1. Description

1.1. Project

Project Name	TIMER_INT
Board Name	custom
Generated with:	STM32CubeMX 6.2.0
Date	03/22/2021

1.2. MCU

MCU Series	STM32F7
MCU Line	STM32F7x7
MCU name	STM32F767IGTx
MCU Package	LQFP176
MCU Pin number	176

1.3. Core(s) information

| Core(s)	Arm Cortex-M7

2. Pinout Configuration

STM32F767IGTx
LQFP176

3. Pins Configuration

Pin Number LQFP176	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
6	VBAT	Power		
9	PC14/OSC32_IN	I/O	RCC_OSC32_IN	
10	PC15/OSC32_OUT	I/O	RCC_OSC32_OUT	
14	VSS	Power		
15	VDD	Power		
22	VSS	Power		
23	VDD	Power		
29	PH0/OSC_IN	I/O	RCC_OSC_IN	
30	PH1/OSC_OUT	I/O	RCC_OSC_OUT	
31	NRST	Reset		
36	VDD	Power		
37	VSSA	Power		
38	VREF+	Power		
39	VDDA	Power		
48	BYPASS_REG	Reset		
49	VDD	Power		
56	PB0 *	I/O	GPIO_Output	DS1
57	PB1 *	I/O	GPIO_Output	DS0
61	VSS	Power		
62	VDD	Power		
71	VSS	Power		
72	VDD	Power		
81	VCAP_1	Power		
82	VDD	Power		
90	VSS	Power		
91	VDD	Power		
102	VSS	Power		
103	VDD	Power		
113	VSS	Power		
114	VDDUSB	Power		
124	PA13	I/O	SYS_JTMS-SWDIO	
125	VCAP_2	Power		
126	VSS	Power		
127	VDD	Power		
135	VSS	Power		
136	VDD	Power		

Pin Number LQFP176	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
137	PA14	I/O	SYS_JTCK-SWCLK	
148	VSS	Power		
149	VDDSDMMC	Power		
158	VSS	Power		
159	VDD	Power		
161	PB3	I/O	SYS_JTDO-SWO	
166	BOOT0	Boot		
171	PDR_ON	Reset		
172	VDD	Power		

* The pin is affected with an I/O function

4. Clock Tree Configuration
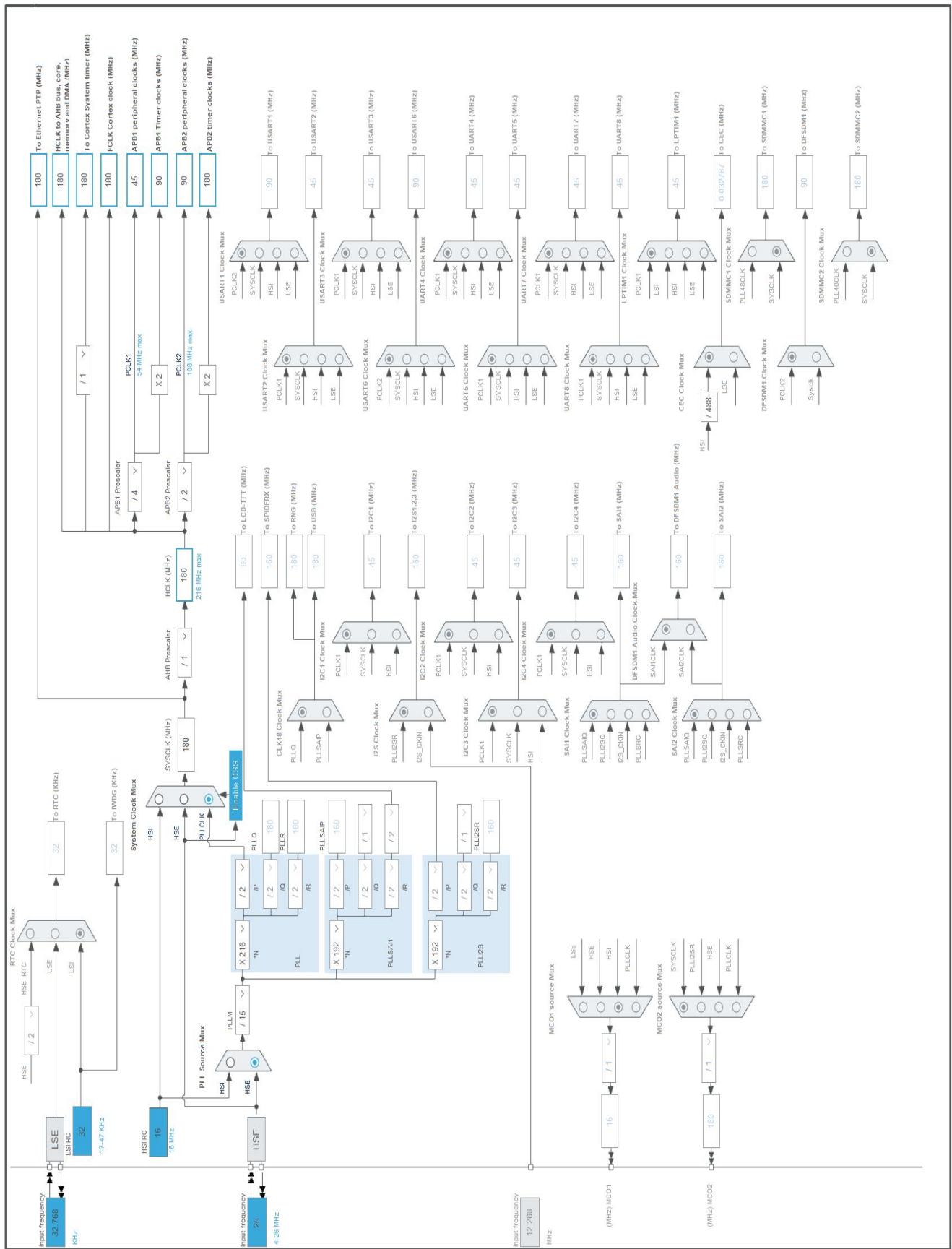
5. Software Project

5.1. Project Settings

Name	Value
Project Name	TIMER_INT
Project Folder	D:\GitRepository\Practice\RawApp\TIMER_INT
Toolchain / IDE	STM32CubeIDE
Firmware Package Name and Version	STM32Cube FW_F7 V1.16.1
Application Structure	Advanced
Generate Under Root	Yes
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)	No
Enable Full Assert	No

5.3. Advanced Settings - Generated Function Calls

Rank	Function Name	Peripheral Instance Name
1	MX_GPIO_Init	GPIO
2	SystemClock_Config	RCC
3	MX_TIM3_Init	TIM3

6. Power Consumption Calculator report

6.1. Microcontroller Selection

Series	STM32F7
Line	STM32F7x7
MCU	STM32F767IGTx
Datasheet	DS11532_Rev4

6.2. Parameter Selection

Temperature	25
Vdd	3.3

6.3. Battery Selection

Battery	Alkaline(9V)
Capacity	625.0 mAh
Self Discharge	0.3 %/month
Nominal Voltage	9.0 V
Max Cont Current	200.0 mA
Max Pulse Current	0.0 mA
Cells in series	1
Cells in parallel	1

6.4. Sequence

Step	Step1	Step2
Mode	RUN	STOP_UDM (Under Drive)
Vdd	3.3	3.3
Voltage Source	Battery	Battery
Range	Scale1-High	No Scale
Fetch Type	ICTM FLASH-SingleBank REGON	n/a
CPU Frequency	216 MHz	0 Hz
Clock Configuration	HSE PLL	Regulator_LP Flash-PwrDwn
Clock Source Frequency	4 MHz	0 Hz
Peripherals		
Additional Cons.	0 mA	0 mA
Average Current	118 mA	130 µA
Duration	0.1 ms	0.9 ms
DMIPS	462.0	0.0
Ta Max	90.2	104.98
Category	In DS Table	In DS Table

6.5. Results

Sequence Time	1 ms	Average Current	11.92 mA
Battery Life	2 days, 4 hours	Average DMIPS	462.24005 DMIPS

6.6. Chart
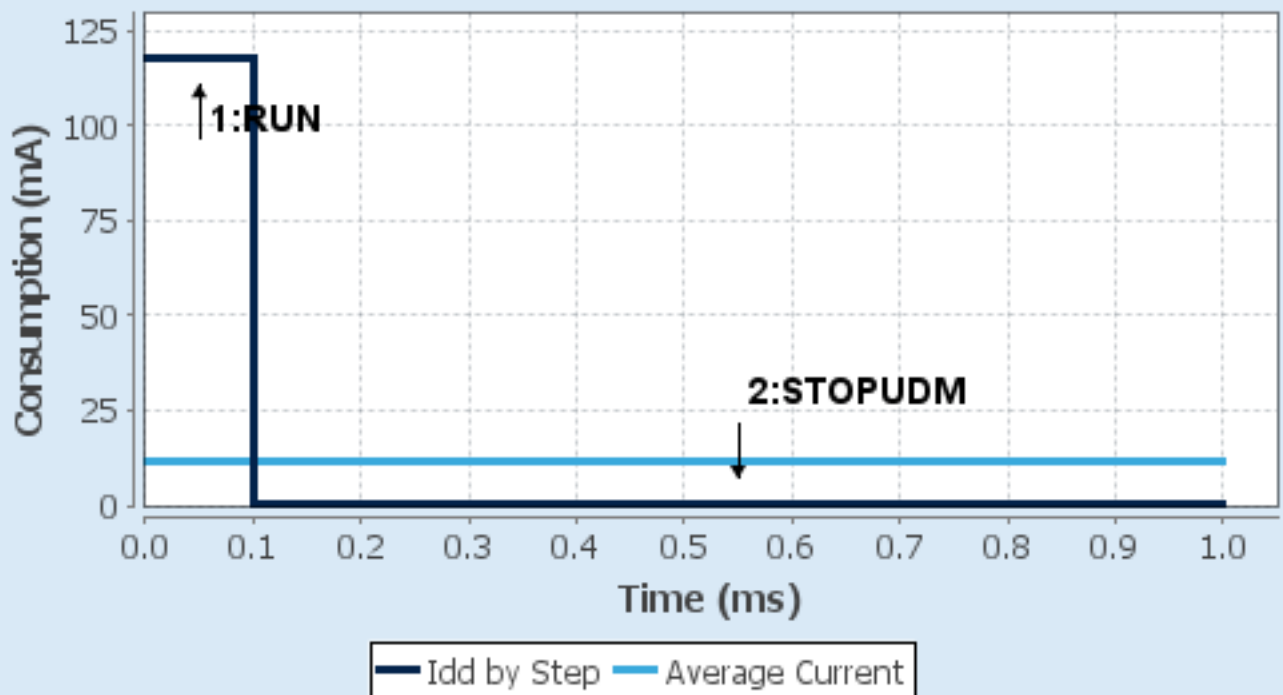
7. Peripherals and Middlewares Configuration

7.1. RCC
High Speed Clock (HSE): Crystal/Ceramic Resonator
Low Speed Clock (LSE) : Crystal/Ceramic Resonator

7.1.1. Parameter Settings:

System Parameters:

VDD voltage (V)	3.3
Flash Latency(WS)	5 WS (6 CPU cycle)

RCC Parameters:

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

Power Parameters:

Power Over Drive	Disabled
Power Regulator Voltage Scale	Power Regulator Voltage Scale 1

7.2. SYS
Debug: Trace Asynchronous Sw
Timebase Source: SysTick

7.3. TIM3
Clock Source   : Internal Clock

7.3.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	**8999 ***
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	**4999 ***
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 TRGO	Reset (UG bit from TIMx_EGR)

* 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	
	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	
	PB3	SYS_JTDO-SWO	n/a	n/a	n/a	
GPIO	PB0	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	DS1
	PB1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	DS0

8.2. DMA configuration

nothing configured in DMA service

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
Pre-fetch 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
TIM3 global interrupt	true	1	3
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC 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	true	false
Debug monitor	false	true	false
Pendable request for system service	false	true	false
System tick timer	false	true	true
TIM3 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/DM00273119.pdf
Reference manual	http://www.st.com/resource/en/reference_manual/DM00224583.pdf
Programming manual	http://www.st.com/resource/en/programming_manual/DM00237416.pdf
Errata sheet	http://www.st.com/resource/en/errata_sheet/DM00257543.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/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/DM00042534.pdf
Application note	http://www.st.com/resource/en/application_note/DM00046011.pdf
Application note	http://www.st.com/resource/en/application_note/DM00072315.pdf
Application note	http://www.st.com/resource/en/application_note/DM00073742.pdf
Application note	http://www.st.com/resource/en/application_note/DM00073853.pdf
Application note	http://www.st.com/resource/en/application_note/DM00080497.pdf
Application note	http://www.st.com/resource/en/application_note/DM00081379.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
Application note	http://www.st.com/resource/en/application_note/DM00164538.pdf
Application note	http://www.st.com/resource/en/application_note/DM00164549.pdf
Application note	http://www.st.com/resource/en/application_note/DM00173083.pdf
Application note	http://www.st.com/resource/en/application_note/DM00210367.pdf
Application note	http://www.st.com/resource/en/application_note/DM00220769.pdf
Application note	http://www.st.com/resource/en/application_note/DM00227538.pdf

Application note   http://www.st.com/resource/en/application_note/DM00257177.pdf
Application note   http://www.st.com/resource/en/application_note/DM00272912.pdf
Application note   http://www.st.com/resource/en/application_note/DM00272913.pdf
Application note   http://www.st.com/resource/en/application_note/DM00226326.pdf
Application note   http://www.st.com/resource/en/application_note/DM00236305.pdf
Application note   http://www.st.com/resource/en/application_note/DM00281138.pdf
Application note   http://www.st.com/resource/en/application_note/DM00296349.pdf
Application note   http://www.st.com/resource/en/application_note/DM00327191.pdf
Application note   http://www.st.com/resource/en/application_note/DM00287603.pdf
Application note   http://www.st.com/resource/en/application_note/DM00337702.pdf
Application note   http://www.st.com/resource/en/application_note/DM00354244.pdf
Application note   http://www.st.com/resource/en/application_note/DM00373474.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/DM00354333.pdf
Application note   http://www.st.com/resource/en/application_note/DM00395696.pdf
Application note   http://www.st.com/resource/en/application_note/DM00431633.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
Application note   http://www.st.com/resource/en/application_note/DM00600614.pdf
Application note   http://www.st.com/resource/en/application_note/DM00725181.pdf