



1. Description

1.1. Project

Project Name	STM32Lib
Board Name	custom
Generated with:	STM32CubeMX 6.1.1
Date	01/18/2021

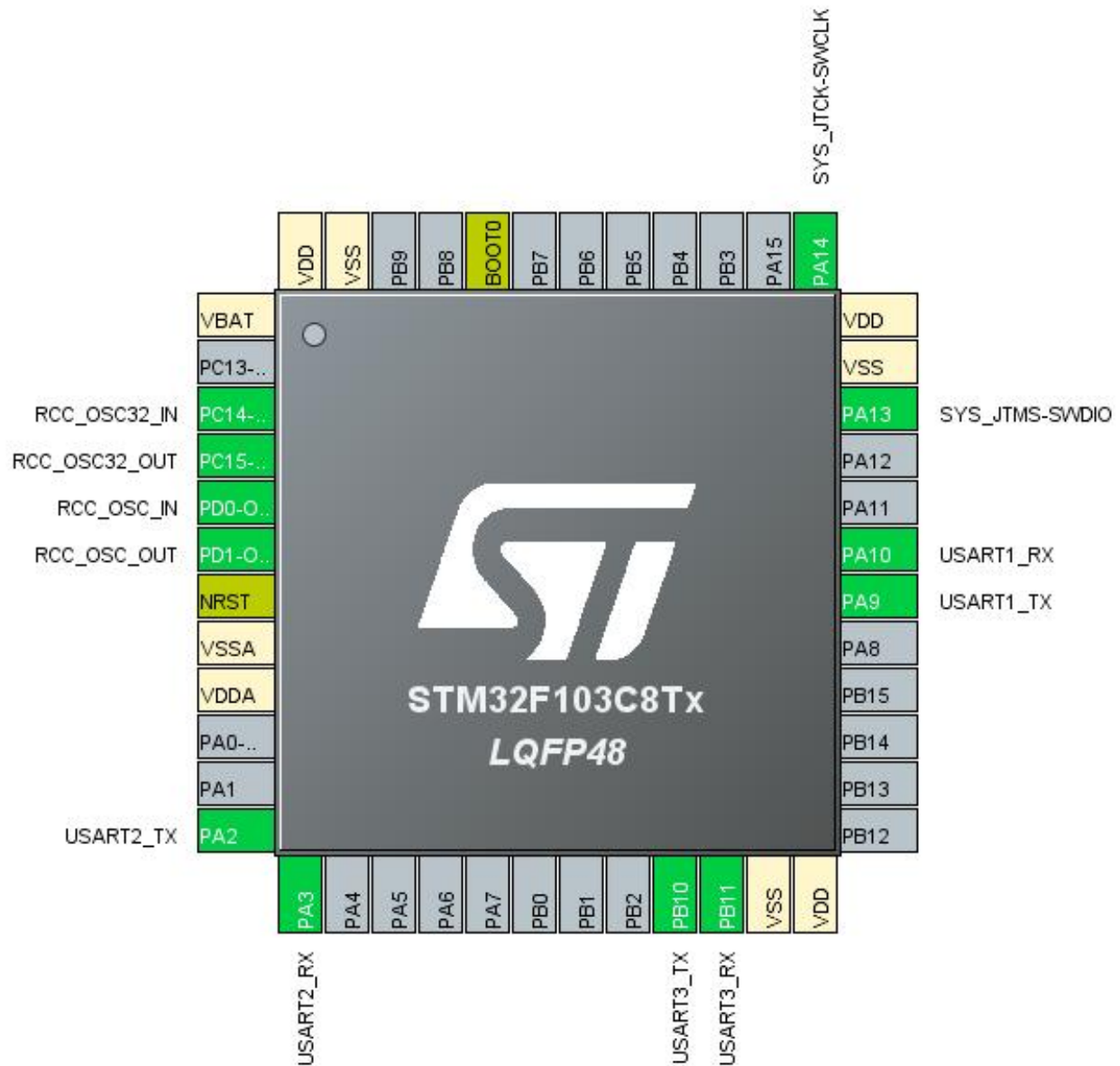
1.2. MCU

MCU Series	STM32F1
MCU Line	STM32F103
MCU name	STM32F103C8Tx
MCU Package	LQFP48
MCU Pin number	48

1.3. Core(s) information

Core(s)	Arm Cortex-M3
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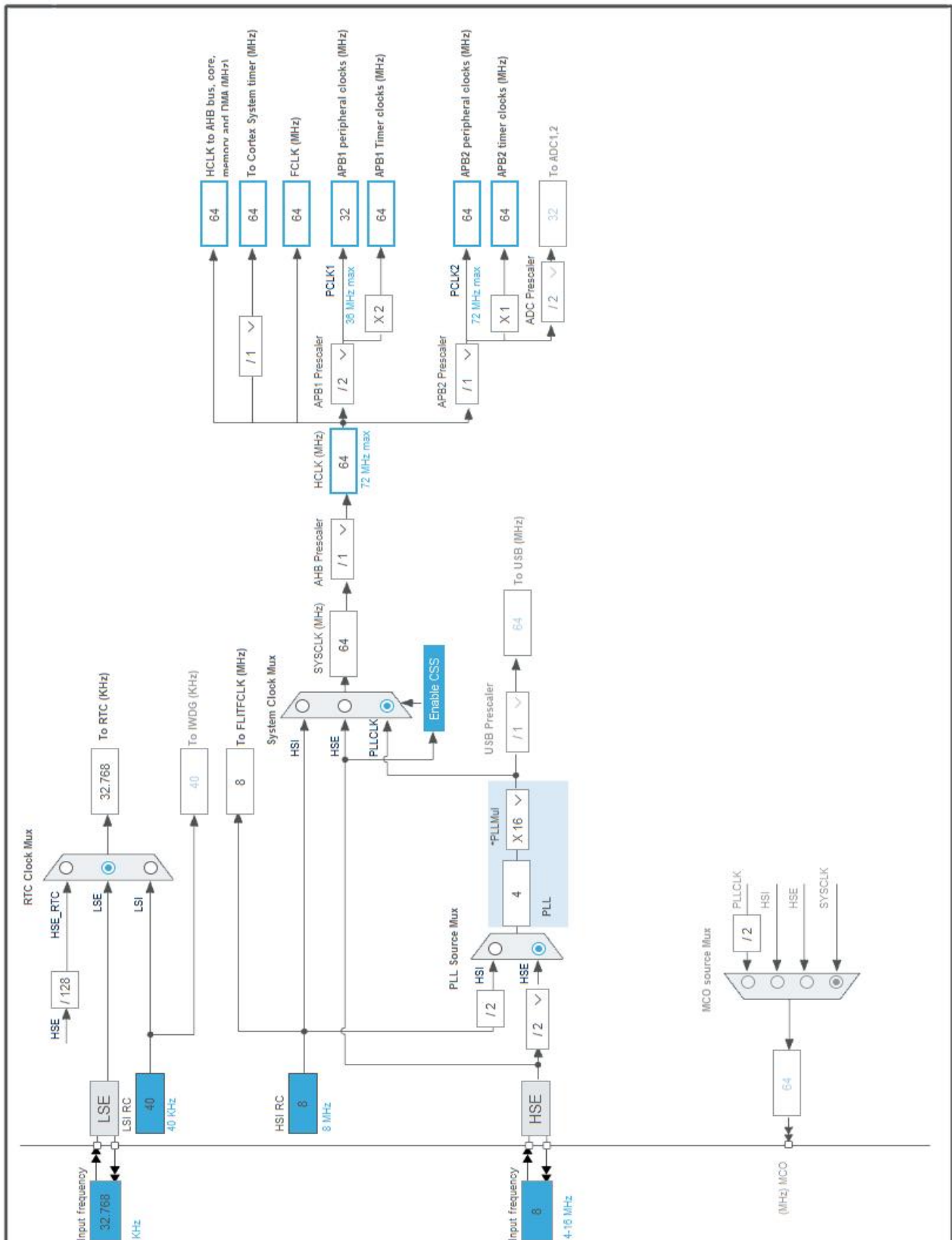
2. Pinout Configuration



3. Pins Configuration

Pin Number LQFP48	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VBAT	Power		
3	PC14-OSC32_IN	I/O	RCC_OSC32_IN	
4	PC15-OSC32_OUT	I/O	RCC_OSC32_OUT	
5	PD0-OSC_IN	I/O	RCC_OSC_IN	
6	PD1-OSC_OUT	I/O	RCC_OSC_OUT	
7	NRST	Reset		
8	VSSA	Power		
9	VDDA	Power		
12	PA2	I/O	USART2_TX	
13	PA3	I/O	USART2_RX	
21	PB10	I/O	USART3_TX	
22	PB11	I/O	USART3_RX	
23	VSS	Power		
24	VDD	Power		
30	PA9	I/O	USART1_TX	
31	PA10	I/O	USART1_RX	
34	PA13	I/O	SYS_JTMS-SWDIO	
35	VSS	Power		
36	VDD	Power		
37	PA14	I/O	SYS_JTCK-SWCLK	
44	BOOT0	Boot		
47	VSS	Power		
48	VDD	Power		

4. Clock Tree Configuration



5. Software Project

5.1. Project Settings

Name	Value
Project Name	STM32Lib
Project Folder	E:\DiskE\ThreadX_RTOS\stm32_ucshell_tx_demo
Toolchain / IDE	EWARM V8.32
Firmware Package Name and Version	STM32Cube FW_F1 V1.8.3
Application Structure	Advanced
Generate Under Root	No
Do not generate the main()	No
Minimum Heap Size	0x200
Minimum Stack Size	0x400

5.2. Code Generation Settings

Name	Value
STM32Cube MCU packages and embedded software	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
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	MX_GPIO_Init	GPIO
2	MX_DMA_Init	DMA
3	SystemClock_Config	RCC
4	MX_RTC_Init	RTC
5	MX_USART1_UART_Init	USART1
6	MX_USART2_UART_Init	USART2
7	MX_CRC_Init	CRC
8	MX_USART3_UART_Init	USART3

6. Power Consumption Calculator report

6.1. Microcontroller Selection

Series	STM32F1
Line	STM32F103
MCU	STM32F103C8Tx
Datasheet	DS5319_Rev17

6.2. Parameter Selection

Temperature	25
Vdd	3.3

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

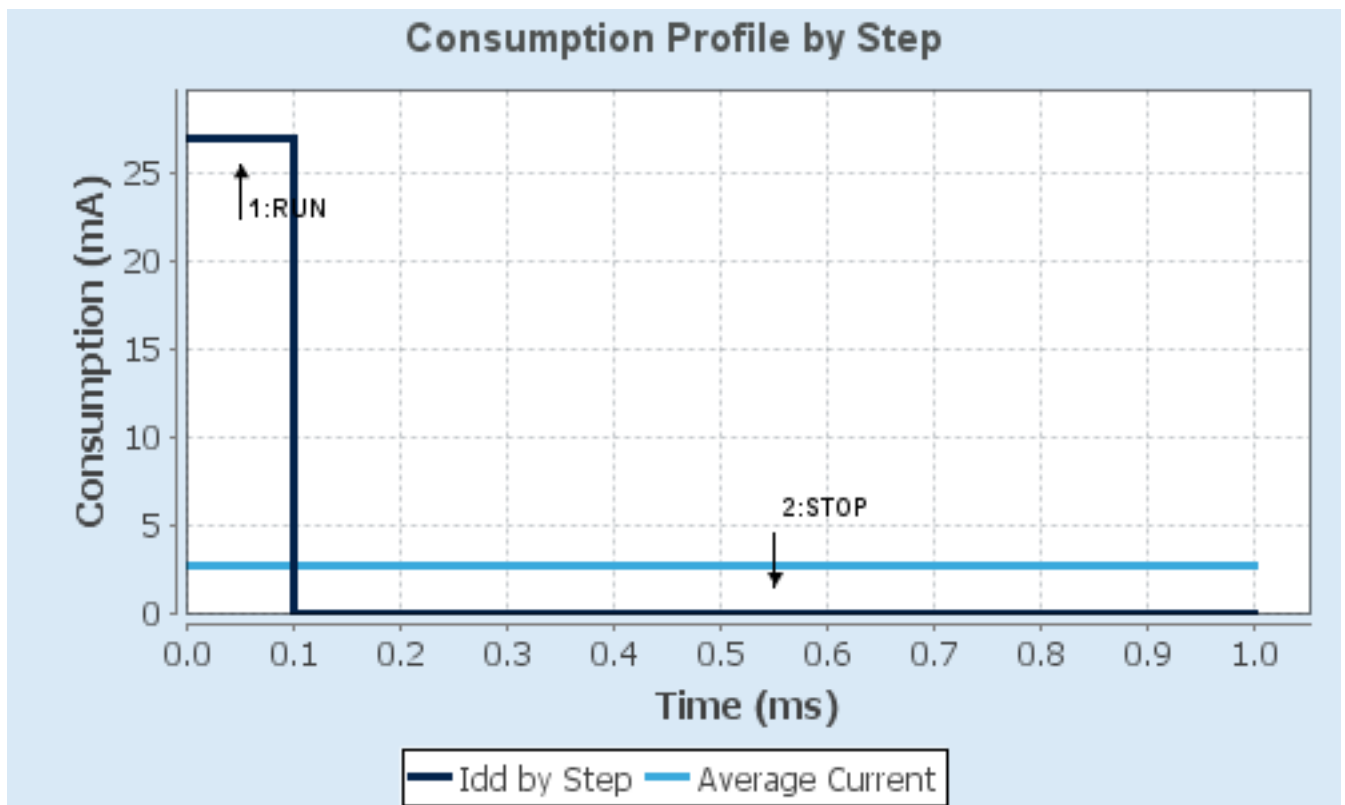
6.4. Sequence

Step	Step1	Step2
Mode	RUN	STOP
Vdd	3.3	3.3
Voltage Source	Battery	Battery
Range	No Scale	No Scale
Fetch Type	FLASH	n/a
CPU Frequency	72 MHz	0 Hz
Clock Configuration	HSE PLL	Regulator LP
Clock Source Frequency	8 MHz	0 Hz
Peripherals		
Additional Cons.	0 mA	0 mA
Average Current	27 mA	14 μ A
Duration	0.1 ms	0.9 ms
DMIPS	90.0	0.0
Ta Max	100.1	105
Category	In DS Table	In DS Table

6.5. Results

Sequence Time	1 ms	Average Current	2.71 mA
Battery Life	1 month, 21 days, 17 hours	Average DMIPS	61.0 DMIPS

6.6. Chart



7. Peripherals and Middlewares Configuration

7.1. CRC

mode: Activated

7.2. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

Low Speed Clock (LSE) : Crystal/Ceramic Resonator

7.2.1. Parameter Settings:

System Parameters:

VDD voltage (V)	3.3
Prefetch Buffer	Enabled
Flash Latency(WS)	2 WS (3 CPU cycle)

RCC Parameters:

HSI Calibration Value	16
HSE Startup Timeout Value (ms)	100
LSE Startup Timeout Value (ms)	5000

7.3. RTC

mode: Activate Clock Source

7.3.1. Parameter Settings:

Calendar Time:

Data Format	BCD data format
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General:

Auto Predivider Calculation	Enabled
Asynchronous Predivider value	Automatic Predivider Calculation Enabled
Output	Alarm pulse signal on the TAMPER pin

7.4. SYS

Debug: Serial Wire

Timebase Source: TIM4

7.5. USART1

Mode: Asynchronous

7.5.1. 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

7.6. USART2

Mode: Asynchronous

7.6.1. 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

7.7. USART3

Mode: Asynchronous

7.7.1. 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**

8. System Configuration

8.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
RCC	PC14-OSC32_IN	RCC_OSC32_IN	n/a	n/a	n/a	
	PC15-OSC32_OUT	RCC_OSC32_OUT	n/a	n/a	n/a	
	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	
USART1	PA9	USART1_TX	Alternate Function Push Pull	n/a	High *	
	PA10	USART1_RX	Input mode	No pull-up and no pull-down	n/a	
USART2	PA2	USART2_TX	Alternate Function Push Pull	n/a	High *	
	PA3	USART2_RX	Input mode	No pull-up and no pull-down	n/a	
USART3	PB10	USART3_TX	Alternate Function Push Pull	n/a	High *	
	PB11	USART3_RX	Input mode	No pull-up and no pull-down	n/a	

8.2. DMA configuration

DMA request	Stream	Direction	Priority
USART1_TX	DMA1_Channel4	Memory To Peripheral	Medium *
USART2_TX	DMA1_Channel7	Memory To Peripheral	Medium *
USART3_TX	DMA1_Channel2	Memory To Peripheral	Medium *
USART2_RX	DMA1_Channel6	Peripheral To Memory	Low
USART1_RX	DMA1_Channel5	Peripheral To Memory	Medium *
USART3_RX	DMA1_Channel3	Peripheral To Memory	Low

USART1_TX: DMA1_Channel4 DMA request Settings:

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

USART2_TX: DMA1_Channel7 DMA request Settings:

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

USART3_TX: DMA1_Channel2 DMA request Settings:

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

USART2_RX: DMA1_Channel6 DMA request Settings:

Mode: **Circular ***
Peripheral Increment: Disable

Memory Increment: **Enable ***
Peripheral Data Width: Byte
Memory Data Width: Byte

USART1_RX: DMA1_Channel5 DMA request Settings:

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

USART3_RX: DMA1_Channel3 DMA request Settings:

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

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	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
RTC global interrupt	true	0	0
DMA1 channel2 global interrupt	true	0	0
DMA1 channel3 global interrupt	true	0	0
DMA1 channel4 global interrupt	true	0	0
DMA1 channel5 global interrupt	true	0	0
DMA1 channel6 global interrupt	true	0	0
DMA1 channel7 global interrupt	true	0	0
TIM4 global interrupt	true	0	0
USART1 global interrupt	true	0	0
USART2 global interrupt	true	0	0
USART3 global interrupt	true	0	0
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
RTC alarm interrupt through EXTI line 17	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
Prefetch fault, memory access fault	false	true	false
Undefined instruction or illegal state	false	true	false
System service call via SWI instruction	false	true	false
Debug monitor	false	true	false
Pendable request for system service	false	true	false
System tick timer	false	true	true

Enabled interrupt Table	Select for init sequence ordering	Generate IRQ handler	Call HAL handler
RTC global interrupt	false	true	true
DMA1 channel2 global interrupt	false	true	true
DMA1 channel3 global interrupt	false	true	true
DMA1 channel4 global interrupt	false	true	true
DMA1 channel5 global interrupt	false	true	true
DMA1 channel6 global interrupt	false	true	true
DMA1 channel7 global interrupt	false	true	true
TIM4 global interrupt	false	true	true
USART1 global interrupt	false	true	true
USART2 global interrupt	false	true	true
USART3 global interrupt	false	true	true

* User modified value

9. System Views

9.1. Category view

9.1.1. Current

10. Docs & Resources

Type	Link
Datasheet	http://www.st.com/resource/en/datasheet/CD00161566.pdf
Reference manual	http://www.st.com/resource/en/reference_manual/CD00171190.pdf
Programming manual	http://www.st.com/resource/en/programming_manual/CD00228163.pdf
Programming manual	http://www.st.com/resource/en/programming_manual/CD00283419.pdf
Errata sheet	http://www.st.com/resource/en/errata_sheet/CD00190234.pdf
Application note	http://www.st.com/resource/en/application_note/CD00160362.pdf
Application note	http://www.st.com/resource/en/application_note/CD00164185.pdf
Application note	http://www.st.com/resource/en/application_note/CD00167326.pdf
Application note	http://www.st.com/resource/en/application_note/CD00167594.pdf
Application note	http://www.st.com/resource/en/application_note/CD00211314.pdf
Application note	http://www.st.com/resource/en/application_note/CD00249778.pdf
Application note	http://www.st.com/resource/en/application_note/CD00259245.pdf
Application note	http://www.st.com/resource/en/application_note/CD00264321.pdf
Application note	http://www.st.com/resource/en/application_note/CD00264342.pdf
Application note	http://www.st.com/resource/en/application_note/CD00264379.pdf
Application note	http://www.st.com/resource/en/application_note/DM00024853.pdf
Application note	http://www.st.com/resource/en/application_note/DM00032987.pdf
Application note	http://www.st.com/resource/en/application_note/DM00033267.pdf
Application note	http://www.st.com/resource/en/application_note/DM00033344.pdf
Application note	http://www.st.com/resource/en/application_note/DM00042534.pdf
Application note	http://www.st.com/resource/en/application_note/DM00052530.pdf
Application note	http://www.st.com/resource/en/application_note/DM00073742.pdf
Application note	http://www.st.com/resource/en/application_note/DM00080497.pdf
Application note	http://www.st.com/resource/en/application_note/DM00129215.pdf

Application note http://www.st.com/resource/en/application_note/DM00160482.pdf
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Application note http://www.st.com/resource/en/application_note/DM00236305.pdf
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Application note http://www.st.com/resource/en/application_note/DM00325582.pdf
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Application note http://www.st.com/resource/en/application_note/DM00354244.pdf
Application note http://www.st.com/resource/en/application_note/DM00315319.pdf
Application note http://www.st.com/resource/en/application_note/DM00380469.pdf
Application note http://www.st.com/resource/en/application_note/DM00395696.pdf
Application note http://www.st.com/resource/en/application_note/DM00493651.pdf
Application note http://www.st.com/resource/en/application_note/DM00536349.pdf