

代码工程构建

1 在工程目录下创建目录 ./code

2 选择MCU

3 设置芯片引脚

3.1 设置调试信息输出引脚（连接TTL）

3.3 设置陀螺仪模块专用引脚

3.4 设置超声波模块专用引脚

3.5 设置红外避障模块专用引脚

3.6 设置电机控制模块专用引脚

3.7 设置SW-Debug引脚

3.8 设置外部晶振时钟引脚

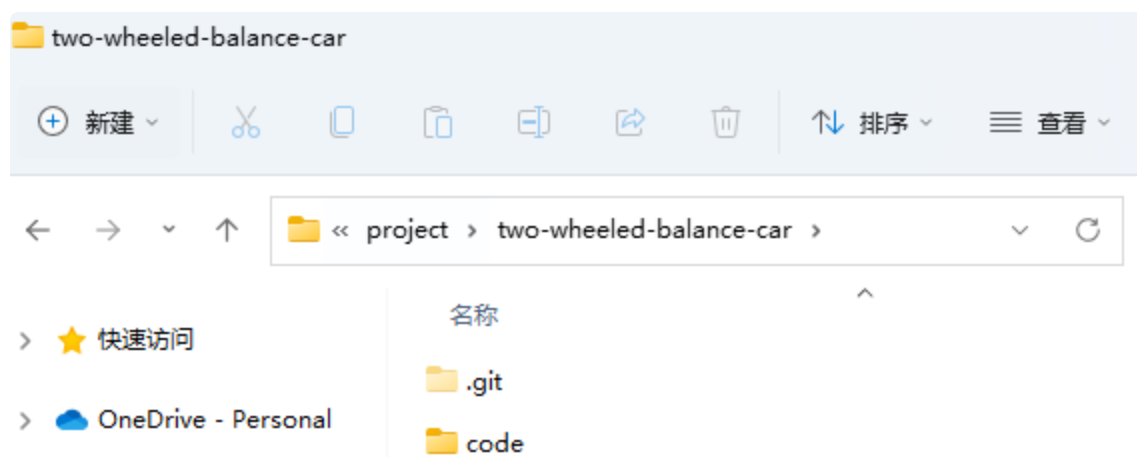
3.9 设置LED信号灯引脚

4 设置时钟树

5 工程设置

6 生成工程代码

1 在工程目录下创建目录 ./code

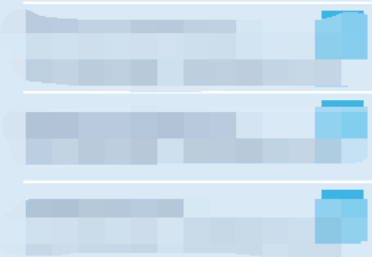


2 选择MCU



Existing Projects

Recent Opened Projects



Other Projects



New Project

I need to :

Start My project from MCU

ACCESS TO MCU SELECTOR

Start My project from ST Board

ACCESS TO BOARD SELECTOR

Start My project from Example

ACCESS TO EXAMPLE SELECTOR

Manage software installations

Check for STM32CubeMX and...

CHECK FOR UPDATES

Install or remove embedded so...

INSTALL / REMOVE



About STM32



External Tools

MCU/MPU Selector

Board Selector

Example Selector

Cross Selector

MCU/MPU Filters

★

📁

🔍

🔄

Part Number

Core >

Series >

Check/Uncheck All

☐ STM32F0
 ☒ **STM32F1**
☐ STM32F2
 ☐ STM32F3
 ☐ STM32F4
 ☐ STM32F7
 ☐ STM32G0
 ☐ STM32G4
 ☐ STM32H7
 ☐ STM32L0
 ☐ STM32L1
 ☐ STM32L4
 ☐ STM32L4+
 ☐ STM32L5

... Block... Docs & R... D... Sta...

★

STM32F1 Series

STM32F103C8


ACTIVE

Active

Product is in mass production

Mainstream Performance line, Arm Cortex-M3 MCU with 64 Kbytes of Flash memory, 72 MHz CPU, motor control, USB and CAN

Unit Price for 10kU (US\$): 2.419



LQFP48

MCUs/MPUs List: 124 items

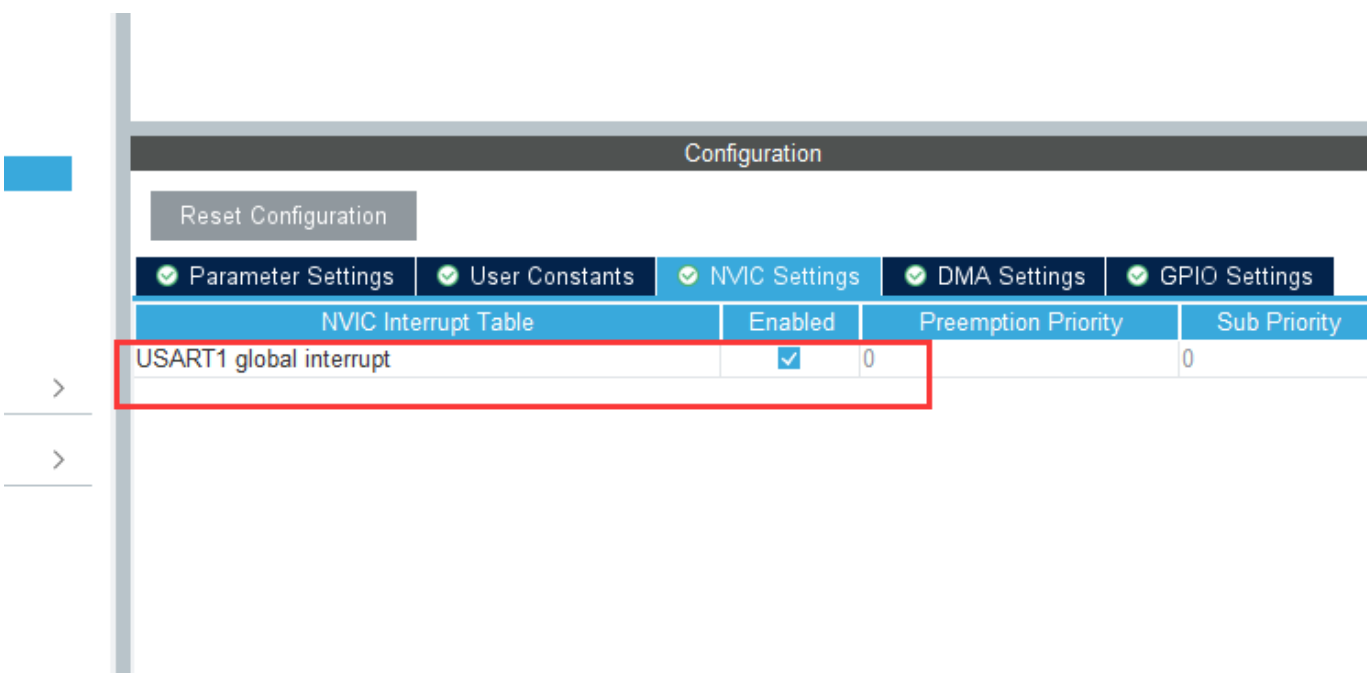
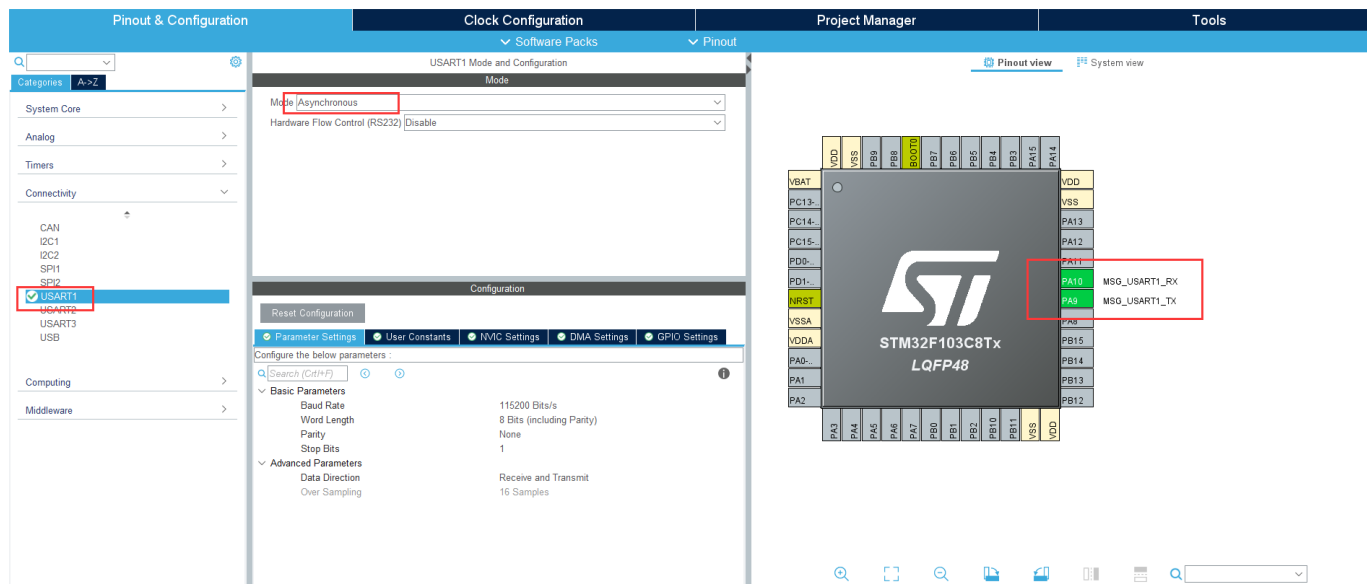
+ Display similar items

* Pa...	Reference	Mark...	Unit ...	Board	Pa...	Fla...	RA...	...	F...
★ STM...	STM32F103C...	Active	2.028		LQ...	16 ...	6 k...	37	72...
★ STM...	STM32F103C...	Active	2.08		LQ...	32 ...	10 ...	37	72...
★ STM...	STM32F103C...	Active	2.08		UF...	32 ...	10 ...	37	72...
★ STM...	STM32F103C...	Active	2.419		LQ...	64 ...	20 ...	37	72...
★ STM...	STM32F103C8Tx06				LQ...	128...	20 ...	37	72...
★ STM...	STM32F103C...	Active	2.706		UF...	128...	20 ...	37	72...
★ STM...	STM32F103R...	Active	2.213		TF...	16 ...	6 k...	50	72...
★ STM...	STM32F103R...	Active	2.213		LQ...	16 ...	6 k...	51	72...

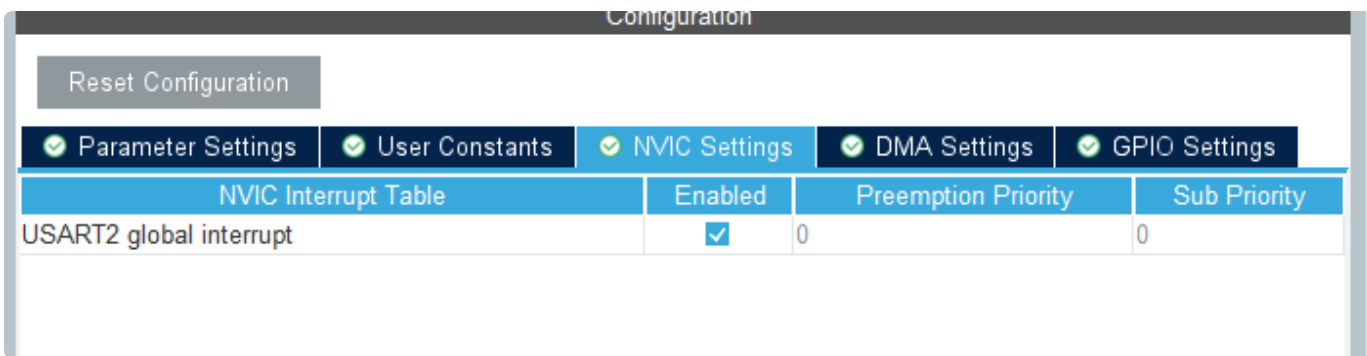
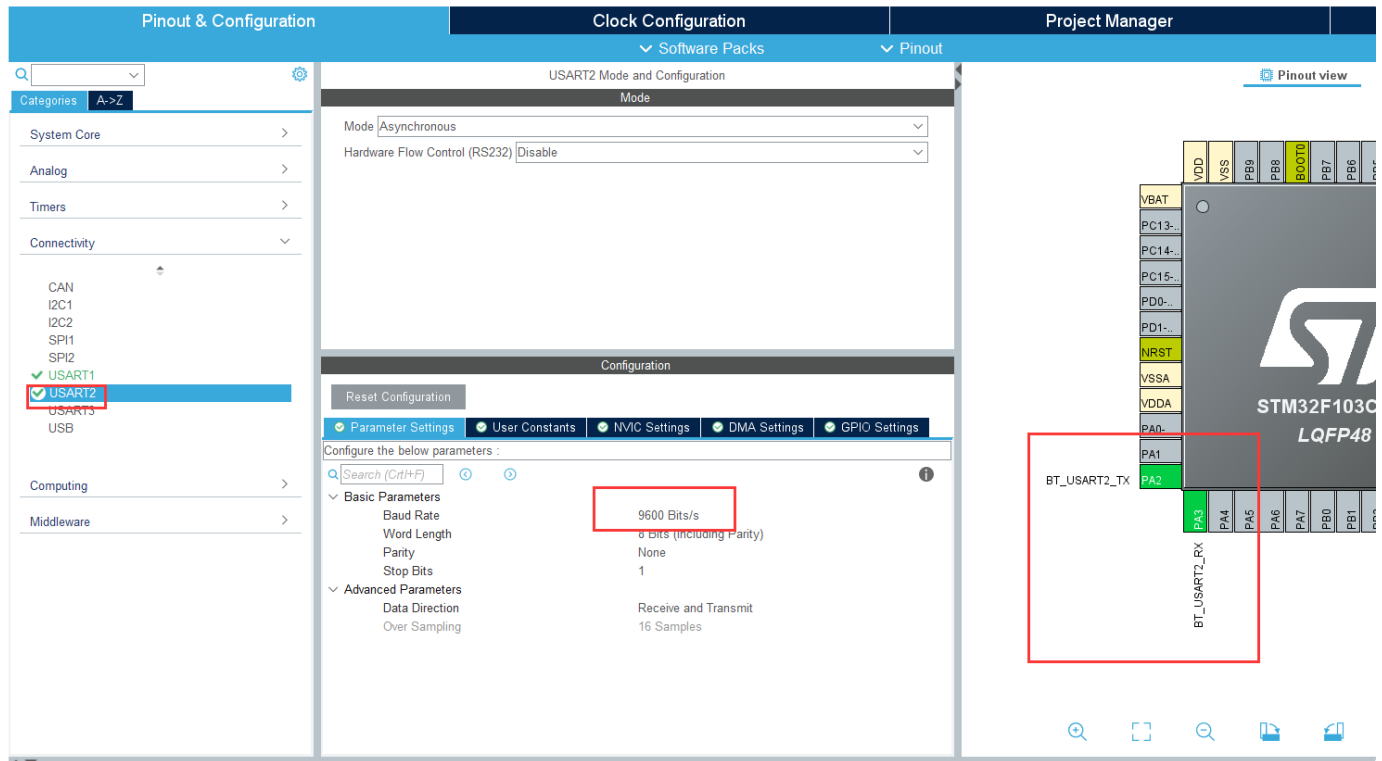
3 设置芯片引脚

3.1 设置调试信息输出引脚（连接TTL）

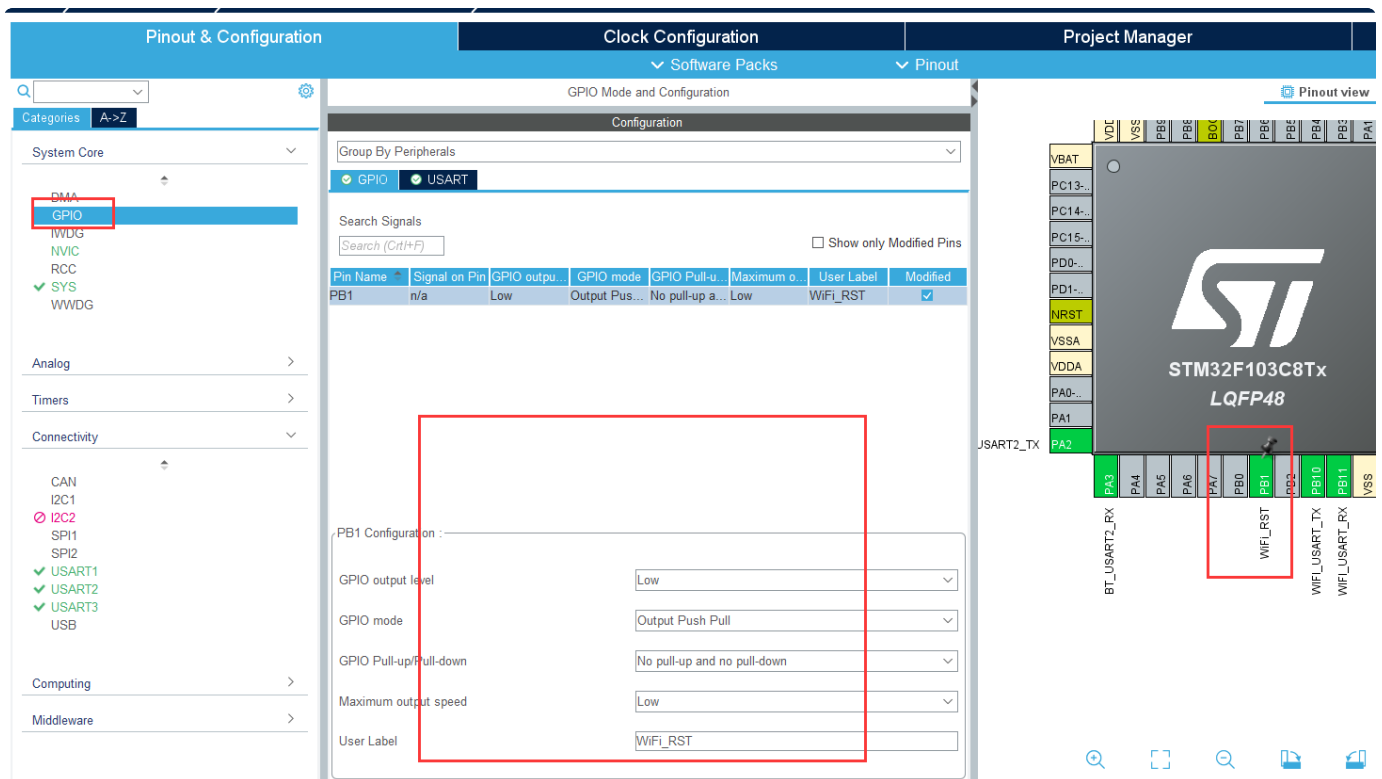
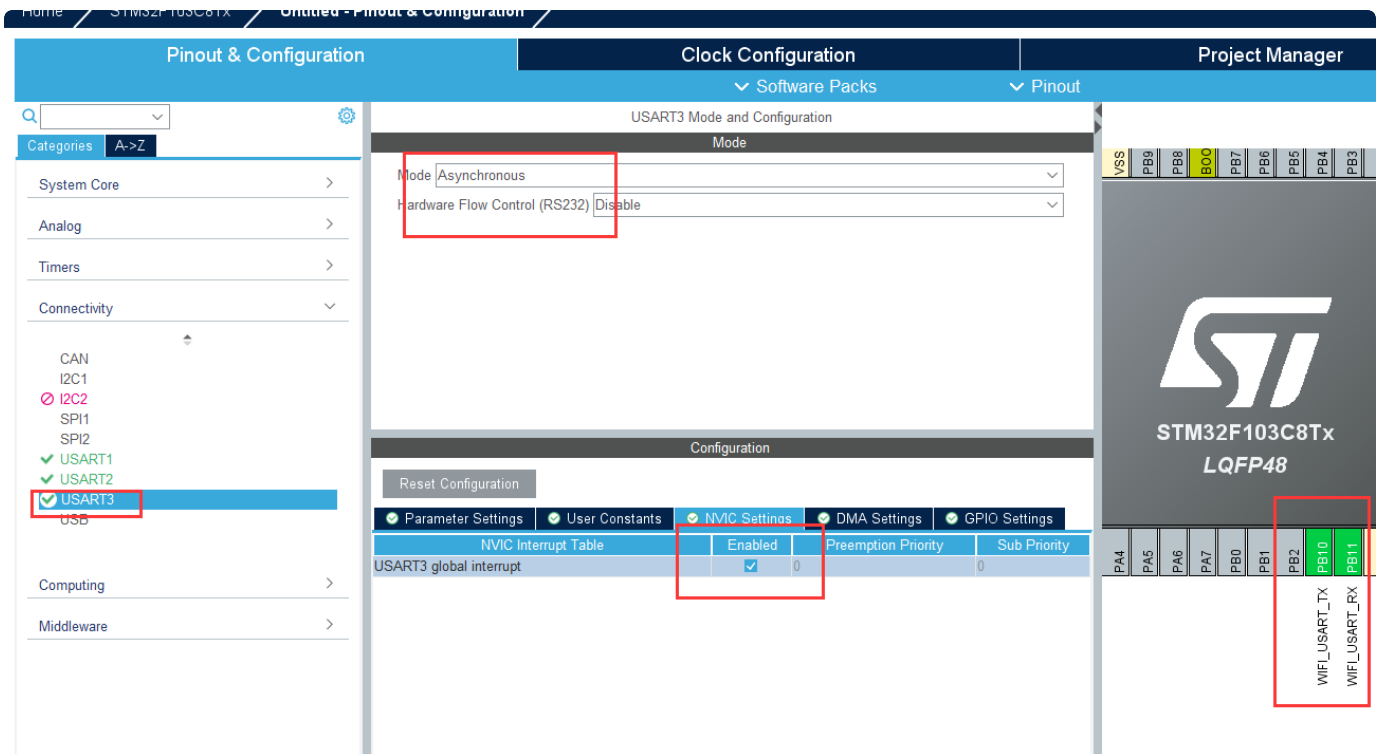
3



3.2 设置蓝牙模块专用引脚



3.2 设置WIFI模块专用引脚



3.3 设置陀螺仪模块专用引脚

Home > STM32F103C8Tx > Untitled - Pinout & Configuration

Pinout & Configuration | Clock Configuration | Project Manager

Software Packs | Pinout

I2C1 Mode and Configuration

Mode: I2C I2C

Configuration

Reset Configuration

Parameter Settings | User Constants | **NVIC Settings** | DMA Settings | GPIO Settings

NVIC Interrupt Table		Enabled	Preemption Priority	Sub Priority
I2C1 event interrupt	<input checked="" type="checkbox"/>	0	0	
I2C1 error interrupt	<input checked="" type="checkbox"/>	0	0	

Categories: A-Z

System Core

- DMA
- GPIO
- IWDG
- NVIC
- RCC
- ✓ SYS
- WWDG

Analog >

Timers >

Connectivity >

CAN

- ✓ I2C1
- I2C2
- SPI1
- SPI2
- ✓ USART1
- ✓ USART2
- ✓ USART3
- USB

Computing >

Middleware >

Pinout view

MPU6050_SDA
MPU6050_SCL

STM32F103C8Tx LQFP48

BT_USART2_TX

Reset Configuration

Parameter Settings | User Constants | **NVIC Settings** | DMA Settings | GPIO Settings

Configure the below parameters :

Search (Ctrl+F)

Master Features

- I2C Speed Mode: Fast Mode
- I2C Clock Speed (Hz): 400000
- Fast Mode Duty Cycle: Duty cycle Tlow/Thigh = 2

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

Software Packs Pinout

GPIO Mode and Configuration

Configuration

Group By Peripherals

GPIO I2C USART NVIC

Search Signals

Search (Ctrl+F) Show only Modified Pins

Pin Name	Signal on Pin	GPIO output	GPIO mode	GPIO Pull-u...	Maximum o...	User Label	Modified
PA15	n/a	n/a	External Int...	No pull-up a...	n/a	MPU6050_I...	✓
PB1	n/a	Low	Output Pus...	No pull-up a...	Low	WiFi_RST	✓

PA15 Configuration :

GPIO mode: External Interrupt Mode with Rising edge trigger detection

GPIO Pull-up/Pull-down: No pull-up and no pull-down

User Label: MPU6050_INT

Pinout view

Group By Peripherals

GPIO I2C USART NVIC

NVIC Interrupt Table

EXTI line[15:10] interrupts

Enabled

Preemption Priority

Sub Priority

✓

0

0

3.4 设置超声波模块专用引脚

System Core

DMA

GPIO

IWDG

NVIC

RCC

SYS

WWDG

Analog

Timers

Connectivity

CAN

I2C1

I2C2

SPI1

SPI2

USART1

USART2

USART3

USB

Computing

Middleware

Group By Peripherals

GPIO I2C USART NVIC

Search Signals

Search (Ctrl+F) Show only Modified Pins

Pin Name	Signal on Pin	GPIO output	GPIO mode	GPIO Pull-u...	Maximum o...	User Label	Modified
PA15	n/a	n/a	External Int...	No pull-up a...	n/a	MPU6050_I...	✓
PB1	n/a	Low	Output Pus...	No pull-up a...	Low	WiFi_RST	✓
PB8	n/a	Low	Output Pus...	Pull-down	Low	Trig	✓

PB8 Configuration :

GPIO output level: Low

GPIO mode: Output Push Pull

GPIO Pull-up/Pull-down: Pull-down

Maximum output speed: Low

User Label: Trig

Pinout view

System Core

- DMA
- GPIO**
- IWDG
- NVIC
- RCC
- SYS
- WWDG

Analog

Timers

- RTC
- TIM1
- TIM2
- TIM3
- TIM4

Connectivity

- CAN
- IC1
- IC2
- SP1
- SP2
- USART1

Group By Peripherals

- GPIO**
- IC2
- TIM
- USART
- NVIC

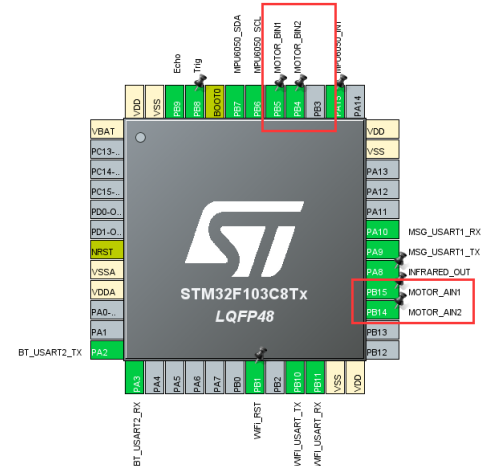
Search Signals

Search (Ctrl+F)

Show only Modified Pins

Pin Name	Signal on Pin	GPIO output	GPIO mode	GPIO Pull-up	Maximum o...	User Label	Modified
PA8	n/a	n/a	Input mode	No pull-up a...	n/a	INFRARED...	<input checked="" type="checkbox"/>
PA15	n/a	n/a	External int...	No pull-up a...	n/a	MPU6050_I...	<input checked="" type="checkbox"/>
PB1	n/a	Low	Output Pus...	No pull-up a...	Low	WiFi_RST	<input checked="" type="checkbox"/>
PB4	n/a	Low	Output Pus...	No pull-up a...	Low	MOTOR_BIN2	<input checked="" type="checkbox"/>
PB5	n/a	Low	Output Pus...	No pull-up a...	Low	MOTOR_BIN1	<input checked="" type="checkbox"/>
PB8	n/a	Low	Output Pus... Pull-down	Low	Tri...		<input checked="" type="checkbox"/>
PB14	n/a	Low	Output Pus...	No pull-up a...	Low	MOTOR_AIN2	<input checked="" type="checkbox"/>
PB15	n/a	Low	Output Pus...	No pull-up a...	Low	MOTOR_AIN1	<input checked="" type="checkbox"/>

Select Pins from table to configure them. Multiple selection is Allowed.



Software Packs

Pinout

Categories A-Z

System Core

- DMA
- GPIO
- IWDG
- NVIC
- RCC
- SYS
- WWDG

Analog

Timers

- RTC
- TIM1
- TIM2**
- TIM3
- TIM4

Connectivity

- CAN
- IC1
- IC2
- SP1
- SP2
- USART1

TIM2 Mode and Configuration

Mode

- Slave Mode: Disable
- Trigger Source: Disable
- Clock Source: Disable
- Channel1: Disable**
- Channel2: PWM Generation CH2
- Channel3: Disable
- Channel4: Disable
- Combined Channels: Disable
- Use ETR as Clearing Source
- XOR activation
- One Pulse Mode

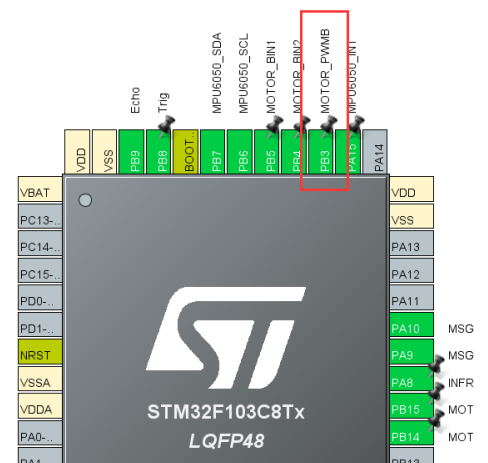
Configuration

Reset Configuration

Parameter Settings

NVIC Interrupt Table

Interrupt	Enabled	Preemption Priority	Sub Priority
TIM2 global interrupt	<input checked="" type="checkbox"/>	0	0



Pinout & Configuration

Clock Configuration

Project Manager

Tools

Categories A-Z

System Core

- DMA
- GPIO
- IWDG
- NVIC
- RCC
- SYS
- WWDG

Analog

Timers

- RTC
- TIM1**
- TIM2
- TIM3
- TIM4

Connectivity

- CAN
- IC1
- IC2
- SP1
- SP2
- USART1
- USART2

TIM1 Mode and Configuration

Mode

- Slave Mode: Disable
- Trigger Source: Disable
- Clock Source: Disable
- Channel1: PWM Generation CH1N**
- Channel2: Disable
- Channel3: Disable
- Channel4: Disable
- Combined Channels: Disable
- Activate-Break-Input
- Use ETR as Clearing Source
- XOR activation
- One Pulse Mode

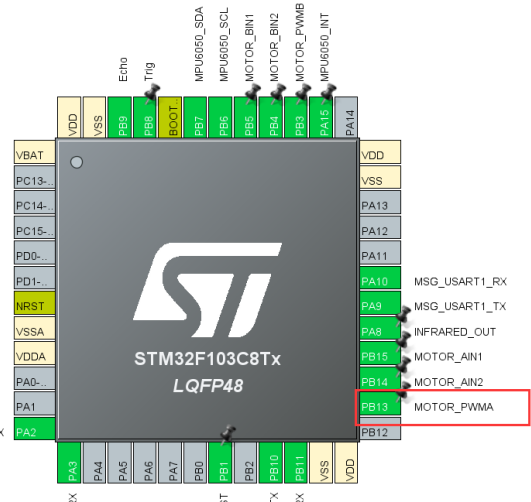
Configuration

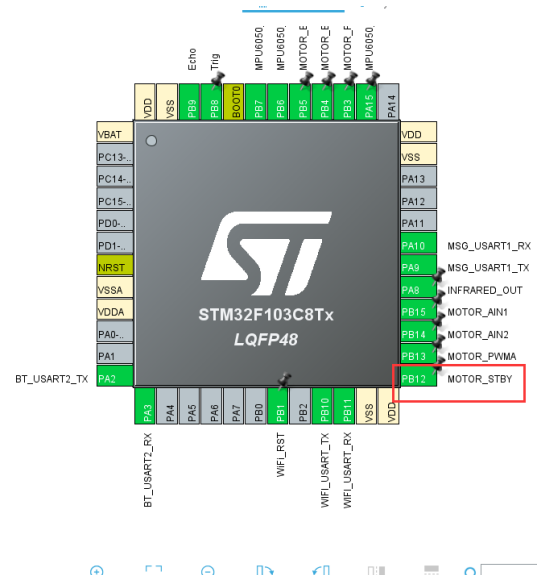
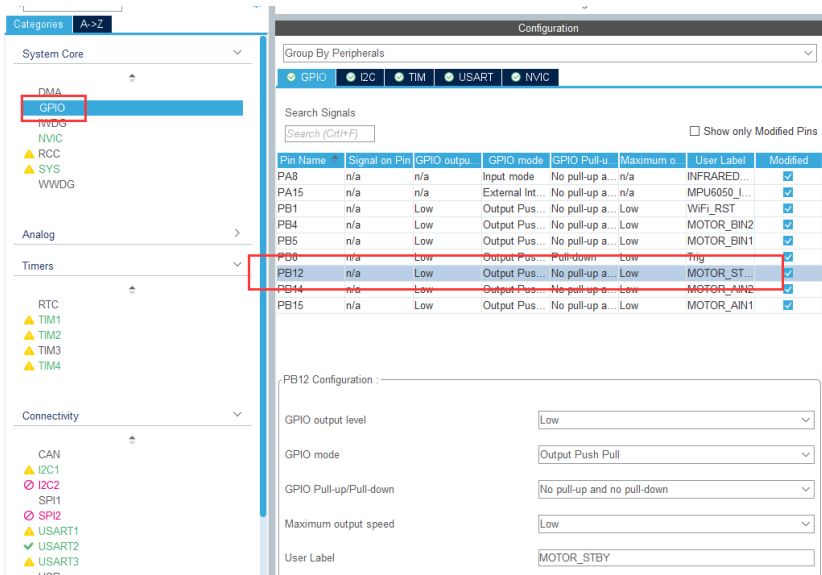
Reset Configuration

Parameter Settings

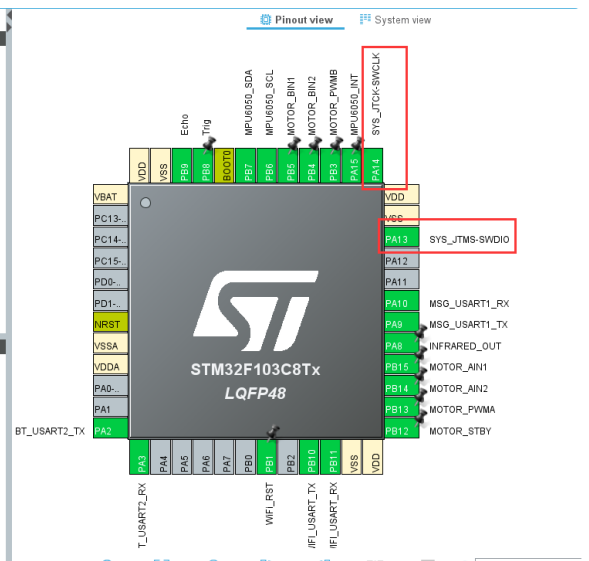
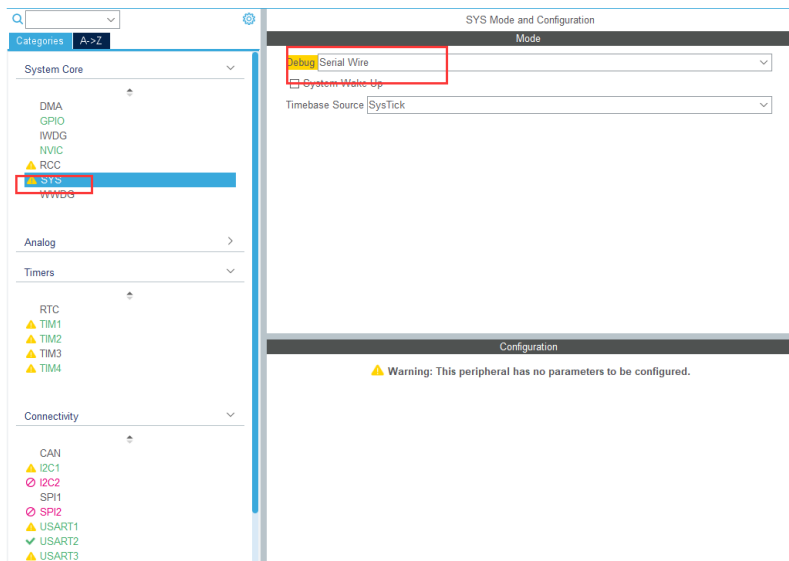
NVIC Interrupt Table

Interrupt	Enabled	Preemption Priority	Sub Priority
TIM1 break interrupt	<input type="checkbox"/>	0	0
TIM1 update interrupt	<input type="checkbox"/>	0	0
TIM1 trigger and commutation interrupts	<input type="checkbox"/>	0	0
TIM1 capture compare interrupt	<input type="checkbox"/>	0	0

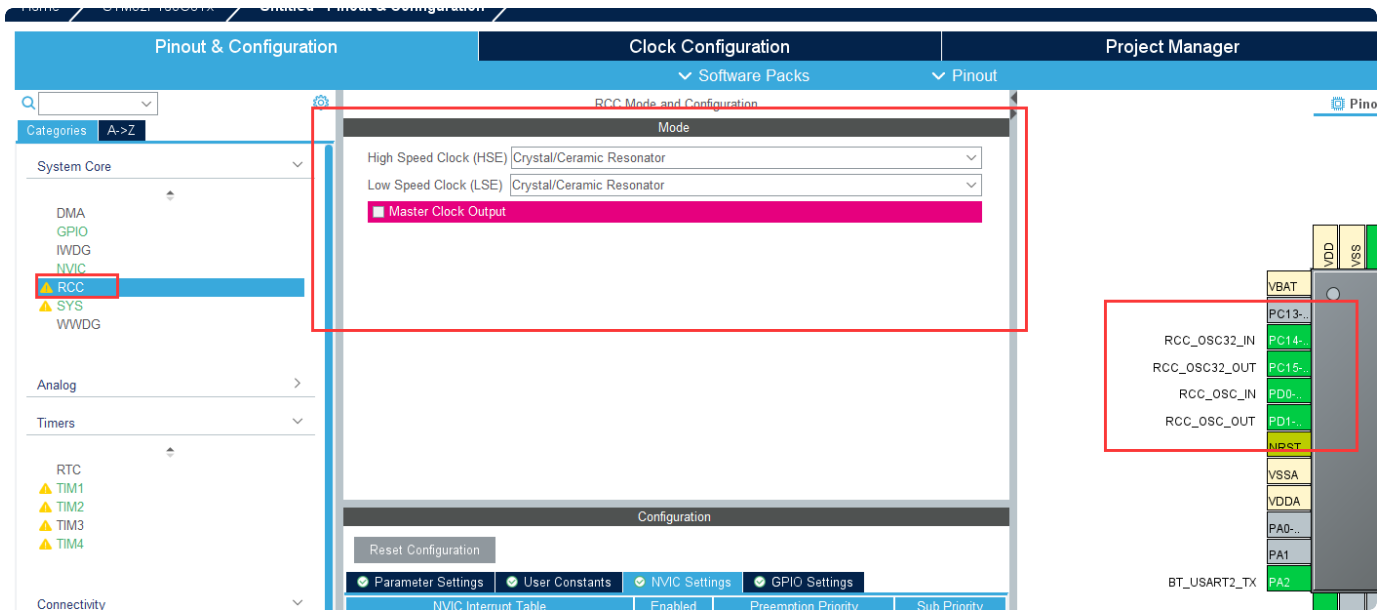




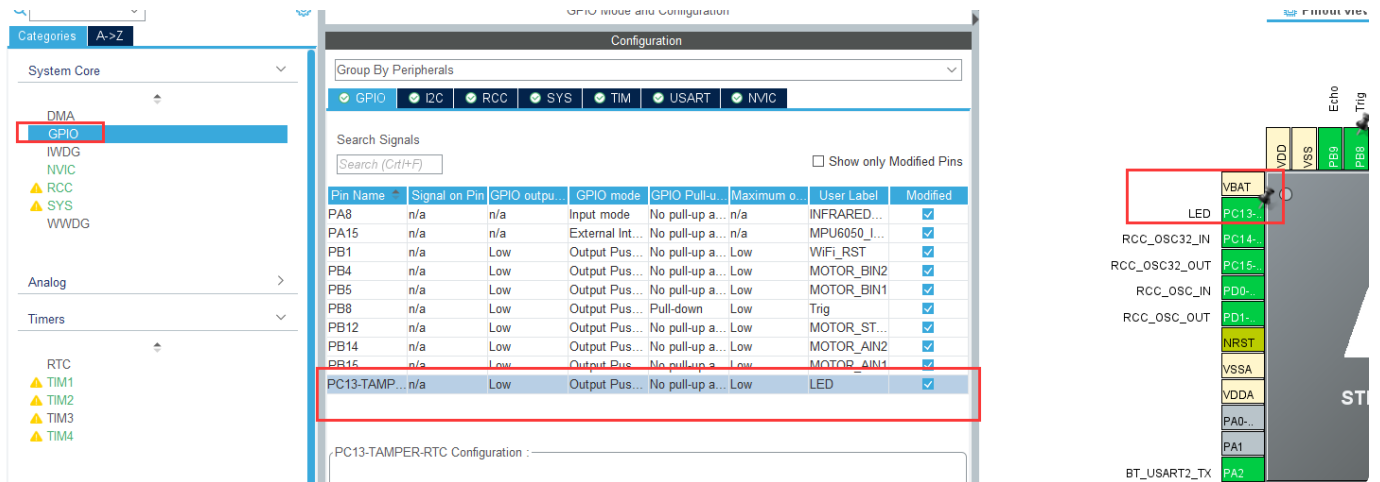
3.7 设置SW-Debug引脚



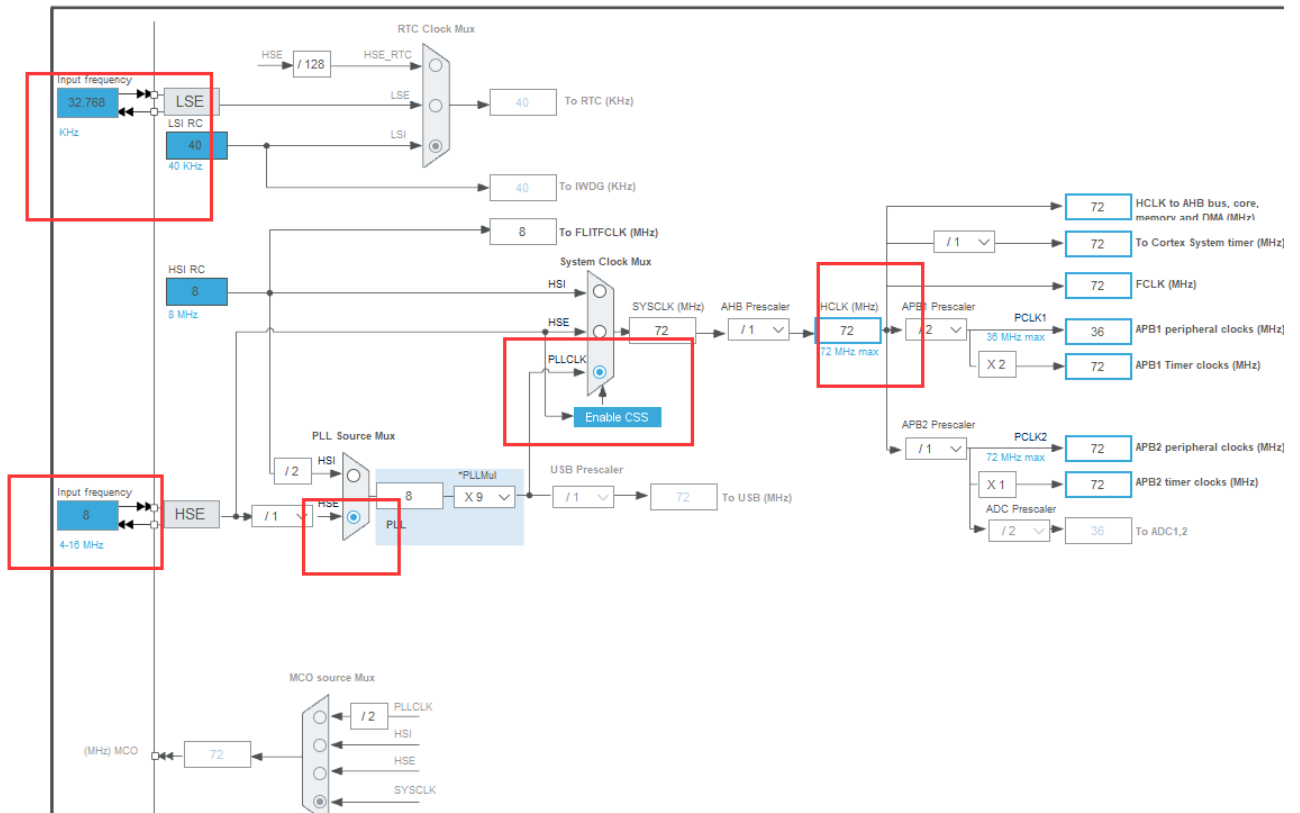
3.8 设置外部晶振时钟引脚



3.9 设置LED信号灯引脚

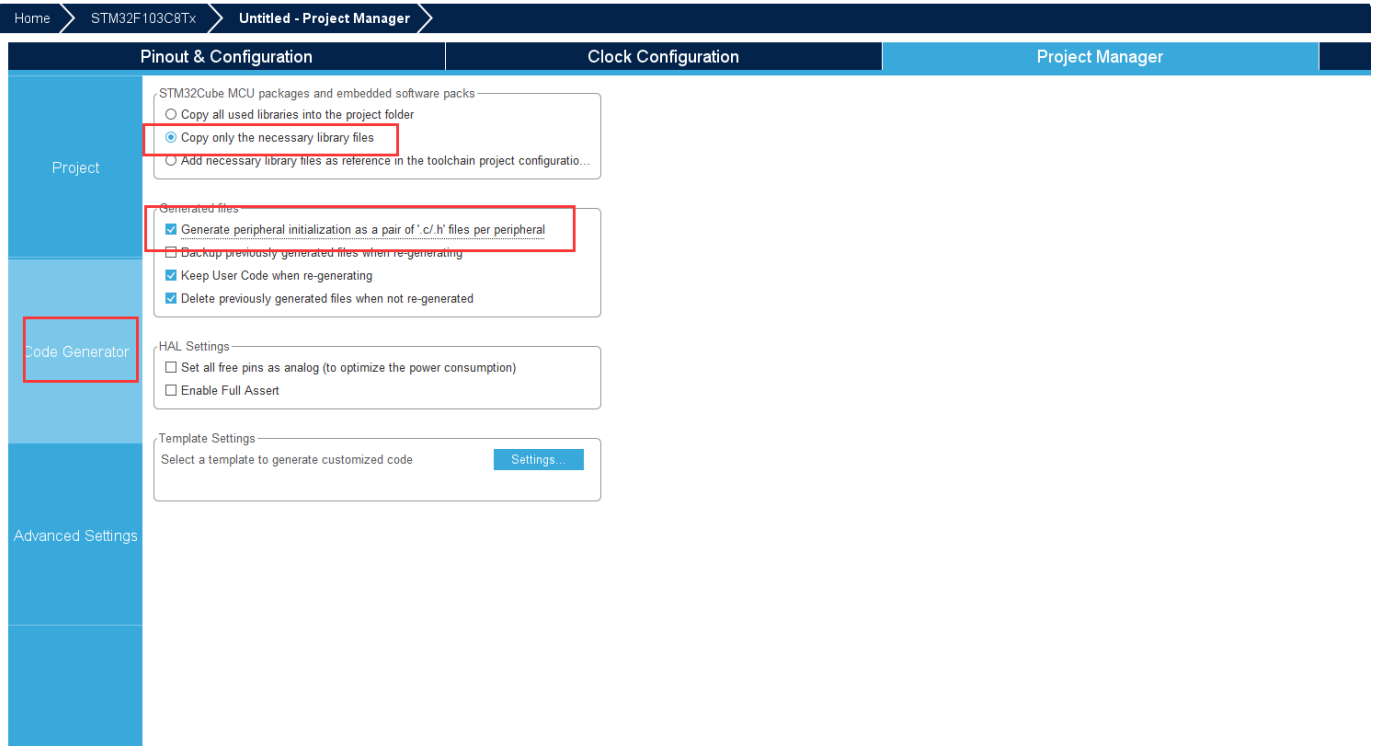


4 设置时钟树



5 工程设置

Pinout & Configuration	Clock Configuration	Project Manager
Project Settings		
Project Name: <input type="text" value="balancecar2wheels"/>		
Project Location: <input type="text" value="D:\project\two-wheeled-balance-car\code"/> <input type="button" value="Browse"/>		
Application Structure: <input type="text" value="Advanced"/> <input type="checkbox"/> Do not generate the main()		
Toolchain Folder Location: <input type="text" value="D:\project\two-wheeled-balance-car\code\balancecar2wheels\"/>		
Toolchain / IDE: <input type="text" value="MDK-ARM"/> Min Version: <input type="text" value="V5.27"/> <input type="checkbox"/> Generate Under R...		
Linker Settings		
Minimum Heap Size: <input type="text" value="0x200"/>		
Minimum Stack Size: <input type="text" value="0x400"/>		
Thread-safe Settings		
Cortex-M3NS		
<input type="checkbox"/> Enable multi-threaded support		
Thread-safe Locking Strategy: <input type="text" value="Default - Mapping suitable strategy depending on RTOS selection."/>		
Mcu and Firmware Package		
Mcu Reference: <input type="text" value="STM32F103C8Tx"/>		
Firmware Package Name and Version: <input type="text" value="STM32Cube FW_F1 V1.8.5"/> <input checked="" type="checkbox"/> Use latest available version		
<input checked="" type="checkbox"/> Use Default Firmware Location		



6 生成工程代码

