

1. Description

1.1. Project

Project Name	projektSemafor
Board Name	NUCLEO-F030R8
Generated with:	STM32CubeMX 6.12.0
Date	01/08/2025

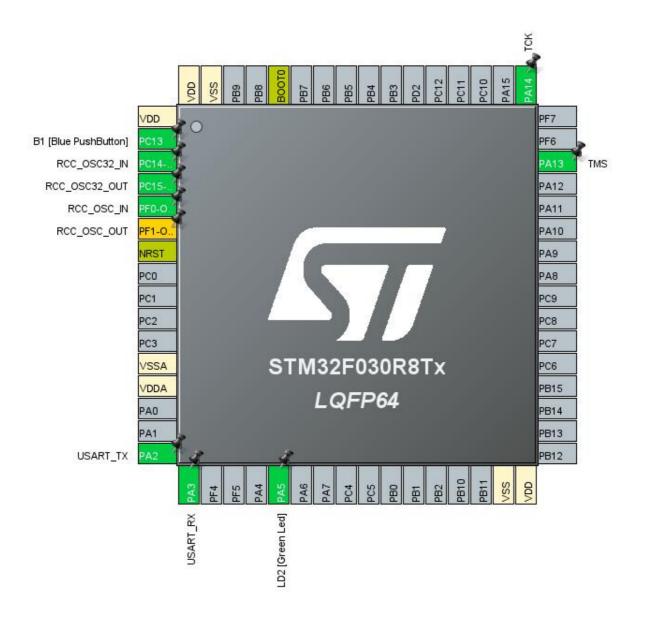
1.2. MCU

MCU Series	STM32F0
MCU Line	STM32F0x0 Value Line
MCU name	STM32F030R8Tx
MCU Package	LQFP64
MCU Pin number	64

1.3. Core(s) information

Core(s)	Arm Cortex-M0

2. Pinout Configuration



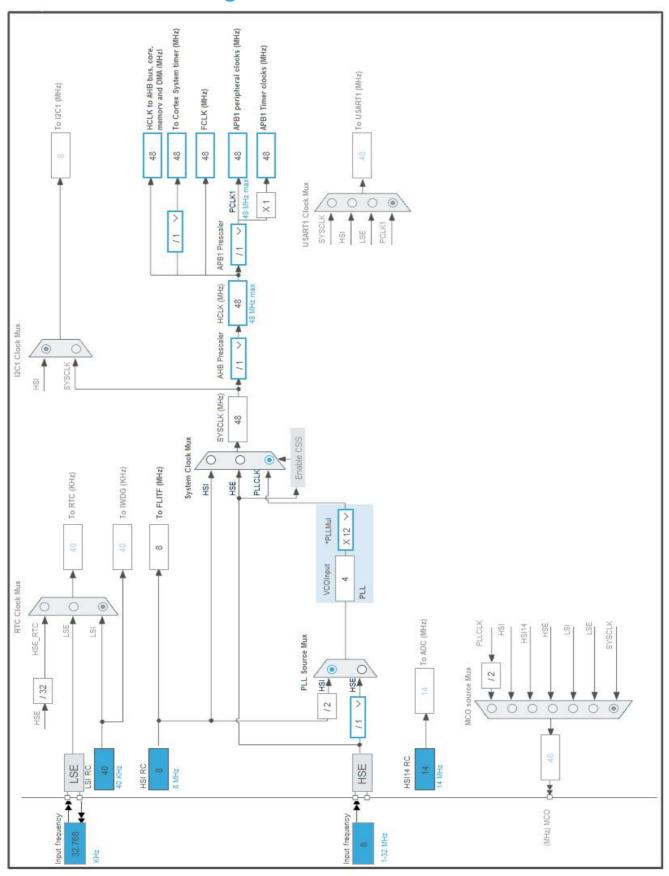
3. Pins Configuration

Pin Number LQFP64	Pin Name (function after	Pin Type	Alternate Function(s)	Label
	reset)			
1	VDD	Power		
2	PC13	I/O	GPIO_EXTI13	B1 [Blue PushButton]
3	PC14-OSC32_IN	I/O	RCC_OSC32_IN	
4	PC15-OSC32_OUT	I/O	RCC_OSC32_OUT	
5	PF0-OSC_IN	I/O	RCC_OSC_IN	
6	PF1-OSC_OUT *	I/O	RCC_OSC_OUT	
7	NRST	Reset		
12	VSSA	Power		
13	VDDA	Power		
16	PA2	I/O	USART2_TX	USART_TX
17	PA3	I/O	USART2_RX	USART_RX
21	PA5 **	I/O	GPIO_Output	LD2 [Green Led]
31	VSS	Power		
32	VDD	Power		
46	PA13	I/O	SYS_SWDIO	TMS
49	PA14	I/O	SYS_SWCLK	тск
60	воото	Boot		
63	VSS	Power		
64	VDD	Power		

^{**} The pin is affected with an I/O function

^{*} The pin is affected with a peripheral function but no peripheral mode is activated

4. Clock Tree Configuration



1. Power Consumption Calculator report

1.1. Microcontroller Selection

Series	STM32F0
Line	STM32F0x0 Value Line
мси	STM32F030R8Tx
Datasheet	DS9773_Rev2

1.2. Parameter Selection

Temperature	25
Vdd	3.6

1.3. 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

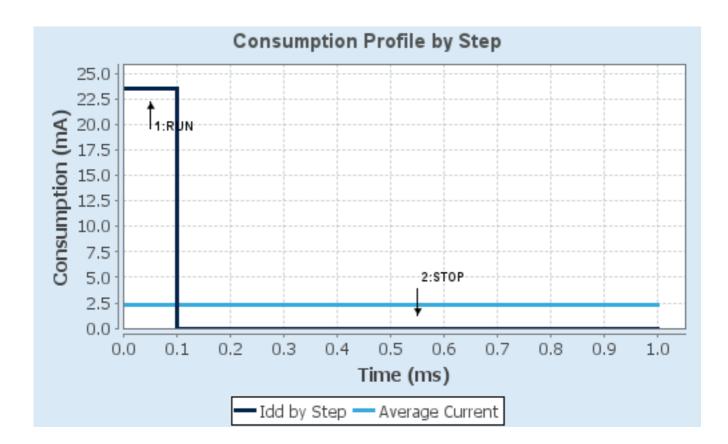
1.4. Sequence

Step	Step1	Step2
Mode	RUN	STOP
Vdd	3.6	3.6
Voltage Source	Battery	Battery
Range	No Scale	No Scale
Fetch Type	FLASH	n/a
CPU Frequency	48 MHz	0 Hz
Clock Configuration	HSE PLL All IPs ON	Regulator LP
Clock Source Frequency	8 MHz	0 Hz
Peripherals		
Additional Cons.	0 mA	0 mA
Average Current	23.46 mA	7.9 µA
Duration	0.1 ms	0.9 ms
DMIPS	0.0	0.0
Ta Max	101.28	105
Category	In DS Table	In DS Table

1.5. Results

Sequence Time	1 ms	Average Current	2.35 mA
Battery Life	1 month, 29 days,	Average DMIPS	0.0 DMIPS
	16 hours		

1.6. Chart



2. Software Project

2.1. Project Settings

Name	Value
Project Name	projektSemafor
Project Folder	C:\Temp\240141\MKS\projektSemafor
Toolchain / IDE	STM32CubeIDE
Firmware Package Name and Version	STM32Cube FW_F0 V1.11.5
Application Structure	Advanced
Generate Under Root	Yes
Do not generate the main()	No
Minimum Heap Size	0x200
Minimum Stack Size	0x400

2.2. 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

2.3. 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

3. Peripherals and Middlewares Configuration

3.1. RCC

High Speed Clock (HSE): BYPASS Clock Source

Low Speed Clock (LSE): Crystal/Ceramic Resonator

3.1.1. Parameter Settings:

System Parameters:

VDD voltage (V) 3.3
Prefetch Buffer Enabled

Flash Latency(WS) 1 WS (2 CPU cycle)

RCC Parameters:

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

3.2. SYS

mode: Debug Serial Wire

3.3. **USART2**

Mode: Asynchronous

3.3.1. Parameter Settings:

Basic Parameters:

Baud Rate 38400

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:

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

4. System Configuration

4.1. 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_OU T	RCC_OSC32_O UT	n/a	n/a	n/a	
	PF0-OSC_IN	RCC_OSC_IN	n/a	n/a	n/a	
SYS	PA13	SYS_SWDIO	n/a	n/a	n/a	TMS
	PA14	SYS_SWCLK	n/a	n/a	n/a	TCK
USART2	PA2	USART2_TX	Alternate Function Push Pull	No pull-up and no pull-down	Low	USART_TX
	PA3	USART2_RX	Alternate Function Push Pull	No pull-up and no pull-down	Low	USART_RX
Single Mapped Signals	PF1- OSC_OUT	RCC_OSC_OUT	n/a	n/a	n/a	
GPIO	PC13	GPIO_EXTI13	External Interrupt Mode with Falling edge trigger detection	No pull-up and no pull-down	n/a	B1 [Blue PushButton]
	PA5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LD2 [Green Led]

4.2. DMA configuration

nothing configured in DMA service

4.3. NVIC configuration

4.3.1. 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
Flash global interrupt	unused		
RCC global interrupt	unused		
EXTI line 4 to 15 interrupts	unused		
USART2 global interrupt	unused		

4.3.2. NVIC Code generation

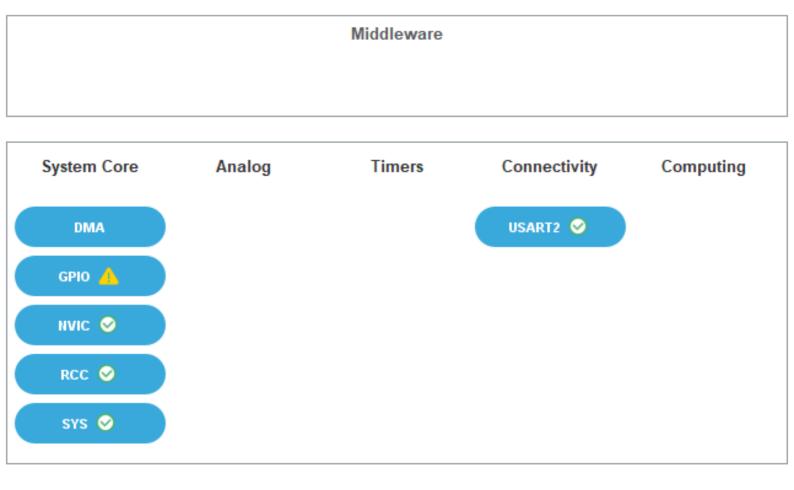
Enabled interrupt Table	Select for init	Generate IRQ	Call HAL handler
	sequence ordering	handler	
Non maskable interrupt	false	true	false
Hard fault interrupt	false	true	false
System service call via SWI instruction	false	true	false
Pendable request for system service	false	true	false
System tick timer	false	true	true

^{*} User modified value

5. System Views

5.1. Category view

5.1.1. Current



6. Docs & Resources

Type Link