1. Introduction to Testing Platform

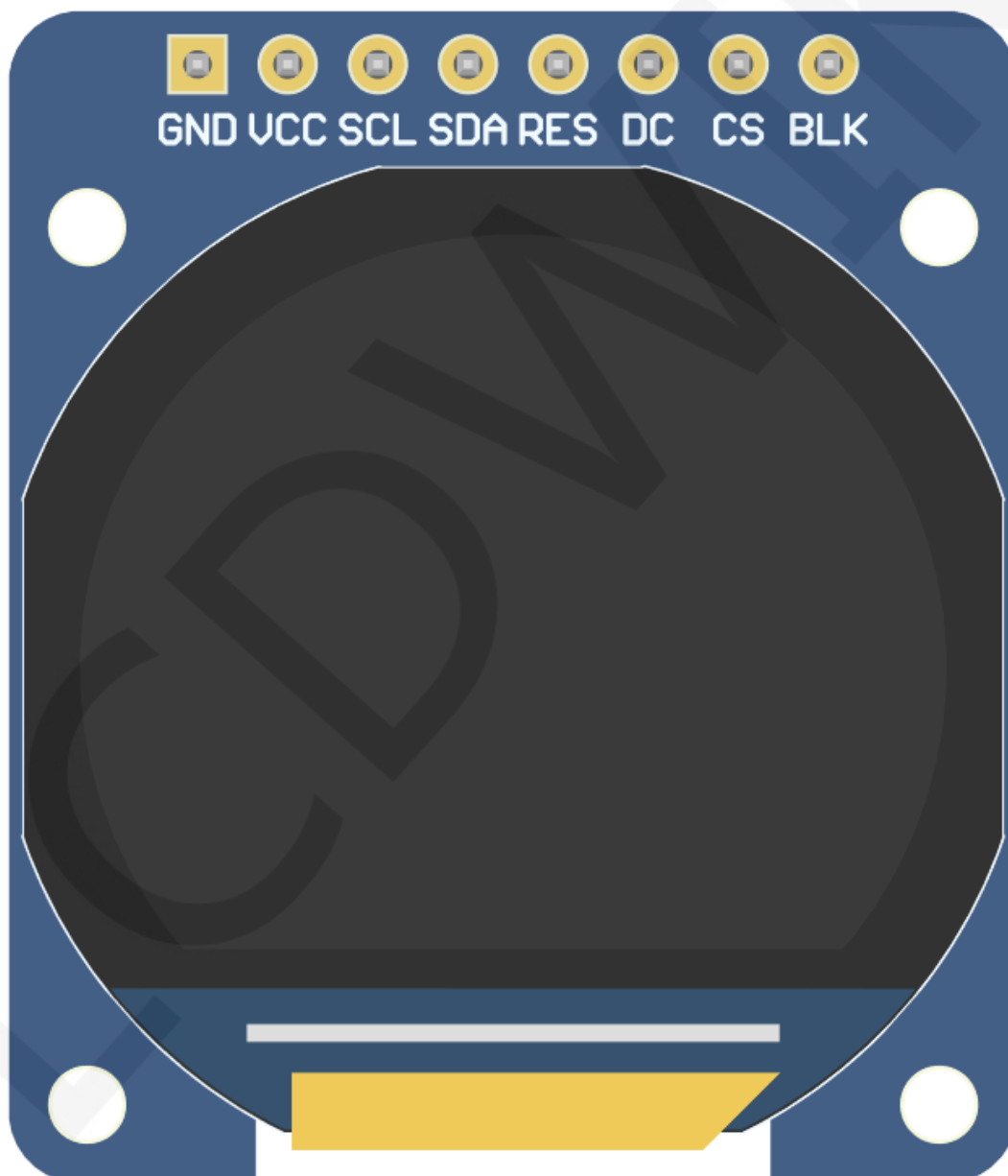Development board: STC89/STC12 development board

MCU ：STC89C52RC、STC12C5A60S2

Frequency : 11.0592MHZ

2. Pin connection instructions

The display module is connected to the microcontroller using a DuPont cable, with specific instructions as follows:

Picture1. Module front pin diagram

**STC89C52RC and STC12C5A60S2 microcontroller test program wiring instructions**
Number	**Module Pin**	**Corresponding to STC89/STC12 development board wiring pin**	**Remarks**
1	**GND**	GND	LCD Power ground
2	**VCC**	5V/3.3V	LCD power positive(It is recommended to connect to 5V. When connected to 3.3V, the backlight brightness will be slightly dim)
3	**SCL**	P17	LCD SPI bus clock signal
4	**SDA**	P15	LCD SPI bus write data signal
5	**RES**	P33	LCD reset control signal, Low level reset
6	**DC**	P12	LCD command / data selection control signal High level: data, low level: command
7	**CS**	P13	LCD selection control signal, Low level active
8	**BLK**	P32	LCD backlight control signal (If you need control, please connect the pins. If you don't need control, you can skip it)

3.　Demo Function Description

　　　　This testing program includes two types of MCU programs: STC89C52RC and STC12C5A60S2. STC12C5A60S2 includes software SPI and hardware SPI programs, while STC89C52RC only has software SPI programs, which are located in the **Demo_C51** directory, as shown in the following figure:
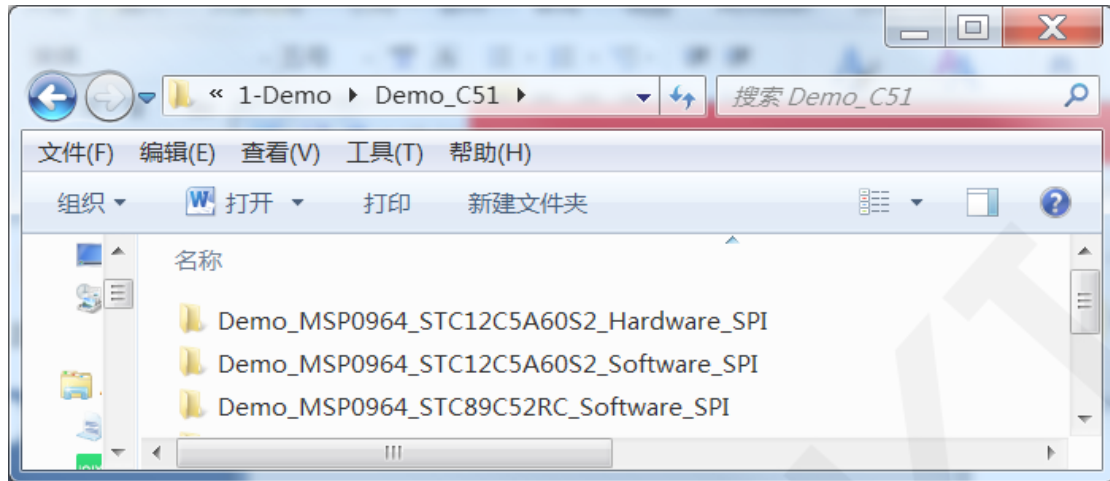
✧ **Description of sample program content**

The ROM of the STC89C52RC microcontroller is only 25KB and cannot store overly complex and large programs, so only simple screen swiping tests are performed;

STC12C5A60S2 microcontroller test program contains the following test items:

    A. The main interface displays the test;

    B. Menu interface display;

    C. simple brush test;

    D. rectangular drawing and filling test;

    E. circular drawing and filling test;

    F. triangle drawing and filling test;

    G. English display test;

    H. Chinese display test;

    I. picture display test;

    J. rotating display test;

✧ **Display direction switching instructions:**

Find the macro definition **USE_HORIZONTAL** in **lcd.h** as shown below:

```
///////////////////////////////////////用户配置区///////////////////////////////////////
#define USE_HORIZONTAL    0//定义液晶屏顺时针旋转方向   0-0度旋转，1-90度旋转，2-180度旋转，3-270度旋转
```

USE_HORIZONTAL 0   //0°Rotate

USE_HORIZONTAL 1   //90°Rotate

USE_HORIZONTAL 2   //180°Rotate

USE_HORIZONTAL 3   //270°Rotate

4．Demo Usage Instructions

## ✧ Installing development tool software

Firstly, you need to install the development tool software. Keil5 and stc-isp software are used here, where Keil5 is used for code editing and compilation, and stc-isp is used for download. Please refer to the online download and installation methods for both software.

✧ Installing chip packages

After installing keil5, it is necessary to install the C51 chip package, otherwise the C51 chip cannot be found and the C51 project cannot be created.Please consult online for specific installation methods.

✧ Compiling Programs

After the development tool and chip package are successfully installed, 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:
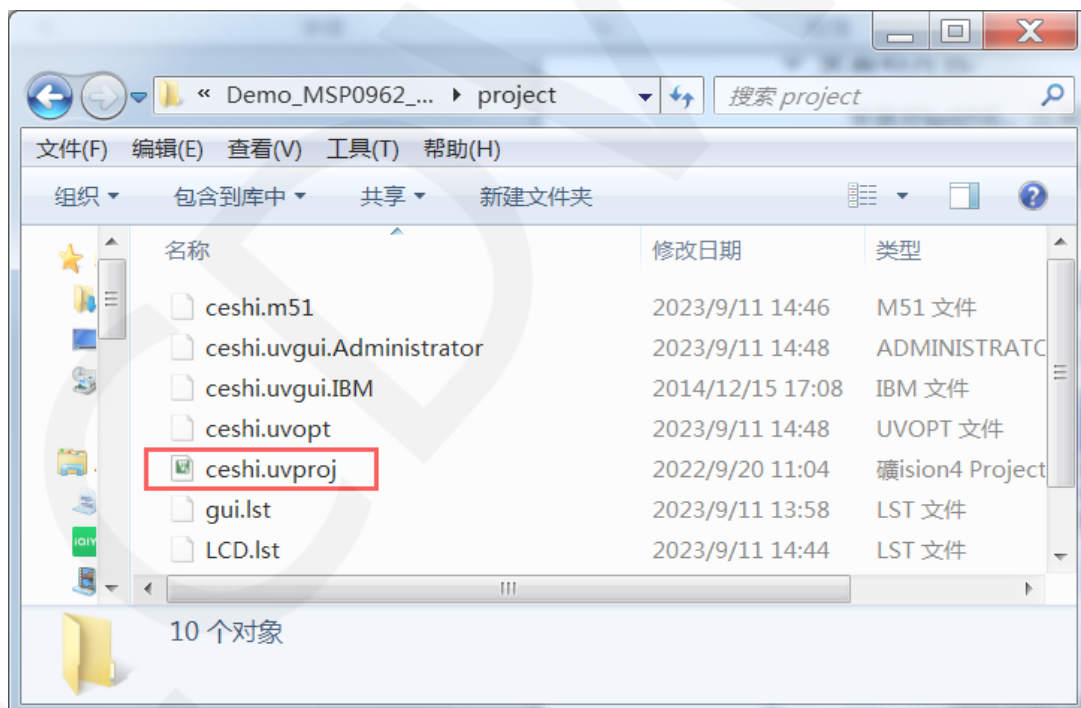

After opening the sample project, you can make modifications to the project code (or not). After the modifications are completed, click the compile button to compile the code. The following prompt appears, indicating successful compilation, as shown in the following figure:
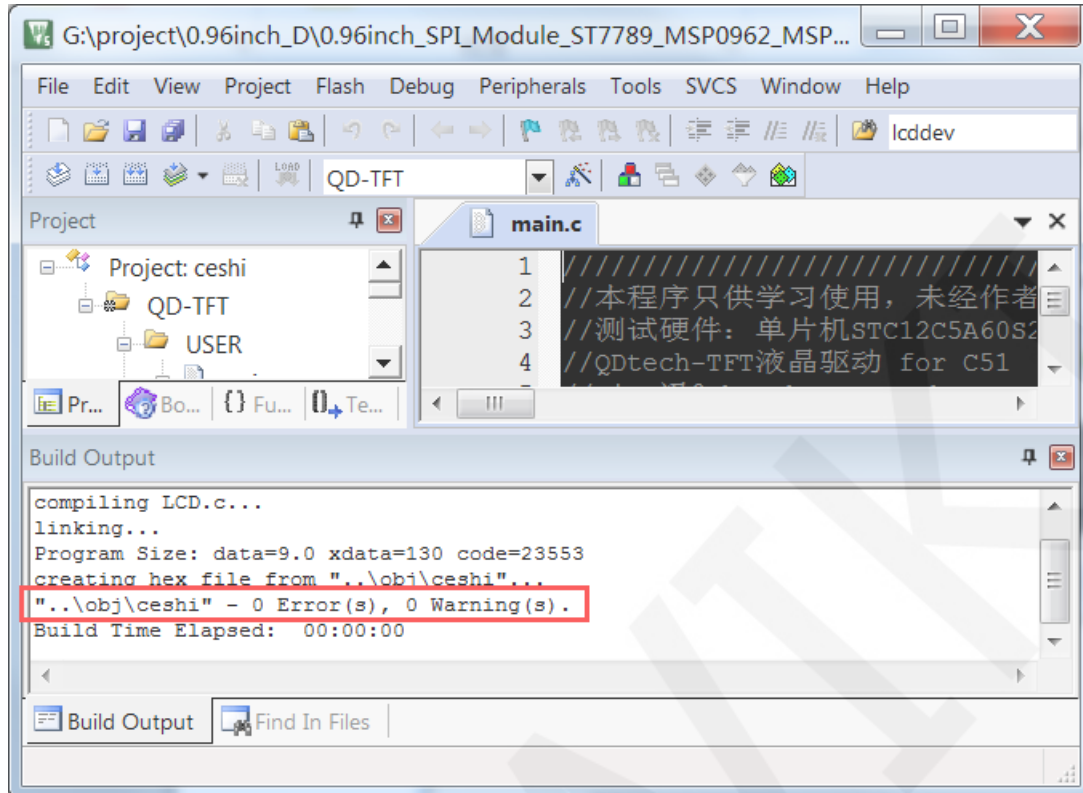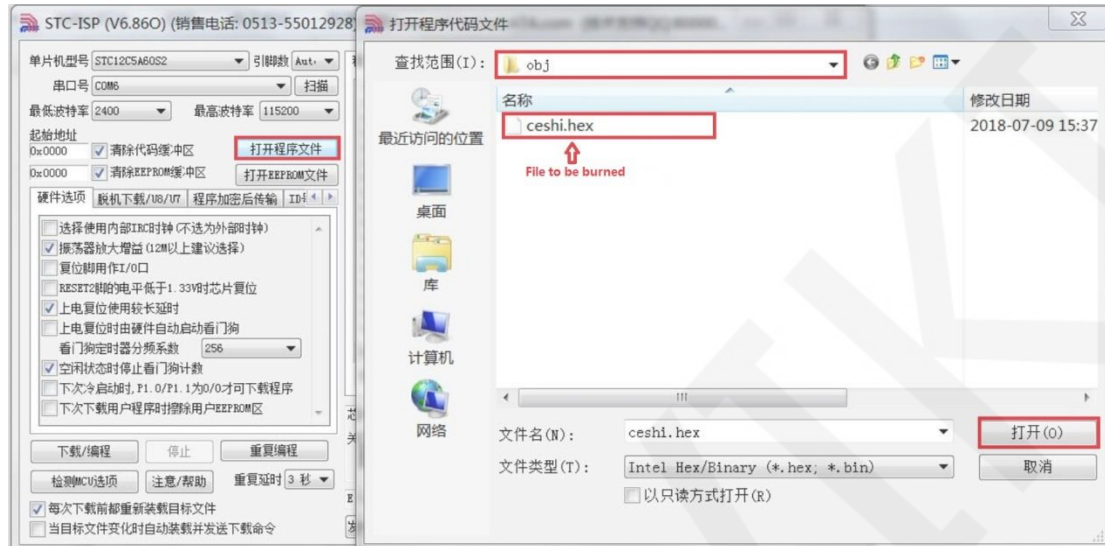
✦ Download and Run Programs

A. Open the **STC-ISP** software for program download, first select the correct microcontroller model and baud rate, and set them as shown in the following figure:
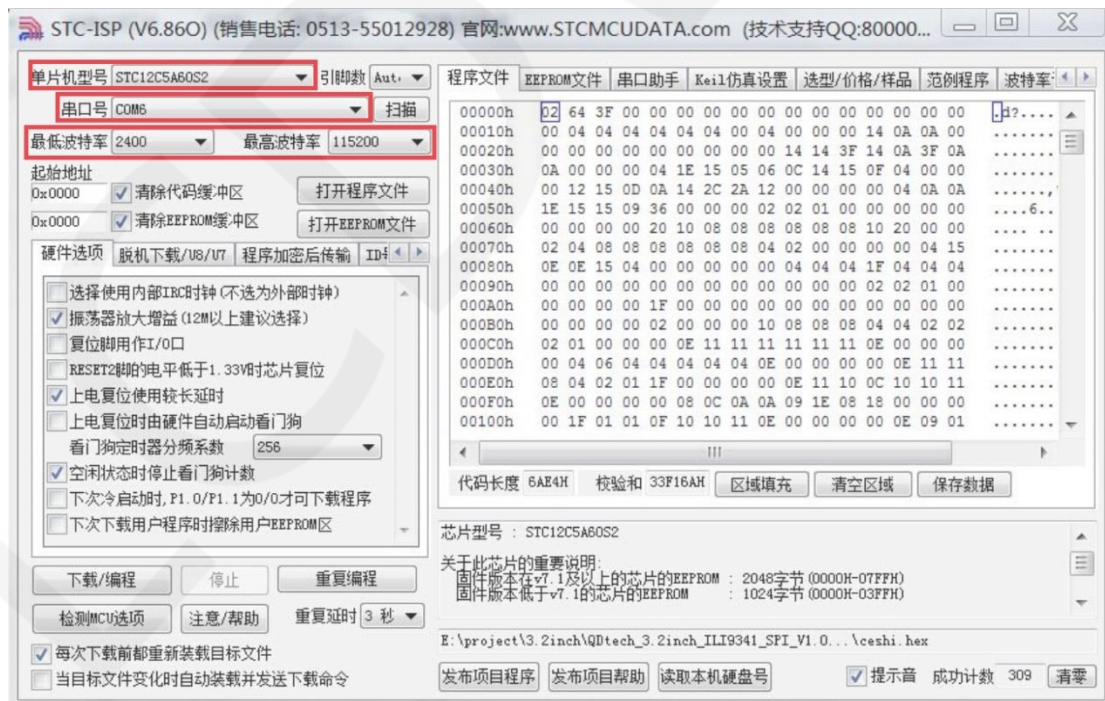
B. Click to **open the program file** ->**select the directory where the compiled hex file is located** ->**select the hex file** ->click the **open** button, as shown in the following figure:

C. Click the **download** button to power on the microcontroller again, and the program will be burned. When the "**Operation successful**" prompt appears, it indicates successful burning. The operation is shown in the following figure:
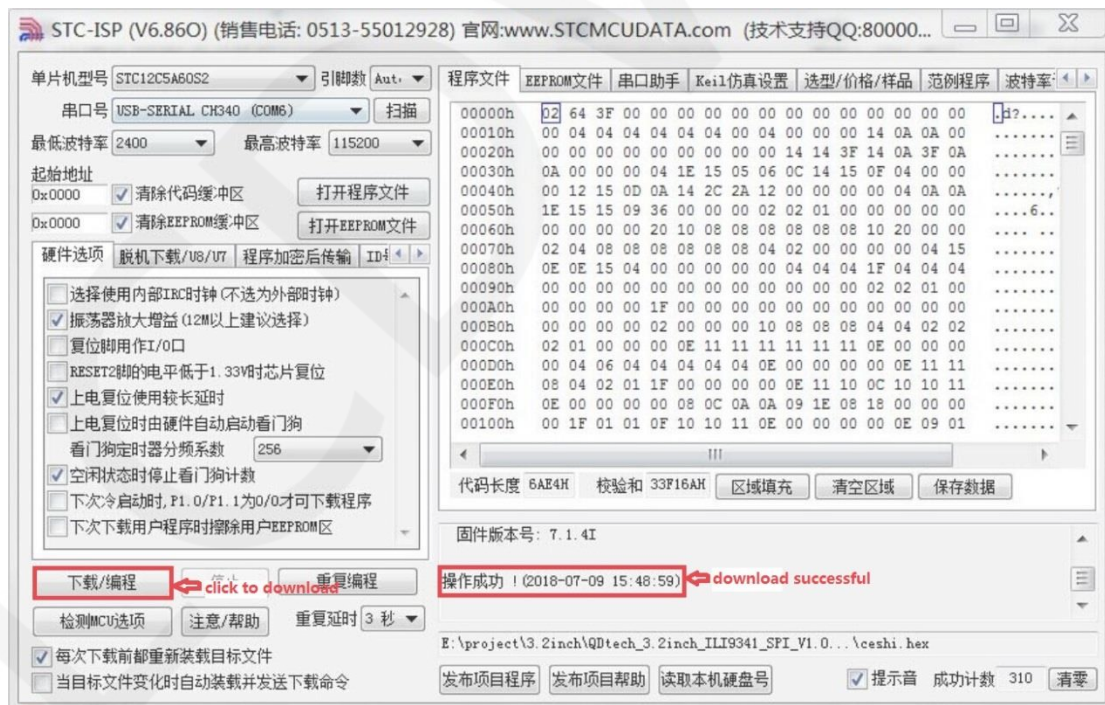
D. If the display module displays characters and graphics normally, it indicates that the program has run successfully.