

## 1. Description

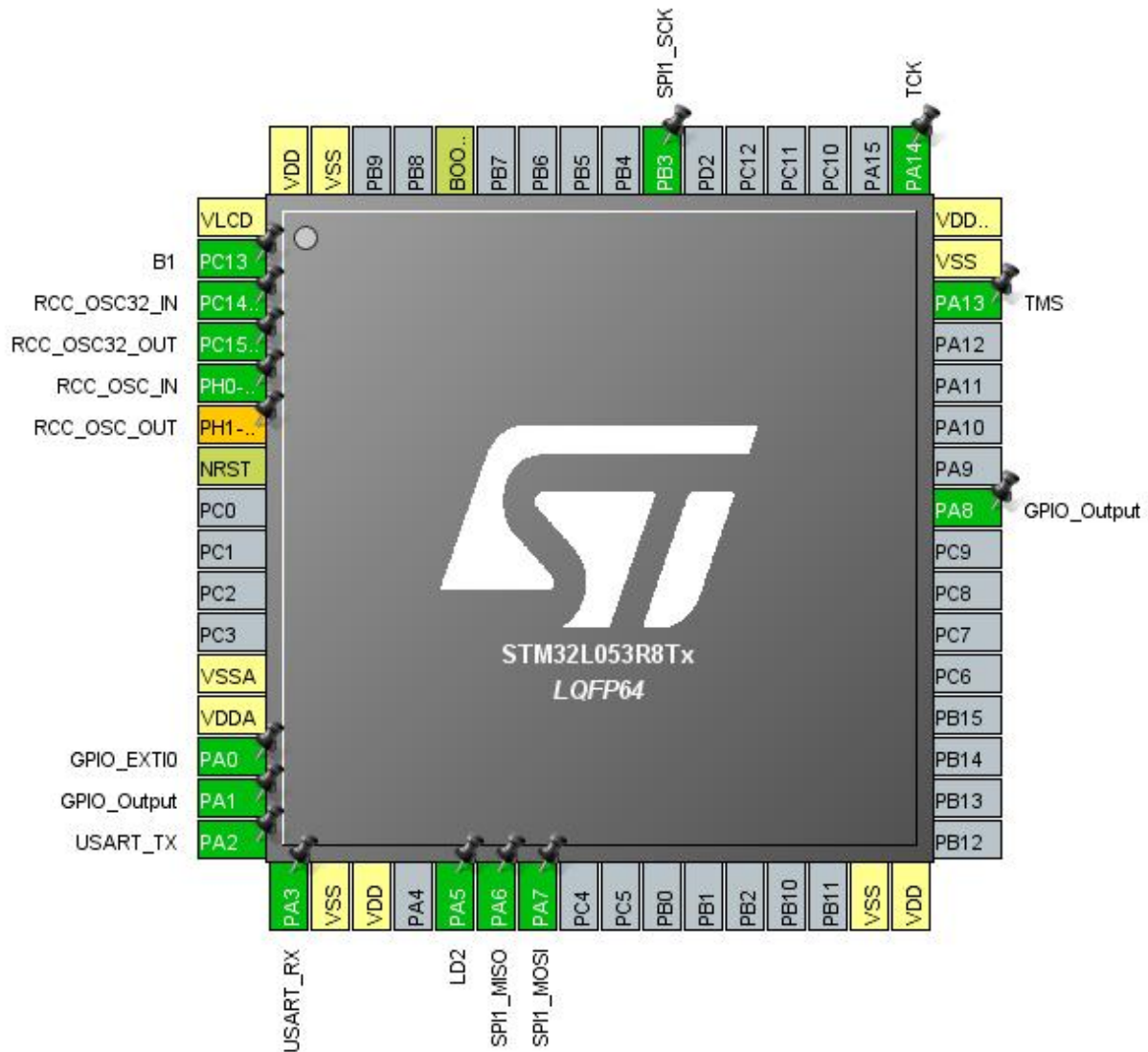
### 1.1. Project

Project Name	SensorDemo_BLESensor-App
Board Name	NUCLEO-L053R8
Generated with:	STM32CubeMX 5.0.0
Date	12/29/2018

### 1.2. MCU

MCU Series	STM32L0
MCU Line	STM32L0x3
MCU name	STM32L053R8Tx
MCU Package	LQFP64
MCU Pin number	64

## 2. Pinout Configuration



### 3. Pins Configuration

Pin Number LQFP64	Pin Name (function after reset)	Pin Type	Alternate Function(s)	Label
1	VLCD	Power		
2	PC13	I/O	GPIO_EXTI13	B1
3	PC14-OSC32_IN	I/O	RCC_OSC32_IN	
4	PC15-OSC32_OUT	I/O	RCC_OSC32_OUT	
5	PH0-OSC_IN	I/O	RCC_OSC_IN	
6	PH1-OSC_OUT *	I/O	RCC_OSC_OUT	
7	NRST	Reset		
12	VSSA	Power		
13	VDDA	Power		
14	PA0	I/O	GPIO_EXTI0	
15	PA1 **	I/O	GPIO_Output	
16	PA2	I/O	USART2_TX	USART_TX
17	PA3	I/O	USART2_RX	USART_RX
18	VSS	Power		
19	VDD	Power		
21	PA5 **	I/O	GPIO_Output	LD2
22	PA6	I/O	SPI1_MISO	
23	PA7	I/O	SPI1_MOSI	
31	VSS	Power		
32	VDD	Power		
41	PA8 **	I/O	GPIO_Output	
46	PA13	I/O	SYS_SWDIO	TMS
47	VSS	Power		
48	VDD_USB	Power		
49	PA14	I/O	SYS_SWCLK	TCK
55	PB3	I/O	SPI1_SCK	
60	BOOT0	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



## 5. Software Project

### 5.1. Project Settings

Name	Value
Project Name	SensorDemo_BLESensor-App
Project Folder	C:\Users\TobXtreme\Desktop\From0STM32
Toolchain / IDE	EWARM V7
Firmware Package Name and Version	STM32Cube FW_L0 V1.11.0

### 5.2. Code Generation Settings

Name	Value
STM32Cube Firmware Library Package	Add necessary library files as reference in the toolchain project configuration file
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	STM32L0
Line	STM32L0x3
MCU	STM32L053R8Tx
Datasheet	025844_Rev7

### 6.2. Parameter Selection

Temperature	25
Vdd	null

## 7. IPs and Middleware 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
Buffer Cache	Enabled
Prefetch	Disabled
Preread	Enabled
Flash Latency(WS)	0 WS (1 CPU cycle)

##### RCC Parameters:

HSI Calibration Value	16
MSI Calibration Value	0
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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### 7.2. SPI1

**Mode: Full-Duplex Master**

#### 7.2.1. Parameter Settings:

##### Basic Parameters:

Frame Format	Motorola
Data Size	8 Bits
First Bit	MSB First

##### Clock Parameters:

Prescaler (for Baud Rate)	2
Baud Rate	<b>1.0485 MBits/s *</b>
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

##### Advanced Parameters:

CRC Calculation	Disabled
NSS Signal Type	Software

### 7.3. SYS

**mode: Debug Serial Wire**

**Timebase Source: SysTick**

### 7.4. USART2

**Mode: Asynchronous**

#### 7.4.1. 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
Single Sample	Disable

##### 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

### 7.5. STMicroelectronics.X-CUBE-BLE1.4.2.0

**mode: WirelessJjBlueNRGAaMS**

**mode: WirelessJjApplication**

#### 7.5.1. Parameter Settings:

##### Log & Debug:

DEBUG	No debug message (0)
PRINT_CSV_FORMAT	CSV format message print disabled (0)



**HCI Basic Parameters:**

HCI_READ_PACKET_SIZE	128 Bytes reserved for HCI Read Packet
HCI_MAX_PAYLOAD_SIZE	128 Bytes reserved for HCI Max Payload

**Connection Parameters (for expert users):**

Scan Interval (SCAN_P)	16384
Scan Window (SCAN_L)	16384
Supervision Timeout (SUPERV_TIMEOUT)	60
Min Connection Period (CONN_P1)	40
Max Connection Period (CONN_P2)	40
Min Connection Length (CONN_L1)	2000
Max Connection Length (CONN_L2)	2000
Advertising Type (ADV_DATA_TYPE)	Connectable Undirected Advertising (ADV_IND)
Min Advertising Interval (ADV_INTERV_MIN)	2048
Max Advertising Interval (ADV_INTERV_MAX)	4096
Min Connection Event Interval (L2CAP_INTERV_MIN)	9
Max Connection Event Interval (L2CAP_INTERV_MAX)	20
Timeout Multiplier (L2CAP_TIMEOUT_MULTIPLIER)	600

\* 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	
SPI1	PA6	SPI1_MISO	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	
	PA7	SPI1_MOSI	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	
	PB3	SPI1_SCK	Alternate Function Push Pull	No pull-up and no pull-down	Very High *	
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	PH1-OSC_OUT	RCC_OSC_OUT	n/a	n/a	n/a	
GPIO	PC13	GPIO_EXTI13	<b>External Interrupt Mode with Falling edge trigger detection</b>	No pull-up and no pull-down	n/a	B1
	PA0	GPIO_EXTI0	External Interrupt Mode with Rising edge trigger detection	No pull-up and no pull-down	n/a	
	PA1	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	
	PA5	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	LD2
	PA8	GPIO_Output	Output Push Pull	No pull-up and no pull-down	Low	

### 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
System service call via SWI instruction	true	0	0
Pendable request for system service	true	0	0
System tick timer	true	0	0
EXTI line 0 and line 1 interrupts	true	0	0
PVD interrupt through EXTI line 16	unused		
Flash and EEPROM global interrupt	unused		
RCC and CRS global interrupt	unused		
EXTI line 4 to 15 interrupts	unused		
SPI1 global interrupt	unused		
USART2 global interrupt / USART2 wake-up interrupt through EXTI line 26	unused		

\* User modified value

## 9. Software Pack Report

### 9.1. Software Pack selected

Vendor	Name	Version	Component
STMicroelectronics	X-CUBE-BLE1	4.2.0	Class : Wireless Group : Controller Version : 0.0.2 Class : Wireless Group : HCI_TL Variant : Basic Version : 0.0.2 Class : Wireless Group : HCI_TL_INTERFACE Variant : UserBoard Version : 0.0.2 Class : Wireless Group : Utils Version : 0.0.2 Class : Wireless Group : Application Variant : SensorDemoBLE Sensor Version : 0.0.2