1. Introduction to Testing Platform

Development board: STM32F103C8T6, MiniSTM32, Elite STM32, Explorer STM32F4,

Apollo STM32F4/F7

MCU: STM32F103C8T6, STM32F103RCT6, STM32F103ZET6, STM32F407ZGT6,

STM32F429IGT6

Frequency: 72MHz、72MHz、72MHz、168MHz、180MHz (Corresponding to the above

MCU)

2. Pin connection instructions

This display module can be directly plugged into the STM32F103C8T6 development

board, and can only be connected to other development boards through DuPont cables.
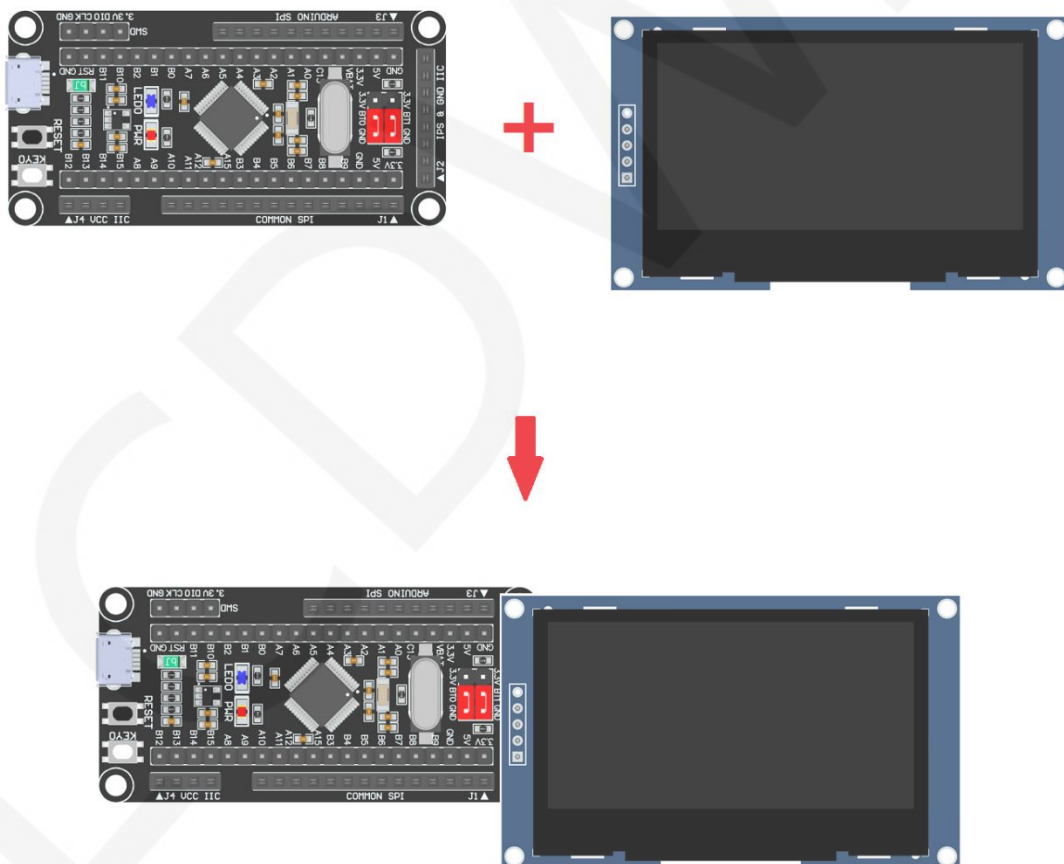

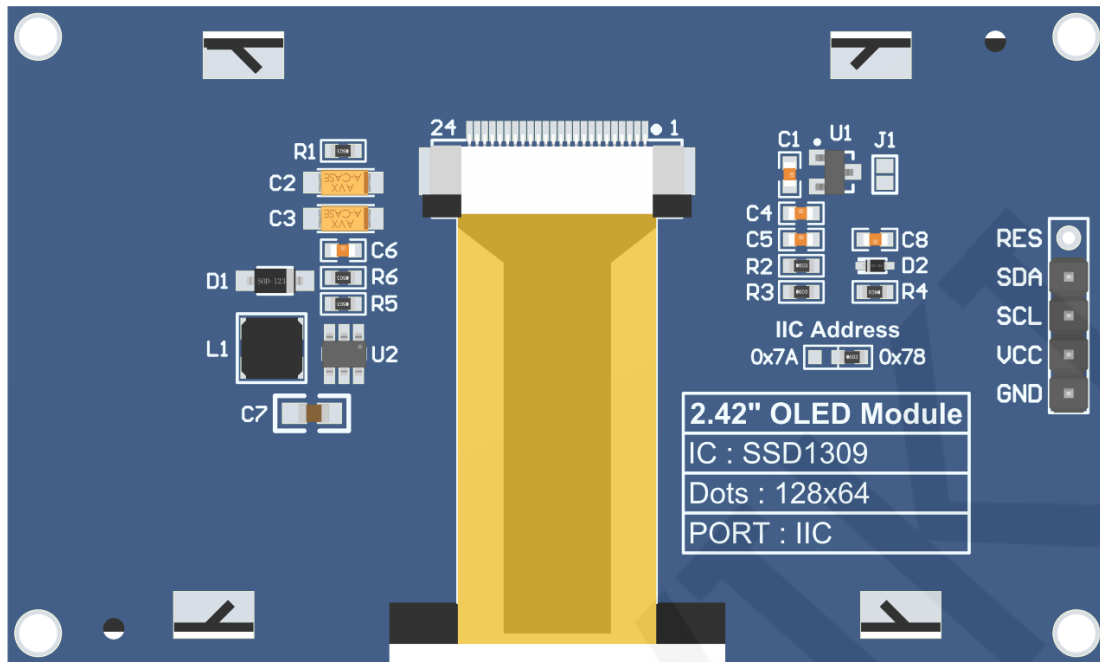**Figure 1: Module Inline STM32F103C8T6 Development Board**

Figure 2 Module Back Pins

NOTE:

A. The **IIC Address** resistor is used to select the IIC slave device address. If it is soldered on the 0x78 side, select the 0x78 slave device address. If it is soldered on the 0x7A side, select the 0x7A slave device address;

B. The RES pin row is not soldered by default. If the reset function needs to be controlled in the program, it needs to be soldered;

STM32F103C8T6 IIC Test Program Pin Direct Insertion Instructions			
Number	Module pins	Corresponding STM32F103 development board wiring pins	Remarks
1	GND	GND	OLED screen power supply ground
2	VCC	5V/3.3V	OLED screen power supply positive
3	SCL	PA5	IIC bus clock signal
4	SDA	PA7	IIC bus data signal

5	RES	Not welded	The pin arrangement is not soldered by default. If the reset function needs to be controlled in the program, it needs to be soldered

STM32F103RCT6 microcontroller IIC test program wiring instructions

Number	Module Pin	Corresponding to MiniSTM32 development board wiring pin	Remarks
1	GND	GND	OLED screen power supply ground
2	VCC	5V/3.3V	OLED screen power supply positive
3	SCL	PB13	IIC bus clock signal
4	SDA	PB15	IIC bus data signal
5	RES	Not welded	The pin arrangement is not soldered by default. If the reset function needs to be controlled in the program, it needs to be soldered

STM32F103ZET6 microcontroller IIC test program wiring instructions

Number	Module Pin	Corresponding to Elite STM32 development board wiring pin	Remarks
1	GND	GND	OLED screen power supply ground
2	VCC	5V/3.3V	OLED screen power supply positive
3	SCL	PB13	IIC bus clock signal
4	SDA	PB15	IIC bus data signal

| 5 | RES | Not welded | The pin arrangement is not soldered by default. If the reset function needs to be controlled in the program, it needs to be soldered |

## STM32F407ZGT6 microcontroller IIC test program wiring instructions

Number	Module Pin	Corresponding to Explorer STM32F4 development board wiring pin	Remarks
1	GND	GND	OLED screen power supply ground
2	VCC	5V/3.3V	OLED screen power supply positive
3	SCL	PB3	IIC bus clock signal
4	SDA	PB5	IIC bus data signal
5	RES	Not welded	The pin arrangement is not soldered by default. If the reset function needs to be controlled in the program, it needs to be soldered

STM32F429IGT6 microcontroller IIC test program wiring instructions

Number	Module Pin	Corresponding to Apollo STM32F4/F7 development board wiring pin	Remarks
1	GND	GND	OLED screen power supply ground
2	VCC	5V/3.3V	OLED screen power supply positive
3	SCL	PF7	IIC bus clock signal
4	SDA	PF9	IIC bus data signal
5	RES	Not welded	The pin arrangement is not soldered by default. If the reset function needs to be controlled in the program, it needs to be soldered

3. Demo Function Description

This testing program includes 7 MCU testing programs including STM32F103C8T6, STM32F103RCT6, STM32F103ZET6, STM32F407ZGT6, STM32F429IGT6, STM32F767IGT6, STM32H743IIT6. Each MCU testing program includes software IIC functions, which are located in **Demo_STM32** directory, as shown in the following figure:
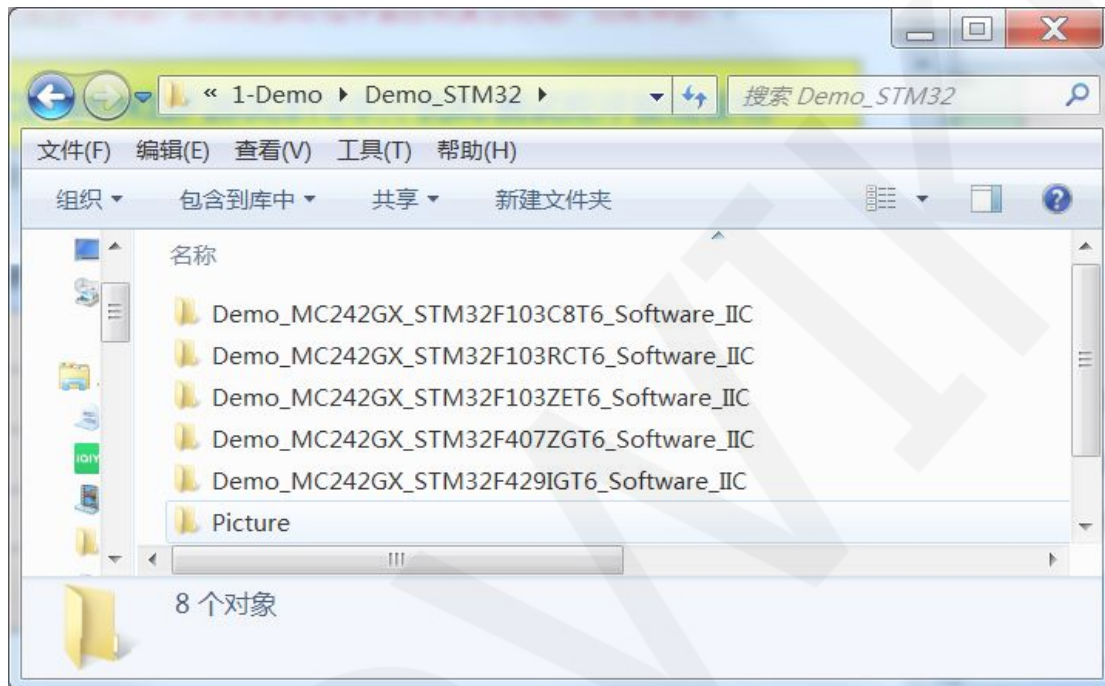
✧ **Description of sample program content**

The sample program includes the following content:

 A. Home screen display;

 B. Single color screen brushing

 C. Rectangle drawing display;

 D. Circular drawing display;

 E. Triangle drawing display;

 F. English display;

 G. Display of numbers and symbols

 H. Chinese display;

 I. BMP monochrome image display;

 J. Menu simulation display;

✧ **Example program display direction switching instructions**

Found macro definition **USE_HORIZONTAL** and **COLOR_STATE** in

HARDWARE\OLED\oled.h file, as shown in the following:

```
#define USE_HORIZONTAL    0 // 设置显示方向：0-正常，1-旋转180度
#define COLOR_STATE       0 // 设置显示模式：0-正常显示，1-反色显示
```

Modify USE_ HORIZONTAL and COLOR_ STATE macro according to the following

definition:

#define USE_ HORIZONTAL 0 //0 ° rotation (Default value)

#define USE_ HORIZONTAL 1 //180 ° rotation

#define COLOR_ STATE 0 //Black background, monochrome display

content(Default value)

#define COLOR_ STATE 1 //Monochrome background, black display content

✧ **Example program IIC slave device address modification instructions**

The IIC slave device address has been modified in hardware, and corresponding

modifications need to be made in software.First, locate the macro definition

IIC_SLAVE_ADDR in the **HARDWARE\IIC\iic.h** file, as shown in the following

figure:

```
//定义IIC从设备地址
#define IIC_SLAVE_ADDR 0x78  //0x7A
```

Then modify IIC_ SLAVE_ ADDR macro definition according to the following

definition is sufficient to:

#define IIC_ SLAVE_ ADDR 0x78 //Slave device address is 0x78 (default value)

#define IIC_ SLAVE_ ADDR 0x7A //Slave device address is 0x7A

4. Demo Usage Instructions

✧ **Installing development tool software**

Firstly, you need to install the development tool software, which uses Keil5.

Please refer to the online download and installation methods for yourself.

✧ **Installing Device Library**

After the successful installation of the tool software, it is necessary to install several MCU device libraries, otherwise the project cannot be established, and compilation and download cannot be carried out. Please consult online for the installation method of the device library.

✧ **Compiling Programs**

After the library installation is completed, open the **PROJECT** directory under the sample program, locate the **uvprojx** file, double-click to open the sample project, as shown in the following figure:
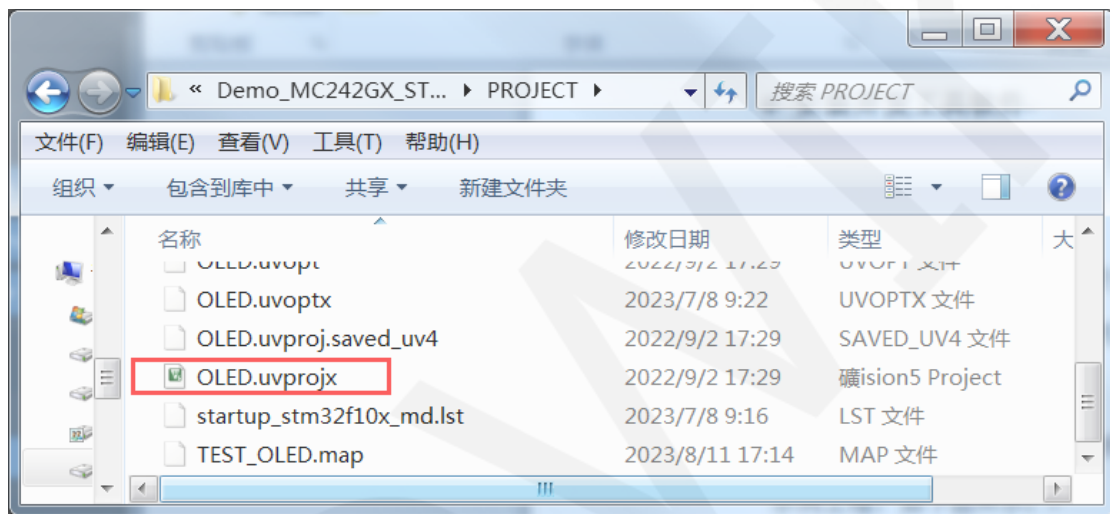
After opening the sample project, you can make modifications to the project code (or not). After the modifications are completed, click the compile button to compile the code. The following prompt appears, indicating successful compilation, as shown in the following figure:
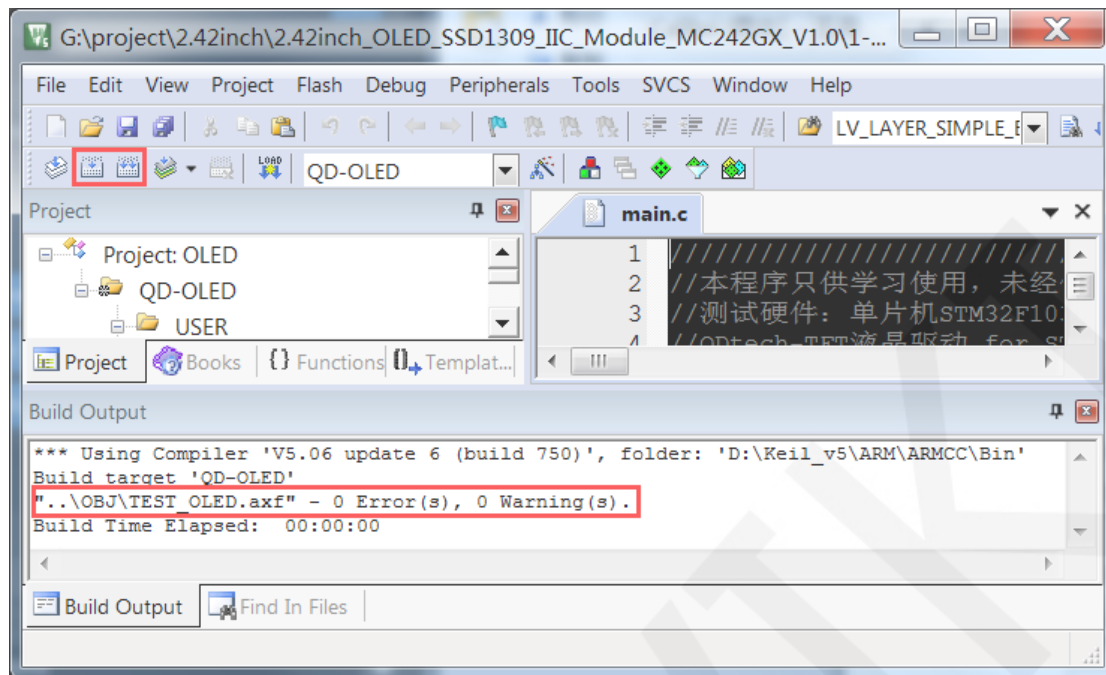
✧ **Download and Run Programs**

The development board supports SWD download and Jlink download

Here is an introduction to Jlink download. For other download methods, please refer to the documentation in the development board documentation package or consult the internet.

The steps for downloading Jlink are as follows (using the STM32F103RCT6 development board as an example):

A. After the program compilation is completed, proceed with the program download. First, connect **JTAG** to the computer and development board, click on the **magic wand icon** ->**Debug** ->**drop-down menu**, and select **J-LINK/J-TRACE Cortex**, as shown in the following figure:
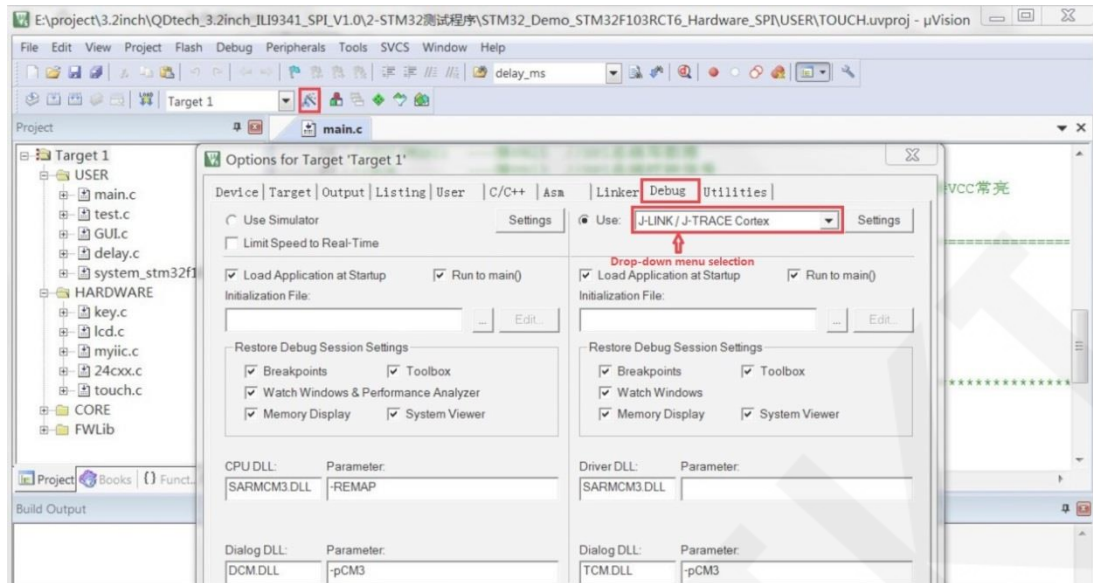
B. Click on **Settings** again, set ort to **SW** and Max to **2MHz**, as shown in the following:
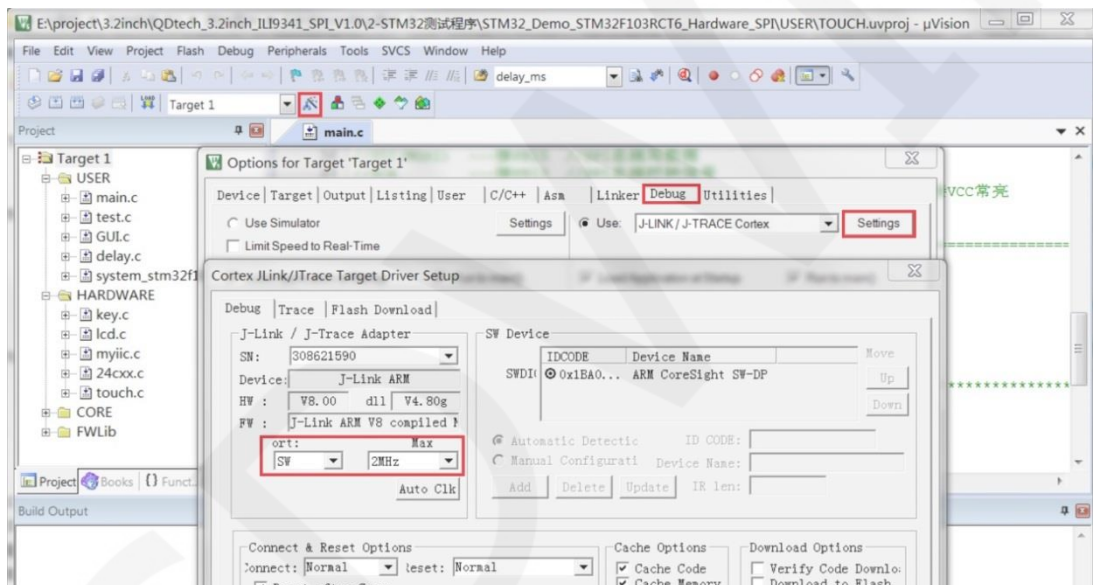
C. Select the microcontroller model, click on the **magic wand icon** ->**Device** ->select

the **STM32F103RC** microcontroller model, as shown in the following figure:
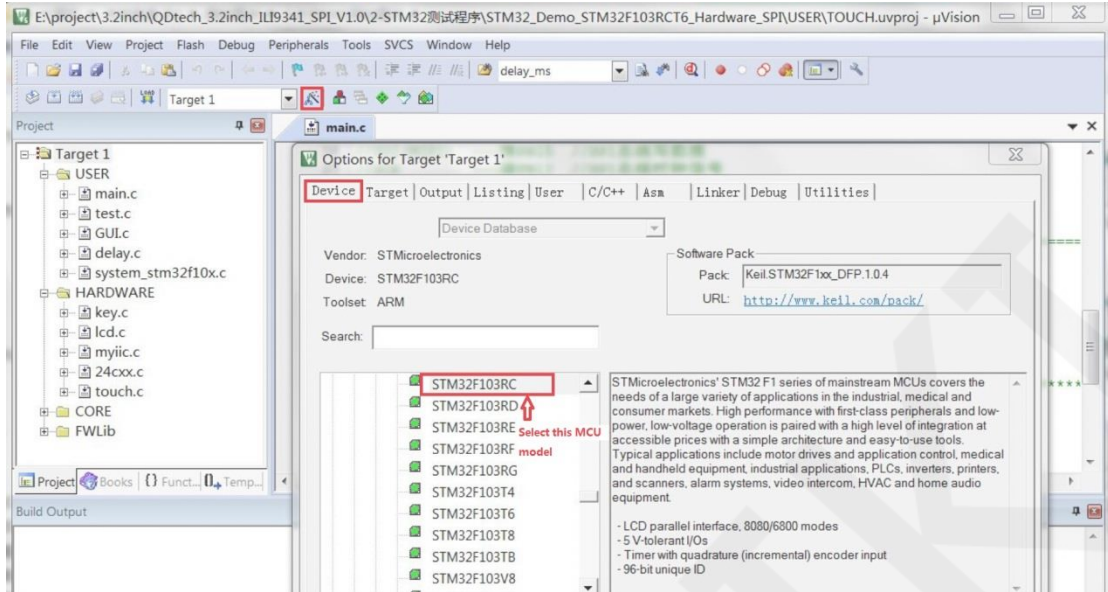
D. Select the flash model (if selected, please ignore it), click

Utilities>**Settings**>**Add**>select **STM32F10x High density Flash** ->**Add**, as

shown in the following figure:
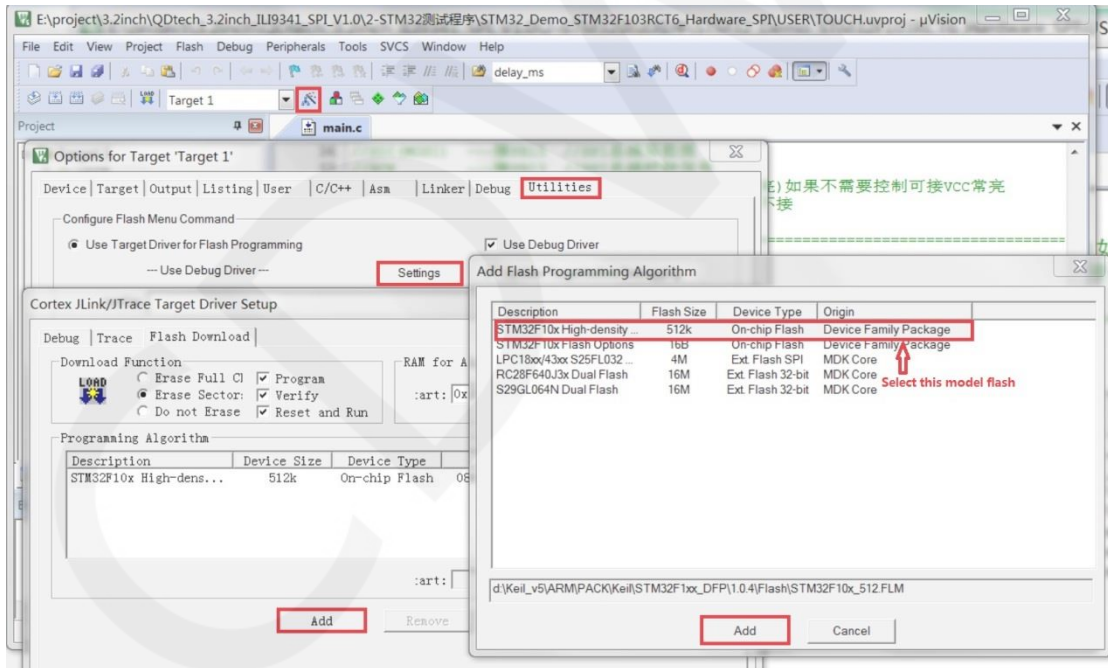
E. After setting up both JTAG and flash, the program can be downloaded. Download

the program, click the **download** button, and download the hex file to the

development board. If the prompt "**Programming Done. Verify OK.**" appears, it

indicates successful download, as shown in the following figure:
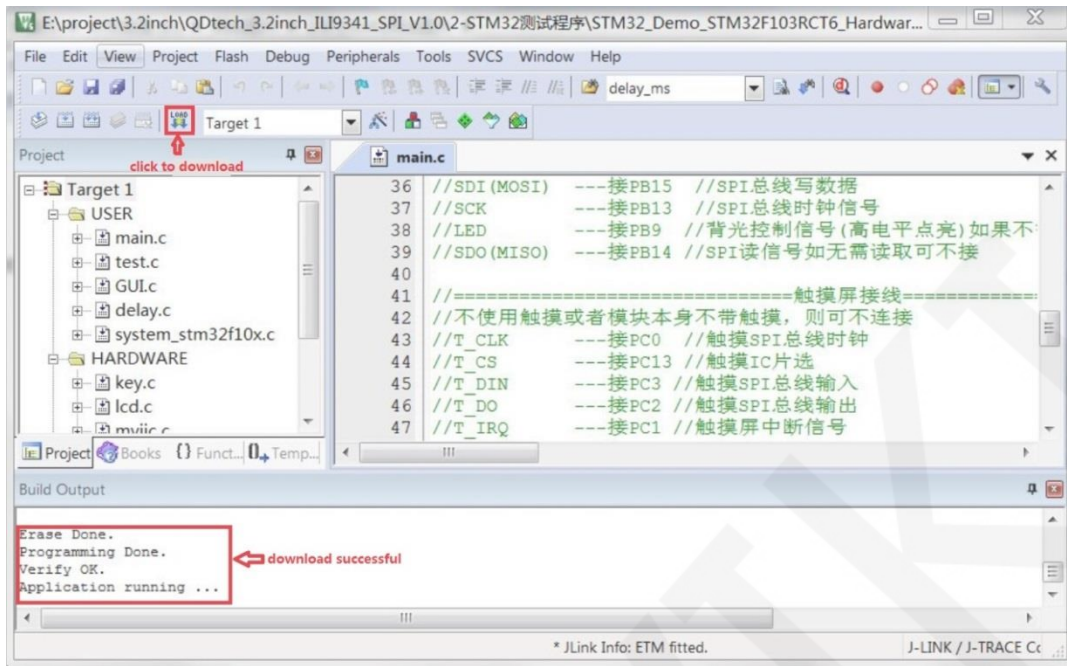
F. After the program is successfully downloaded, if the module does not respond, you need to press the reset button or power off and restart to run normally. If you want the program to automatically run after successful download, you need to press the following settings:

Click on the **magic wand icon** ->**Utilities** ->**Settings** ->check **Reset and run**, as shown in the following figure:
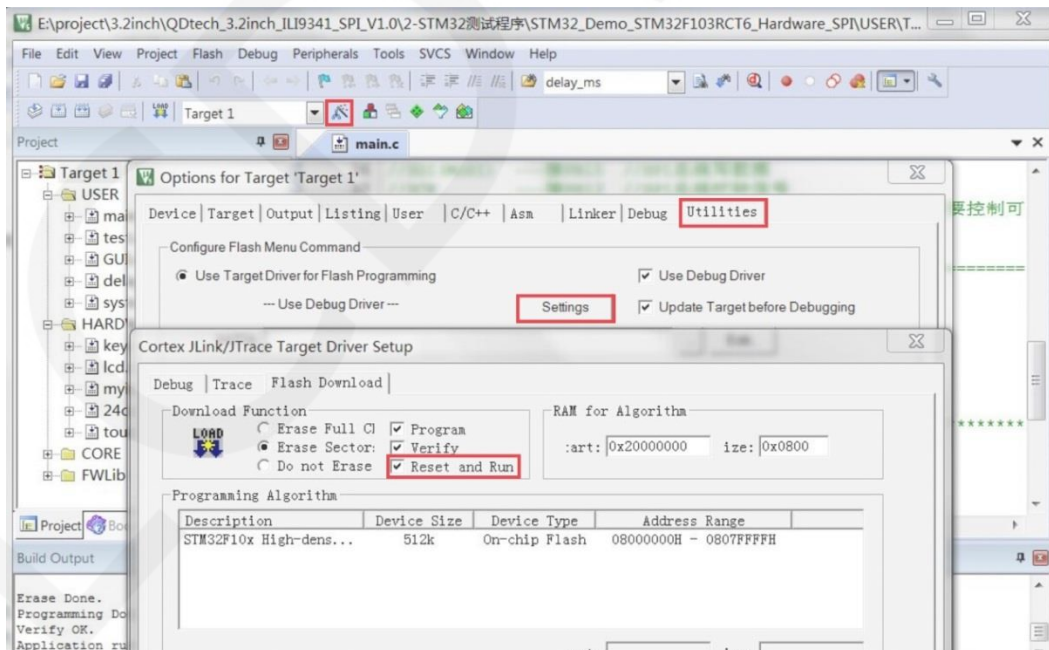
G. If the display module displays characters and graphics normally, it indicates that the program has run successfully.

NOTE:

A. When downloading the program, if the following error occurs, it indicates that the JTAG setting is incorrect. Please follow step B to set it:
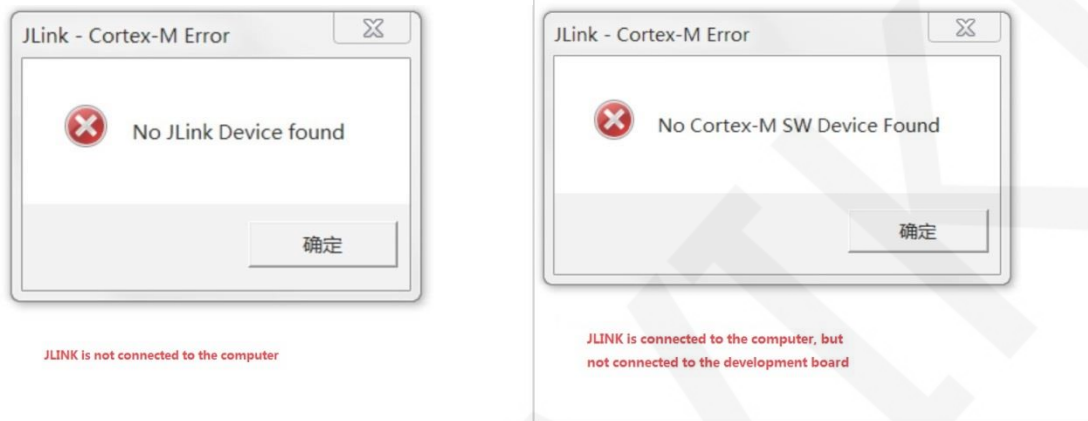
B. If the following error occurs, it indicates that the flash setting is incorrect. Please follow step D to set it: