# 1. Description

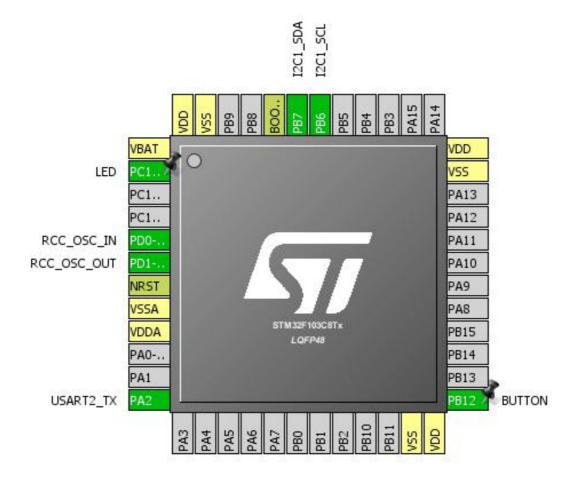
### 1.1. Project

Project Name	Xiaomi_monitor
Board Name	Xiaomi_monitor
Generated with:	STM32CubeMX 4.25.1
Date	04/26/2019

### 1.2. MCU

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

## 2. Pinout Configuration

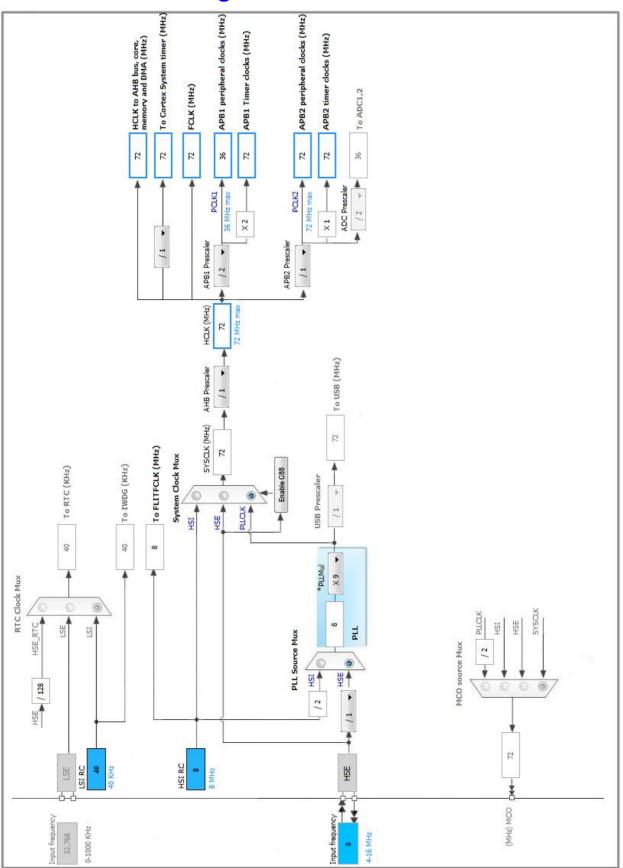


# 3. Pins Configuration

Pin Number LQFP48	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VBAT	Power		
2	PC13-TAMPER-RTC *	I/O	GPIO_Output	LED
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	
23	VSS	Power		
24	VDD	Power		
25	PB12 *	I/O	GPIO_Input	BUTTON
35	VSS	Power		
36	VDD	Power		
42	PB6	I/O	I2C1_SCL	
43	PB7	I/O	I2C1_SDA	
44	воото	Boot		
47	VSS	Power		
48	VDD	Power		

<sup>\*</sup> The pin is affected with an I/O function

## 4. Clock Tree Configuration



## 5. IPs and Middleware Configuration

#### 5.1. I2C1

12C: 12C

#### 5.1.1. Parameter Settings:

#### **Master Features:**

I2C Speed Mode Standard Mode

I2C Clock Speed (Hz) 100000

**Slave Features:** 

Clock No Stretch Mode Disabled

Primary Address Length selection 7-bit

Dual Address Acknowledged Disabled

Primary slave address 0

General Call address detection Disabled

#### 5.2. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

#### 5.2.1. 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 Timout Value (ms) 100
LSE Startup Timout Value (ms) 5000

#### 5.3. SYS

**Debug: No Debug** 

**Timebase Source: SysTick** 

5.4. TIM2

**Clock Source: Internal Clock** 

#### 5.4.1. Parameter Settings:

#### **Counter Settings:**

Prescaler (PSC - 16 bits value) 17999 \*
Counter Mode Up
Counter Period (AutoReload Register - 16 bits value ) 3999 \*

Internal Clock Division (CKD) Division by 4 \*

auto-reload preload Disable

**Trigger Output (TRGO) Parameters:** 

Master/Slave Mode (MSM bit)

Disable (Trigger input effect not delayed)

Trigger Event Selection Reset (UG bit from TIMx\_EGR)

#### 5.5. USART2

Mode: Single Wire (Half-Duplex)

#### 5.5.1. 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

<sup>\*</sup> User modified value

## 6. System Configuration

### 6.1. GPIO configuration

IP	Pin	Signal	GPIO mode	GPIO pull/up pull down	Max Speed	User Label
I2C1	PB6	I2C1_SCL	Alternate Function Open Drain	n/a	High *	
	PB7	I2C1_SDA	Alternate Function Open Drain	n/a	High *	
RCC	PD0- OSC_IN	RCC_OSC_IN	n/a	n/a	n/a	
	PD1- OSC_OUT	RCC_OSC_OUT	n/a	n/a	n/a	
USART2	PA2	USART2_TX	Alternate Function Open Drain	n/a	High *	
GPIO	PC13- TAMPER- RTC	GPIO_Output	Output Push Pull	n/a	Medium *	LED
	PB12	GPIO_Input	Input mode	Pull-up *	n/a	BUTTON

### 6.2. DMA configuration

nothing configured in DMA service

### 6.3. 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
TIM2 global interrupt	true	0	0
USART2 global interrupt	true	1	0
PVD interrupt through EXTI line 16	unused		
Flash global interrupt	unused		
RCC global interrupt	unused		
I2C1 event interrupt	unused		
I2C1 error interrupt	unused		

<sup>\*</sup> User modified value

# 7. Power Consumption Calculator report

#### 7.1. Microcontroller Selection

Series	STM32F1
Line	STM32F103
мси	STM32F103C8Tx
Datasheet	13587_Rev17

#### 7.2. Parameter Selection

Temperature	25
Vdd	3.3

## 8. Software Project

### 8.1. Project Settings

Name	Value	
Project Name	Xiaomi_monitor	
Project Folder	C:\Keil_v5\Projects\Xiaomi_monitor	
Toolchain / IDE	MDK-ARM V5	
Firmware Package Name and Version	STM32Cube FW_F1 V1.6.1	

### 8.2. Code Generation Settings

Name	Value
STM32Cube Firmware Library Package	Copy all used libraries into the project folder
Generate peripheral initialization as a pair of '.c/.h' files	Yes
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	No
consumption)	

<b>9.</b>	Software	Pack	Report
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