout Value (ms)	100
LSE Startup Timeout Value (ms)	5000

Power Parameters:

Power Regulator Voltage Scale	Power Regulator Voltage Scale 1
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7.5. SYS

Debug: Serial Wire

Timebase Source: TIM1

7.6. TIM2

Clock Source : Internal Clock

Channel1: PWM Generation CH1

Channel2: PWM Generation CH2

Channel3: PWM Generation CH3

7.6.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	10000-1 *
Counter Mode	Up
Counter Period (AutoReload Register - 32 bits value)	200-1 *
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 (32 bits value)	0
Output compare preload	Enable
Fast Mode	Enable *
CH Polarity	High

PWM Generation Channel 2:

Mode	PWM mode 1
Pulse (32 bits value)	0
Output compare preload	Enable
Fast Mode	Enable *
CH Polarity	High

PWM Generation Channel 3:

Mode	PWM mode 1
Pulse (32 bits value)	0
Output compare preload	Enable
Fast Mode	Enable *
CH Polarity	High

7.7. TIM3

Clock Source : Internal Clock

Channel2: PWM Generation CH2

Channel3: PWM Generation CH3

Channel4: PWM Generation CH4

7.7.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	10000-1 *
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	200-1 *
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 2:

Mode	PWM mode 1
Pulse (16 bits value)	0
Output compare preload	Enable
Fast Mode	Enable *
CH Polarity	High

PWM Generation Channel 3:

Mode	PWM mode 1
Pulse (16 bits value)	0
Output compare preload	Enable
Fast Mode	Enable *
CH Polarity	High

PWM Generation Channel 4:

Mode	PWM mode 1
Pulse (16 bits value)	0
Output compare preload	Enable
Fast Mode	Enable *
CH Polarity	High

7.8. TIM4

mode: Clock Source

Channel3: PWM Generation CH3

Channel4: PWM Generation CH4

7.8.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	10000-1 *
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	1000-1 *
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 3:

Mode	PWM mode 1
Pulse (16 bits value)	999 *
Output compare preload	Enable
Fast Mode	Disable
CH Polarity	High

PWM Generation Channel 4:

Mode	PWM mode 1
Pulse (16 bits value)	999 *
Output compare preload	Enable
Fast Mode	Disable
CH Polarity	High

7.9. TIM5

mode: Clock Source

Channel1: Input Capture direct mode

Channel2: Input Capture direct mode

7.9.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	100-1 *
Counter Mode	Up
Counter Period (AutoReload Register - 32 bits value)	0xffffffff

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)
Input Capture Channel 1:	
Polarity Selection	Rising Edge
IC Selection	Direct
Prescaler Division Ratio	No division
Input Filter (4 bits value)	0
Input Capture Channel 2:	
Polarity Selection	Rising Edge
IC Selection	Direct
Prescaler Division Ratio	No division
Input Filter (4 bits value)	0

7.10. USART1

Mode: Asynchronous

7.10.1. 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

7.11. FREERTOS

Interface: CMSIS_V2

7.11.1. Config parameters:

API:	
FreeRTOS API	CMSIS v2
Versions:	
FreeRTOS version	10.3.1

CMSIS-RTOS version 2.00

MPU/FPU:

ENABLE_MPU Disabled

ENABLE_FPU Disabled

Kernel settings:

USE_PREEMPTION Enabled

CPU_CLOCK_HZ SystemCoreClock

TICK_RATE_HZ 1000

MAX_PRIORITIES 56

MINIMAL_STACK_SIZE 128

MAX_TASK_NAME_LEN **255 ***

USE_16_BIT_TICKS Disabled

IDLE_SHOULD_YIELD Enabled

USE_MUTEXES Enabled

USE_RECURSIVE_MUTEXES Enabled

USE_COUNTING_SEMAPHORES Enabled

QUEUE_REGISTRY_SIZE 8

USE_APPLICATION_TASK_TAG **Enabled ***

ENABLE_BACKWARD_COMPATIBILITY Enabled

USE_PORT_OPTIMISED_TASK_SELECTION Disabled

USE_TICKLESS_IDLE **User defined functionality enabled ***

USE_TASK_NOTIFICATIONS Enabled

RECORD_STACK_HIGH_ADDRESS **Enabled ***

Memory management settings:

Memory Allocation Dynamic / Static

TOTAL_HEAP_SIZE **18000 ***

Memory Management scheme **heap_5 ***

Hook function related definitions:

USE_IDLE_HOOK **Enabled ***

USE_TICK_HOOK **Enabled ***

USE_MALLOC_FAILED_HOOK **Enabled ***

USE_DAEMON_TASK_STARTUP_HOOK Disabled

CHECK_FOR_STACK_OVERFLOW **Option2 ***

Run time and task stats gathering related definitions:

GENERATE_RUN_TIME_STATS **Enabled ***

USE_TRACE_FACILITY Enabled

USE_STATS_FORMATTING_FUNCTIONS **Enabled ***

Co-routine related definitions:

USE_CO_ROUTINES Disabled

MAX_CO_ROUTINE_PRIORITIES 2

Software timer definitions:

USE_TIMERS Enabled
 TIMER_TASK_PRIORITY **55 ***
 TIMER_QUEUE_LENGTH **255 ***
 TIMER_TASK_STACK_DEPTH **2048 ***

Interrupt nesting behaviour configuration:

LIBRARY_LOWEST_INTERRUPT_PRIORITY 15
 LIBRARY_MAX_SYSCALL_INTERRUPT_PRIORITY **10 ***

Added with 10.2.1 support:

MESSAGE_BUFFER_LENGTH_TYPE size_t
 USE_POSIX_ERRNO **Enabled ***

CMSIS-RTOS V2 flags:

USE_OS2_THREAD_SUSPEND_RESUME Enabled
 USE_OS2_THREAD_ENUMERATE Enabled
 USE_OS2_EVENTFLAGS_FROM_ISR Enabled
 USE_OS2_THREAD_FLAGS Enabled
 USE_OS2_TIMER Enabled
 USE_OS2_MUTEX Enabled

7.11.2. Include parameters:

Include definitions:

vTaskPrioritySet Enabled
 uxTaskPriorityGet Enabled
 vTaskDelete Enabled
 vTaskCleanUpResources **Enabled ***
 vTaskSuspend Enabled
 vTaskDelayUntil Enabled
 vTaskDelay Enabled
 xTaskGetSchedulerState Enabled
 xTaskResumeFromISR Enabled
 xQueueGetMutexHolder Enabled
 xSemaphoreGetMutexHolder **Enabled ***
 pcTaskGetTaskName **Enabled ***
 uxTaskGetStackHighWaterMark Enabled
 xTaskGetCurrentTaskHandle Enabled
 eTaskGetState Enabled
 xEventGroupSetBitFromISR **Enabled ***
 xTimerPendFunctionCall Enabled

xTaskAbortDelay	Enabled *
xTaskGetHandle	Enabled *
uxTaskGetStackHighWaterMark2	Enabled *

7.11.3. Advanced settings:

Newlib settings (see parameter description first):

USE_NEWLIB_REENTRANT	Enabled *
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Project settings (see parameter description first):

Use FW pack heap file	Enabled
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* User modified value

8. System Configuration

8.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
ADC1	PC2	ADC1_IN12	Analog mode	No pull-up and no pull-down	n/a	VS
	PC3	ADC1_IN13	Analog mode	No pull-up and no pull-down	n/a	LS
RCC	PH0 - OSC_IN	RCC_OSC_IN	n/a	n/a	n/a	
	PH1 - 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	
TIM2	PB10	TIM2_CH3	Alternate Function Push Pull	No pull-up and no pull-down	Low	IL_PWM
	PA15	TIM2_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	LB_PWM
	PB3	TIM2_CH2	Alternate Function Push Pull	No pull-up and no pull-down	Low	RPL_PWM
TIM3	PC7	TIM3_CH2	Alternate Function Push Pull	No pull-up and no pull-down	Low	BL_PWM
	PC8	TIM3_CH3	Alternate Function Push Pull	No pull-up and no pull-down	Low	FFL_PWM
	PC9	TIM3_CH4	Alternate Function Push Pull	No pull-up and no pull-down	Low	RFL_PWM
TIM4	PB8	TIM4_CH3	Alternate Function Push Pull	No pull-up and no pull-down	Low	LTS_PWM
	PB9	TIM4_CH4	Alternate Function Push Pull	No pull-up and no pull-down	Low	RTS_PWM
TIM5	PA0-WKUP	TIM5_CH1	Alternate Function Push Pull	No pull-up and no pull-down	Low	PDCF_IC
	PA1	TIM5_CH2	Alternate Function Push Pull	No pull-up and no pull-down	Low	PDCR_IC
USART1	PA9	USART1_TX	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	
	PA10	USART1_RX	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	
GPIO	PC13-ANTI_TAMP	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	PDCF_BUZZER
	PC14-OSC32_IN	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PC15-OSC32_OUT	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PC0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PC1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PA2	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PA3	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PA4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PA5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
	PA6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PA7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PC4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PC5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PB0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PB1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PB2	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	CENLOC_BUZZER
	PB12	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	SECALM_BUZZER
	PB13	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	PDCR_TRIG
	PB14	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	AL
	PB15	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	RL
	PC6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PA8	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PA11	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	PDCF_TRIG
	PA12	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	HB
	PC10	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PC11	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PC12	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PD2	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PB4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PB5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	PDCR_BUZZER
	PB6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PB7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	

8.2. DMA configuration

DMA request	Stream	Direction	Priority
ADC1	DMA2_Stream0	Peripheral To Memory	Very High *

ADC1: DMA2_Stream0 DMA request Settings:

Mode: **Circular ***
Use fifo: **Enable ***
FIFO Threshold: Full
Peripheral Increment: Disable
Memory Increment: **Enable ***
Peripheral Data Width: **Word ***
Memory Data Width: **Word ***
Peripheral Burst Size: Single
Memory Burst Size: Single

8.3. NVIC configuration

8.3.1. NVIC

Interrupt Table	Enable	Preenmption Priority	SubPriority
Non maskable interrupt	true	0	0
Hard fault interrupt	true	0	0
Memory management fault	true	15	0
Pre-fetch fault, memory access fault	true	15	0
Undefined instruction or illegal state	true	15	0
System service call via SWI instruction	true	15	0
Debug monitor	true	15	0
Pendable request for system service	true	15	0
System tick timer	true	15	0
RCC global interrupt	true	15	0
ADC1 global interrupt	true	15	0
TIM1 update interrupt and TIM10 global interrupt	true	15	0
TIM2 global interrupt	true	15	0
TIM3 global interrupt	true	15	0
TIM4 global interrupt	true	15	0
USART1 global interrupt	true	15	0
TIM5 global interrupt	true	10	0
DMA2 stream0 global interrupt	true	10	0
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
FPU global interrupt	unused		

8.3.2. NVIC Code generation

Enabled interrupt Table	Select for init sequence ordering	Generate IRQ handler	Call HAL handler
Non maskable interrupt	false	true	false
Hard fault interrupt	false	true	false
Memory management fault	false	true	false
Pre-fetch fault, memory access fault	false	true	false
Undefined instruction or illegal state	false	true	false
System service call via SWI instruction	false	false	false
Debug monitor	false	true	false
Pendable request for system service	false	false	false
System tick timer	false	false	true
RCC global interrupt	true	true	false
ADC1 global interrupt	true	true	true

Enabled interrupt Table	Select for init sequence ordering	Generate IRQ handler	Call HAL handler
TIM1 update interrupt and TIM10 global interrupt	false	true	true
TIM2 global interrupt	true	true	true
TIM3 global interrupt	true	true	true
TIM4 global interrupt	true	true	true
USART1 global interrupt	true	true	true
TIM5 global interrupt	true	true	true
DMA2 stream0 global interrupt	true	true	true

* User modified value

9. System Views

9.1. Category view

9.1.1. Current

Middleware

FREERTOS 

Additional Software

System Core

DMA 

GPIO 

IWDG 

IVIC 

RCC 

SYS 

Analog

ADC1 

Timers

TIM2 

TIM3 

TIM4 

TIM5 

Connectivity

USART1 

Multimedia

Computing

CRC 

10. Software Pack Report

10.1. Software Pack selected

Vendor	Name	Version	Component
STMicroelectronics	X-CUBE-EEPRMA1	4.1.0	Class : Board Part Group : M24 SubGroup : M24XX Version : 4.1.0
SEGGER	I-CUBE-embOS	1.3.1	Class : RTOS Group : embOS kernel configuration Variant : Debug and Trace Version : 1.1.0 Class : RTOS Group : embOS API configuration Variant : CMSIS- RTOS2 Version : 1.1.0 Class : RTOS Group : embOS sample applications Variant : OS_Start2Tasks_ CMSIS2.c Version : 1.1.0

11. Docs & Resources

Type	Link
BSDL files	https://www.st.com/resource/en/bsdl_model/stm32f411_bsd1.zip
IBIS models	https://www.st.com/resource/en/ibis_model/stm32f411_ibis.zip
System View Description	https://www.st.com/resource/en/svd/stm32f4_svd.zip
BSDL files	https://www.st.com/resource/en/bsdl_model/stm32f411_bsd1.zip
IBIS models	https://www.st.com/resource/en/ibis_model/stm32f411_ibis.zip
System View Description	https://www.st.com/resource/en/svd/stm32f4_svd.zip
Presentations	https://www.st.com/resource/en/product_presentation/stm32-stm8_embedded_software_solutions.pdf
Presentations	https://www.st.com/resource/en/product_presentation/stm32_eval-tools_portfolio.pdf
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