1. Description

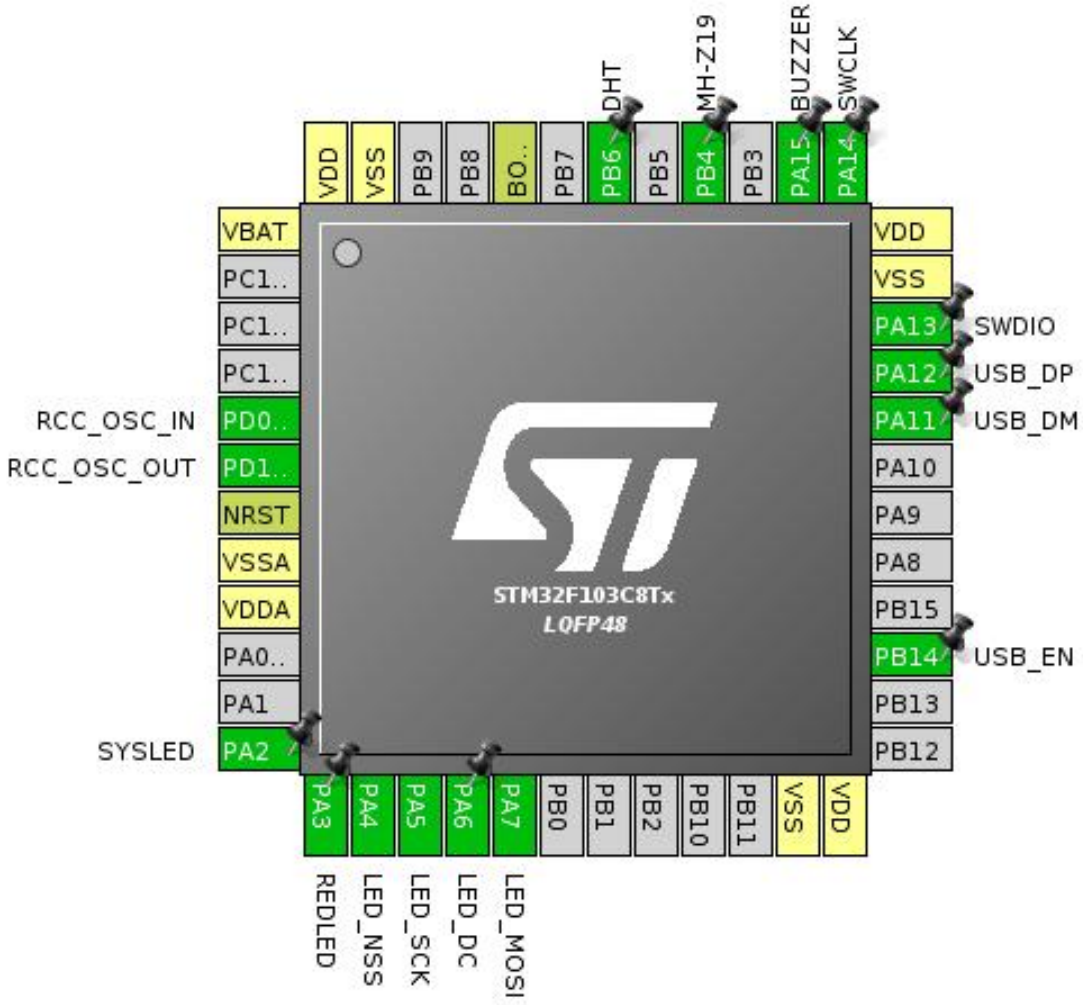
1.1. Project

Project Name	co2-sensor
Board Name	custom
Generated with:	STM32CubeMX 4.9.0
Date	11/16/2017

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		
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	GPIO_Output	SYSLED
13	PA3 *	I/O	GPIO_Output	REDLED
14	PA4	I/O	SPI1_NSS	LED_NSS
15	PA5	I/O	SPI1_SCK	LED_SCK
16	PA6 *	I/O	GPIO_Output	LED_DC
17	PA7	I/O	SPI1_MOSI	LED_MOSI
23	VSS	Power		
24	VDD	Power		
27	PB14 *	I/O	GPIO_Output	USB_EN
32	PA11	I/O	USB_DM	
33	PA12	I/O	USB_DP	
34	PA13	I/O	SYS_JTMS-SWDIO	SWDIO
35	VSS	Power		
36	VDD	Power		
37	PA14	I/O	SYS_JTCK-SWCLK	SWCLK
38	PA15	I/O	TIM2_CH1	BUZZER
40	PB4	I/O	TIM3_CH1	MH-Z19
42	PB6	I/O	TIM4_CH1	DHT
44	BOOT0	Boot		
47	VSS	Power		
48	VDD	Power		

* The pin is affected with an I/O function

4. IPs and Middleware Configuration

4.1. IWDG

mode: Activated

Clocking:

IWDG counter clock prescaler	4
IWDG down-counter reload value	4095

4.2. RCC

High Speed Clock (HSE): Crystal/Ceramic Resonator

System Parameters:

VDD voltage (V)	3.3
Prefetch Buffer	Enabled
Flash Latency(WS)	2 WS (3 CPU cycle)

RCC Parameters:

HSI Calibration Value	16

4.3. SPI1

Mode: Transmit Only Master

mode: Hardware NSS Signal

Basic Parameters:

Frame Format	Motorola
Data Size	8 Bits
First Bit	MSB First

Clock Parameters:

Prescaler (for Baud Rate)	2
Baud Rate	**18.0 MBits/s ***
Clock Polarity (CPOL)	Low
Clock Phase (CPHA)	1 Edge

Advanced Parameters:

CRC Calculation	Disabled
NSS Signal Type	Output Hardware

4.4. SYS

Debug: Serial-Wire

4.5. TIM2

Clock Source : Internal Clock

Channel1: PWM Generation CH1

Counter Settings:

Prescaler (PSC - 16 bits value)	0
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	0
Internal Clock Division (CKD)	No Division

Trigger Output (TRGO) Parameters:

Master/Slave Mode	Disable (no sync between this TIM (Master) and its Slaves
Trigger Event Selection	Reset (UG bit from TIMx_EGR)

PWM Generation Channel 1:

Mode	PWM mode 1
Pulse (16 bits value)	0
Fast Mode	Disable
CH Polarity	High

4.6. TIM3

mode: Clock Source

Channel1: Input Capture direct mode

Counter Settings:

Prescaler (PSC - 16 bits value)	0
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	0
Internal Clock Division (CKD)	No Division

Trigger Output (TRGO) Parameters:

Master/Slave Mode	Disable (no sync between this TIM (Master) and its Slaves
Trigger Event Selection	Reset (UG bit from TIMx_EGR)

Input Capture Channel 1:

Polarity Selection	Rising Edge

IC Selection	Direct
Prescaler Division Ratio	No division
Input Filter (4 bits value)	0

4.7. TIM4

mode: Clock Source

Channel1: Input Capture direct mode

Counter Settings:

Prescaler (PSC - 16 bits value)	0
Counter Mode	Up
Counter Period (AutoReload Register - 16 bits value)	0
Internal Clock Division (CKD)	No Division

Trigger Output (TRGO) Parameters:

Master/Slave Mode	Disable (no sync between this TIM (Master) and its Slaves
Trigger Event Selection	Reset (UG bit from TIMx_EGR)

Input Capture Channel 1:

Polarity Selection	Rising Edge
IC Selection	Direct
Prescaler Division Ratio	No division
Input Filter (4 bits value)	0

4.8. USB

mode: Device (FS)

Basic Parameters:

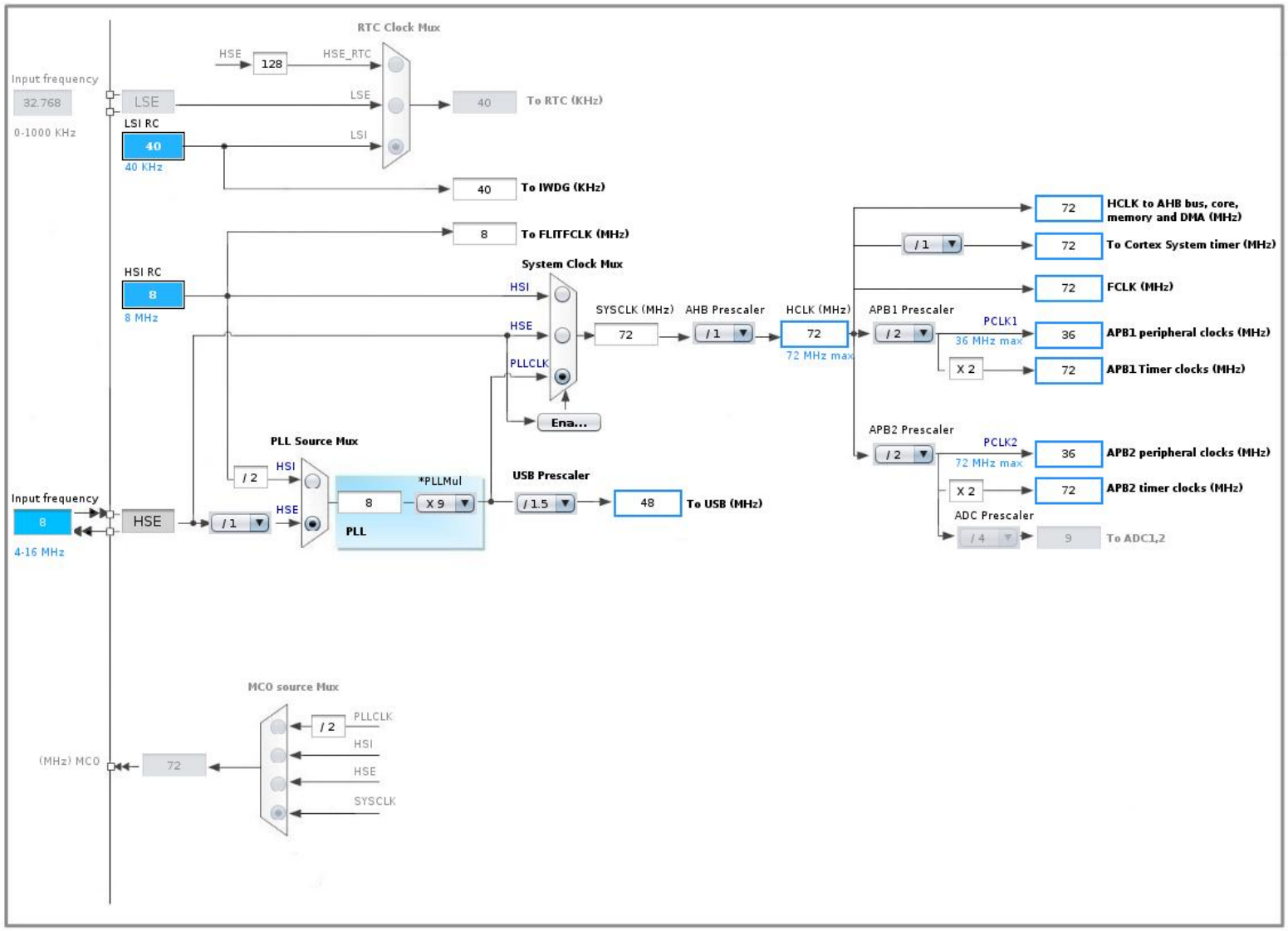
Speed	Full Speed 12MBit/s
Endpoint 0 Max Packet size	8 Bytes

Power Parameters:

Low Power	Disabled
Link Power Management	Disabled
Battery Charging	Disabled

*** User modified value**

2. Clock Tree Configuration



3. Power Plugin report

3.1. Microcontroller Selection

Series	STM32F1
Line	STM32F103
MCU	STM32F103C8Tx
Datasheet	13587_Rev16

3.2. Parameter Selection

Temperature	25
Vdd	3.3