

## 1. Description

### 1.1. Project

Project Name	Nucleo103_1602_1
Board Name	custom
Generated with:	STM32CubeMX 5.6.0
Date	05/13/2020

### 1.2. MCU

MCU Series	STM32F1
MCU Line	STM32F103
MCU name	STM32F103RBTx
MCU Package	LQFP64
MCU Pin number	64



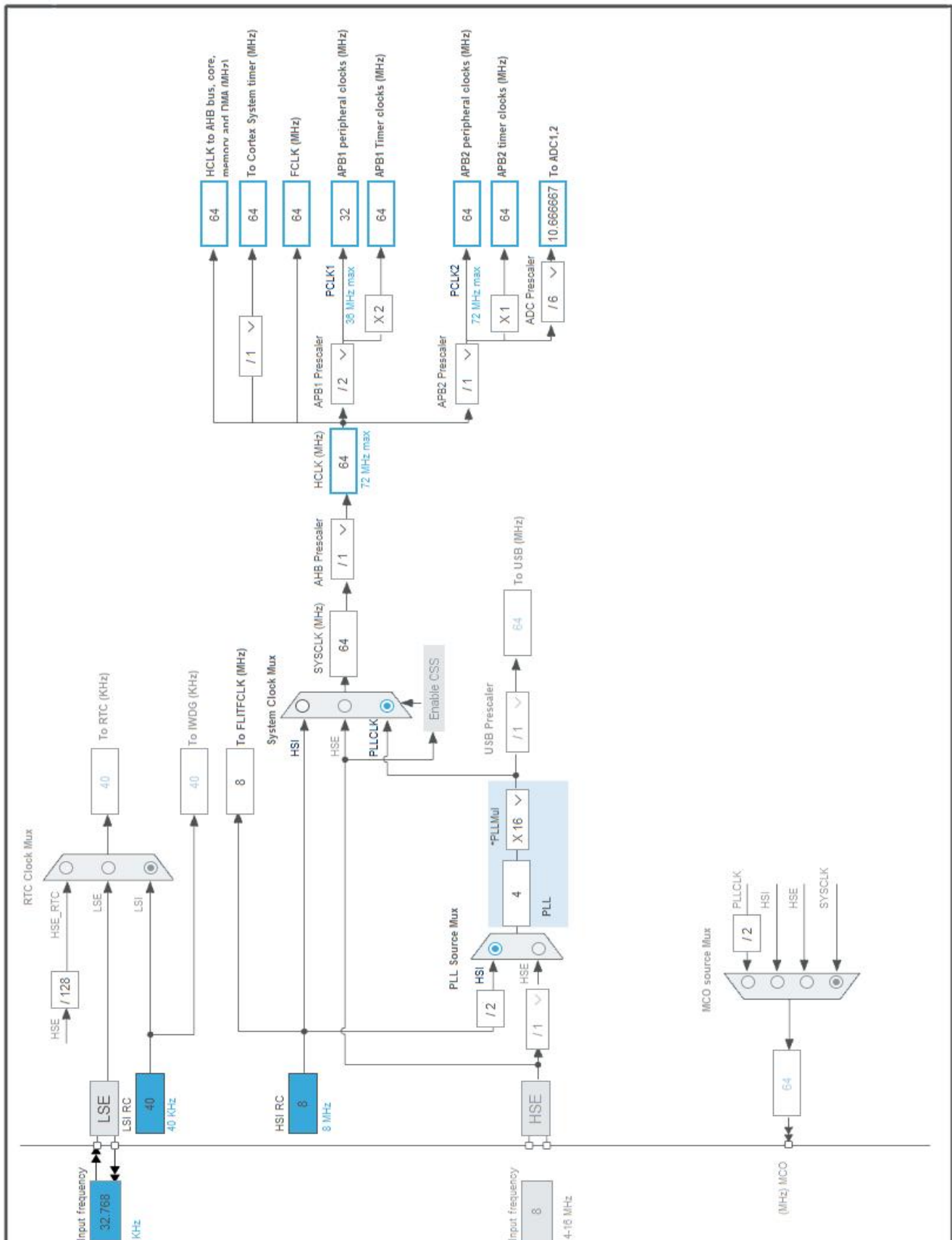
### 3. Pins Configuration

Pin Number LQFP64	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	
7	NRST	Reset		
12	VSSA	Power		
13	VDDA	Power		
14	PA0-WKUP	I/O	ADC1_IN0	
16	PA2	I/O	USART2_TX	
17	PA3	I/O	USART2_RX	
18	VSS	Power		
19	VDD	Power		
29	PB10 *	I/O	GPIO_Output	LCD_D6
31	VSS	Power		
32	VDD	Power		
38	PC7 *	I/O	GPIO_Output	LCD_E
41	PA8 *	I/O	GPIO_Output	LCD_D7
42	PA9 *	I/O	GPIO_Output	LCD_RS
46	PA13	I/O	SYS_JTMS-SWDIO	
47	VSS	Power		
48	VDD	Power		
49	PA14	I/O	SYS_JTCK-SWCLK	
55	PB3	I/O	SYS_JTDO-TRACESWO	
56	PB4 *	I/O	GPIO_Output	LCD_D5
57	PB5 *	I/O	GPIO_Output	LCD_D4
58	PB6 *	I/O	GPIO_Output	LCD_BLC
60	BOOT0	Boot		
61	PB8 **	I/O	I2C1_SCL	
62	PB9 **	I/O	I2C1_SDA	
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



## 5. Software Project

### 5.1. Project Settings

Name	Value
Project Name	Nucleo103_1602_1
Project Folder	D:\Project_TrueSTUDIO_901\Nucleo103_1602_1
Toolchain / IDE	TrueSTUDIO
Firmware Package Name and Version	STM32Cube FW_F1 V1.8.0

### 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
Delete previously generated files when not re-generated	Yes
Set all free pins as analog (to optimize the power consumption)	No

## 6. Power Consumption Calculator report

### 6.1. Microcontroller Selection

Series	STM32F1
Line	STM32F103
MCU	STM32F103RBTx
Datasheet	13587_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

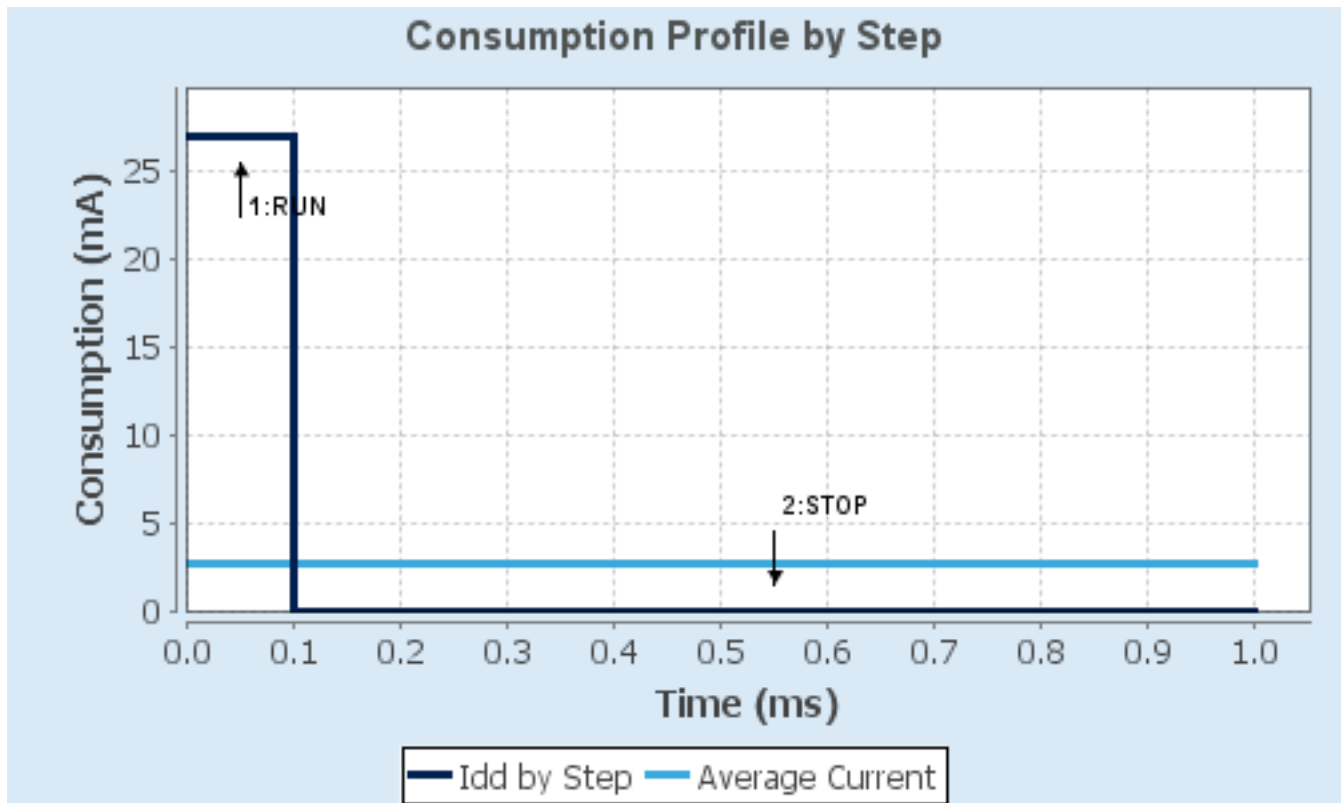
### 6.4. Sequence

<b>Step</b>	Step1	Step2
<b>Mode</b>	RUN	STOP
<b>Vdd</b>	3.3	3.3
<b>Voltage Source</b>	Battery	Battery
<b>Range</b>	No Scale	No Scale
<b>Fetch Type</b>	FLASH	n/a
<b>CPU Frequency</b>	72 MHz	0 Hz
<b>Clock Configuration</b>	HSE PLL	Regulator LP
<b>Clock Source Frequency</b>	8 MHz	0 Hz
<b>Peripherals</b>		
<b>Additional Cons.</b>	0 mA	0 mA
<b>Average Current</b>	27 mA	14 $\mu$ A
<b>Duration</b>	0.1 ms	0.9 ms
<b>DMIPS</b>	90.0	0.0
<b>Ta Max</b>	100.99	105
<b>Category</b>	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. IPs and Middleware Configuration

### 7.1. ADC1

**mode: IN0**

#### 7.1.1. Parameter Settings:

##### ADCs\_Common\_Settings:

Mode Independent mode

##### ADC\_Settings:

Data Alignment Right alignment

Scan Conversion Mode Disabled

Continuous Conversion Mode Disabled

Discontinuous Conversion Mode Disabled

##### ADC\_Regular\_ConversionMode:

Enable Regular Conversions Enable

Number Of Conversion 1

External Trigger Conversion Source Regular Conversion launched by software

Rank 1

Channel Channel 0

Sampling Time 1.5 Cycles

##### ADC\_Injected\_ConversionMode:

Enable Injected Conversions Disable

##### WatchDog:

Enable Analog WatchDog Mode false

### 7.2. GPIO

### 7.3. RCC

#### Low Speed Clock (LSE) : Crystal/Ceramic Resonator

##### 7.3.1. 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

## 7.4. SYS

**Debug: Trace Asynchronous Sw**  
**Timebase Source: SysTick**

## 7.5. USART2

**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

\* 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	PA0-WKUP	ADC1_IN0	Analog mode	n/a	n/a	
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	
SYS	PA13	SYS_JTMS-SWDIO	n/a	n/a	n/a	
	PA14	SYS_JTCK-SWCLK	n/a	n/a	n/a	
	PB3	SYS_JTDO-TRACESWO	n/a	n/a	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	
Single Mapped Signals	PB8	I2C1_SCL	Alternate Function Open Drain	n/a	High *	
	PB9	I2C1_SDA	Alternate Function Open Drain	n/a	High *	
GPIO	PB10	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LCD_D6
	PC7	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LCD_E
	PA8	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LCD_D7
	PA9	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LCD_RS
	PB4	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LCD_D5
	PB5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LCD_D4
	PB6	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LCD_BLC

### 8.2. DMA configuration

nothing configured in DMA service

### 8.3. NVIC configuration

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
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
ADC1 and ADC2 global interrupts	unused		
USART2 global interrupt	unused		


\* User modified value


9. *Predefined Views - Category view : Current*


Middleware


System Core

DMA


GPIO 

NVIC 

RCC 


SYS 

Analog

ADC1 

Timers

Connectivity

USART2 

Computing

## ***10. Software Pack Report***