



1. Description

1.1. Project

Project Name	NUCLEO_G070RB_1
Board Name	NUCLEO-G070RB
Generated with:	STM32CubeMX 6.7.0
Date	07/12/2023

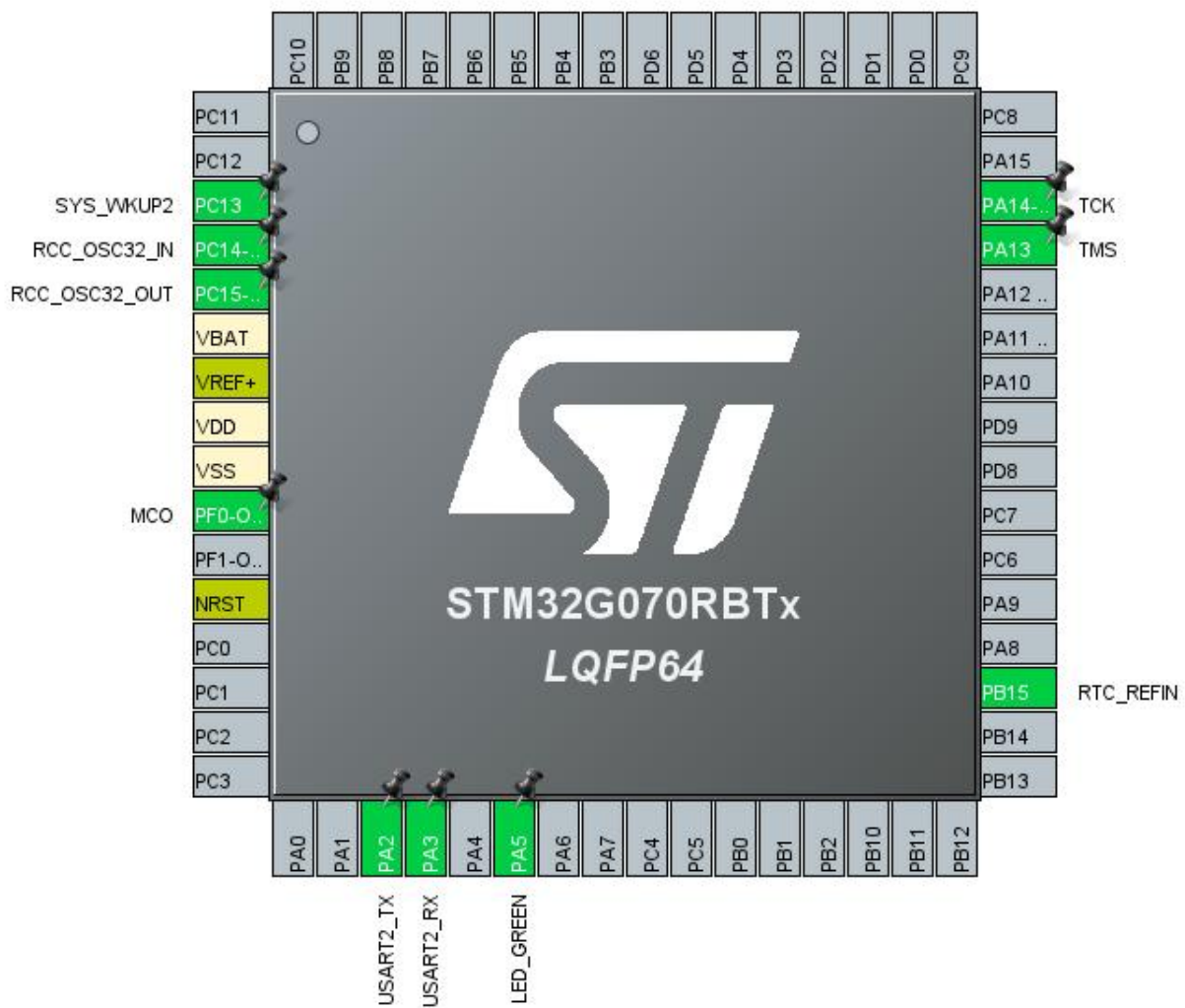
1.2. MCU

MCU Series	STM32G0
MCU Line	STM32G0x0 Value line
MCU name	STM32G070RBTx
MCU Package	LQFP64
MCU Pin number	64

1.3. Core(s) information

Core(s)	ARM Cortex-M0+
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2. Pinout Configuration

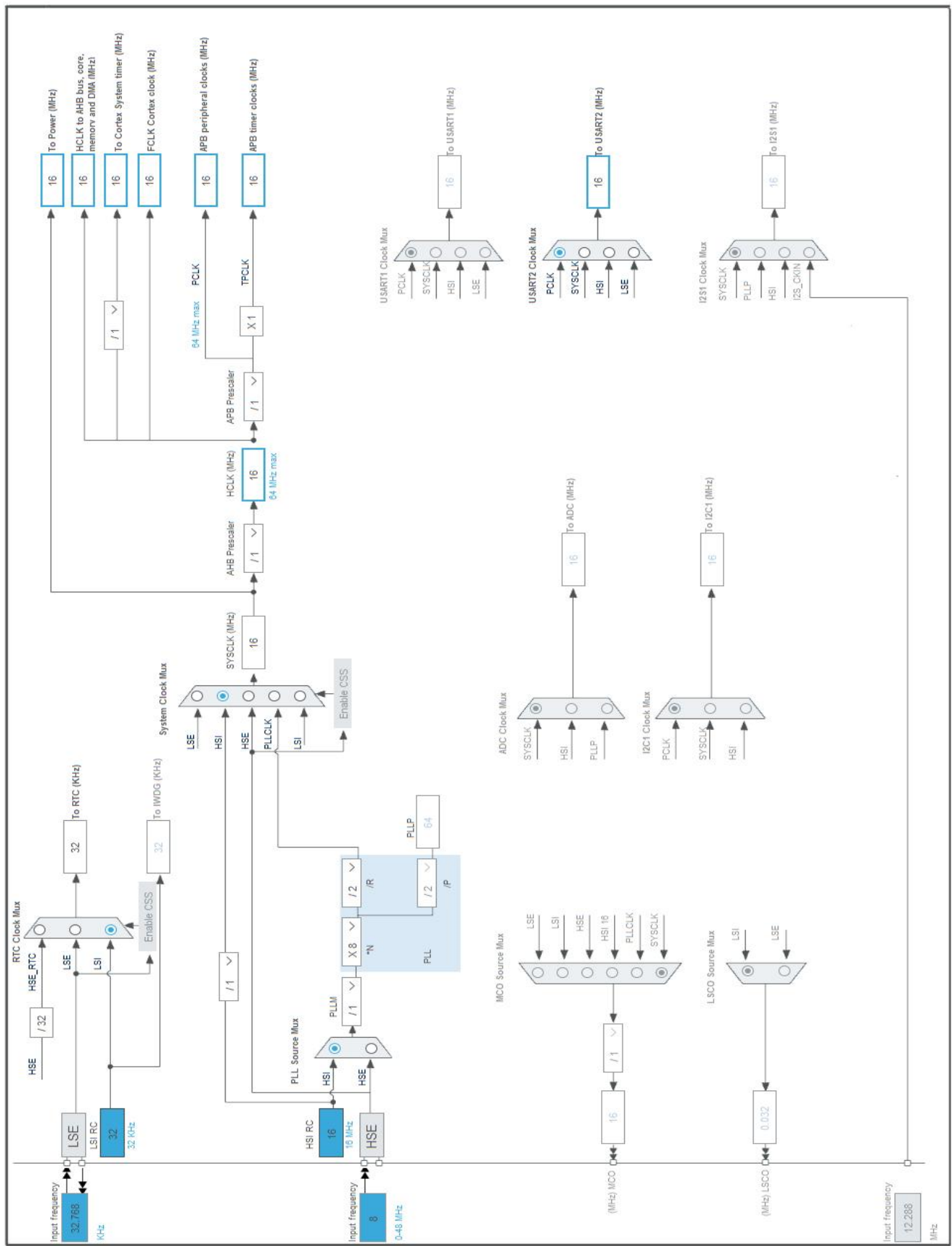


3. Pins Configuration

Pin Number LQFP64	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
3	PC13	I/O	SYS_WKUP2	
4	PC14-OSC32_IN (PC14)	I/O	RCC_OSC32_IN	
5	PC15-OSC32_OUT (PC15)	I/O	RCC_OSC32_OUT	
6	VBAT	Power		
7	VREF+	MonoIO		
8	VDD	Power		
9	VSS	Power		
10	PF0-OSC_IN (PF0)	I/O	RCC_OSC_IN	MCO
12	NRST	Reset		
19	PA2	I/O	USART2_TX	
20	PA3	I/O	USART2_RX	
22	PA5 *	I/O	GPIO_Output	LED_GREEN
35	PB15	I/O	RTC_REFIN	
45	PA13	I/O	SYS_SWDIO	TMS
46	PA14-BOOT0	I/O	SYS_SWCLK	TCK

* The pin is affected with an I/O function

4. Clock Tree Configuration



5. Software Project

5.1. Project Settings

Name	Value
Project Name	NUCLEO_G070RB_1
Project Folder	C:\sankar\LLM\Firmware\NUCLEO_G070RB_2
Toolchain / IDE	STM32CubeIDE
Firmware Package Name and Version	STM32Cube FW_G0 V1.6.1
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	No
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	SystemClock_Config	RCC
2	MX_GPIO_Init	GPIO
3	MX_USART2_UART_Init	USART2
4	MX_RTC_Init	RTC
5	MX_TIM1_Init	TIM1

6. Power Consumption Calculator report

6.1. Microcontroller Selection

Series	STM32G0
Line	STM32G0x0 Value line
MCU	STM32G070RBTx
Datasheet	DS12766_Rev0

6.2. Parameter Selection

Temperature	25
Vdd	3.0

6.3. Battery Selection

Battery	Li-SOCL2(AAA700)
Capacity	700.0 mAh
Self Discharge	0.08 %/month
Nominal Voltage	3.6 V
Max Cont Current	10.0 mA
Max Pulse Current	30.0 mA
Cells in series	1
Cells in parallel	1

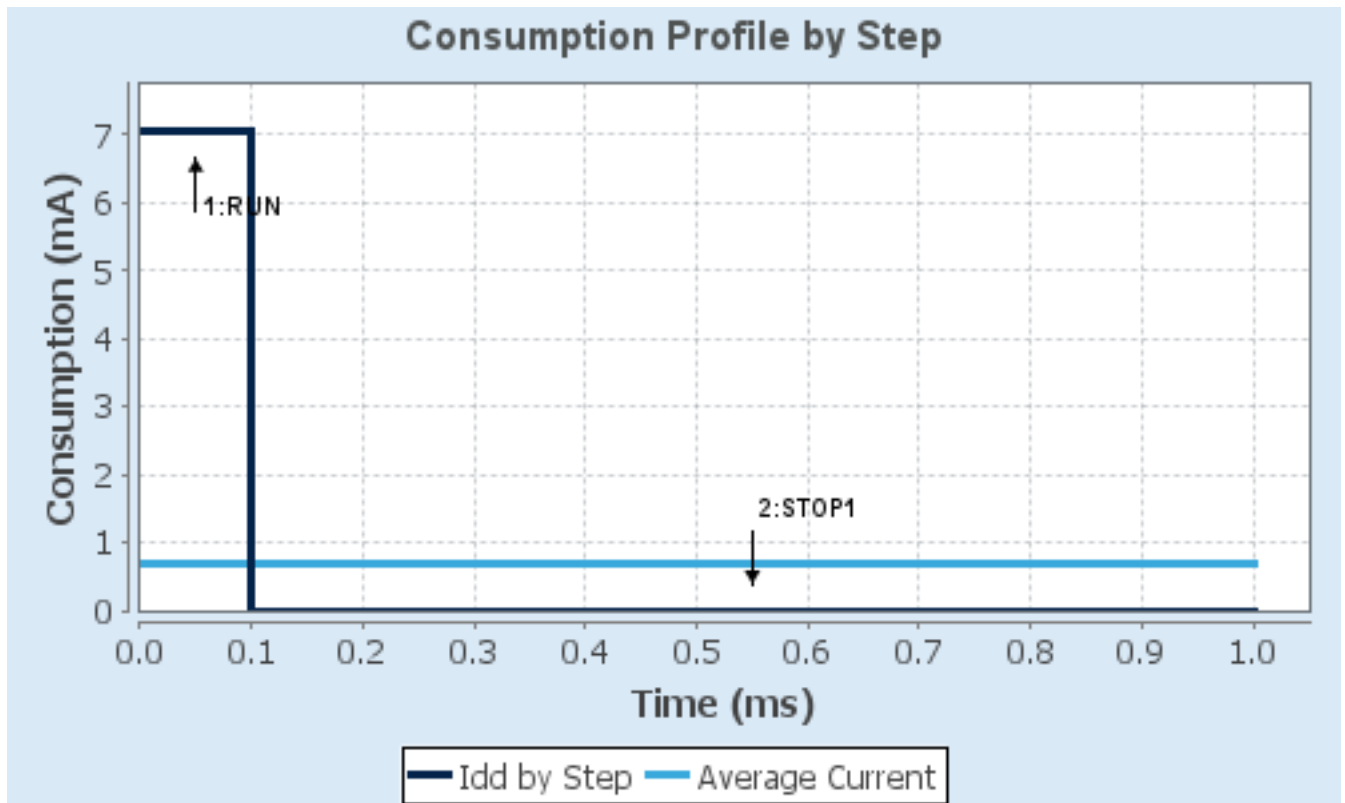
6.4. Sequence

Step	Step1	Step2
Mode	RUN	STOP1
Vdd	3.0	3.0
Voltage Source	Battery	Battery
Range	Range1-High	NoRange
Fetch Type	FLASH	Flash-PowerDown
CPU Frequency	64 MHz	16 MHz
Clock Configuration	HSI PLL	HSI
Clock Source Frequency	16 MHz	16 MHz
Peripherals		
Additional Cons.	0 mA	0 mA
Average Current	7.04 mA	3.74 μ A
Duration	0.1 ms	0.9 ms
DMIPS	80.0	0.0
Ta Max	128.63	130
Category	In DS Table	In DS Table

6.5. Results

Sequence Time	1 ms	Average Current	707.37 μ A
Battery Life	1 month, 10 days, 18 hours	Average DMIPS	80.0 DMIPS

6.6. Chart



7. Peripherals and Middlewares Configuration

7.1. RCC

High Speed Clock (HSE): BYPASS Clock Source

Low Speed Clock (LSE) : Crystal/Ceramic Resonator

7.1.1. Parameter Settings:

System Parameters:

VDD voltage (V)	3.3
Instruction Cache	Enabled
Prefetch Buffer	Enabled
Data Cache	Enabled
Flash Latency(WS)	0 WS (1 CPU cycle)

RCC Parameters:

HSI Calibration Value	64
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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Peripherals Clock Configuration:

Generate the peripherals clock configuration	TRUE
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7.2. RTC

mode: Activate Clock Source

mode: Activate Calendar

mode: Reference clock detection

7.2.1. Parameter Settings:

General:

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

Calendar Time:

Data Format	BCD data format
Hours	0
Minutes	0
Seconds	0
SubSeconds	0

Day Light Saving: value of hour adjustment	Daylightsaving None
Store Operation	Storeoperation Reset

Calendar Date:

Week Day	Monday
Month	January
Date	1
Year	0

7.3. SYS

mode: Debug

mode: System Wake-Up 2

Timebase Source: SysTick

mode: save power of non-active UCPD - deactive Dead Battery pull-up

7.4. TIM1

Clock Source : Internal Clock

7.4.1. Parameter Settings:

Counter Settings:

Prescaler (PSC - 16 bits value)	1000 *
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	7200 *
Internal Clock Division (CKD)	No Division
Repetition Counter (RCR - 16 bits value)	0
auto-reload preload	Enable *

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)
Trigger Event Selection TRGO2	Reset (UG bit from TIMx_EGR)

7.5. USART2

Mode: Asynchronous

7.5.1. Parameter Settings:

Basic Parameters:

Baud Rate	115200
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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
ClockPrescaler	1
Fifo Mode	Disable
Txfifo Threshold	1 eighth full configuration
Rxfifo Threshold	1 eighth full configuration

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

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 (PC14)	RCC_OSC32_IN	n/a	n/a	n/a	
	PC15-OSC32_OUT (PC15)	RCC_OSC32_OUT	n/a	n/a	n/a	
	PF0-OSC_IN (PF0)	RCC_OSC_IN	n/a	n/a	n/a	MCO
RTC	PB15	RTC_REFIN	n/a	n/a	n/a	
SYS	PC13	SYS_WKUP2	n/a	n/a	n/a	
	PA13	SYS_SWDIO	n/a	n/a	n/a	TMS
	PA14-BOOT0	SYS_SWCLK	n/a	n/a	n/a	TCK
USART2	PA2	USART2_TX	Alternate Function Push Pull	Pull-up *	Low	
	PA3	USART2_RX	Alternate Function Push Pull	Pull-up *	Low	
GPIO	PA5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	High *	LED_GREEN

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
System service call via SWI instruction	true	0	0
Pendable request for system service	true	0	0
System tick timer	true	0	0
TIM1 break, update, trigger and commutation interrupts	true	0	0
TIM1 capture compare interrupt	true	0	0
USART2 global interrupt / USART2 wake-up interrupt through EXTI line 26	true	0	0
Flash global interrupt	unused		
RCC 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
System service call via SWI instruction	false	true	false
Pendable request for system service	false	true	false
System tick timer	false	true	true
TIM1 break, update, trigger and commutation interrupts	false	true	true
TIM1 capture compare interrupt	false	true	true
USART2 global interrupt / USART2 wake-up interrupt through EXTI line 26	false	true	true

* User modified value

9. System Views

9.1. Category view

9.1.1. Current

Middleware

System Core	Analog	Timers	Connectivity	Multimedia	Computing
DMA		RTC ✓	USART2 ✓		
GPIO ✓		TIM1 ✓			
IIVIC ✓					
RCC ✓					
SYS ✓					

10. Docs & Resources

Type	Link
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