# 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:



### **Module Back Pins**

STC	39C52RC a	and STC12C5A60S2 micr wiring instruction	ocontroller test program າຣ
Number	Module Pin	Corresponding to STC89/STC12 development board wiring pin	Remarks
1	VCC	5V	LCD power positive
2	GND	GND	LCD Power ground
3	LCD_CS	P13	LCD selection control signal, Low level active
4	LCD_RST	P33	LCD reset control signal, Low

			level reset
			LCD command / data selection
5	LCD_RS	P12	control signal
	_		High level: data, low level:
6	SDI(MOSI)	P15	SPI bus write data signal(SD card
			and LCD screen used together)
7	SCK	P17	SPI bus clock signal (SD card and
			LCD screen used together)
			LCD backlight control signal (in
8	LED	P32	the pips of you don't need control
			vou can skin it)
			SPI bus read data signal (SD card
9	SDO(MISO)	P16	and LCD screen used together)
			Capacitive touch screen IIC bus
10			clock signal (modules without touch
10	CTP_SCL	P36	screens do not need to be
			connected)
			Capacitor touch screen reset
11		D27	control signal, low-level reset
11	CIF_KST	F37	(modules without touch screens do
			not need to be connected)
			Capacitive touch screen IIC bus
12	CTP SDA	P34	data signal (modules without touch
			screens do not need to be
			connected)
			Capacitor touch screen IIC bus
			touch interrupt signal, when
13	CTP_INT	P35	the main control (modules without
			touch screens do not nood to be
			connected)
			SD card selection control signal
14	SD CS	NC	low level active (without SD card
			function, can be disconnected)

# 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 Demo\_ Under the C51 directory, as shown in the following figure:



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. Display screen ID and GRAM color value reading test (only software SPI is supported, and there are exceptions when hardware SPI reads ID);
  - 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. Dynamic digital display test
  - K. rotating display test;
  - L. Capacitive touch screen testing (including touch button testing and handwriting line testing)

Display direction switching instructions:

Find the macro definition **USE\_HORIZONTAL** in **Icd.h** as shown below:

#### #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:

00-	> MSP3222_MSP3223_STC >	Project 👻 😽	搜索 Pr 👂
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IOIY	ft6336.lst	2023/5/17 15:31	LST 文件 🔻
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	14 个对象		

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:

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File Edit View Project Flash Debug Peripherals Tools SVCS Window Help	
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compiling test.c	•
Program Size: data=15.1 xdata=187 code=31703	
creating hex file from "obj/ceshi"	Ξ
Build Time Elapsed: 00:00:01	-
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### ♦ Download and Run Programs

A. Open the STC-ISP software for program download, first select the correct

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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

🐊 STC-ISP (V6.86O) (销售电话: 0513-55012928)	17开程序代码文	件 一 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1002/0000		23
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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:

www.lcdwiki.com

片机型号 STC12C5A60S2	▼ 引脚数 Aut· ▼	2 程序文件	EEPROM文	件員	串口助	手口	Keil	仿真	设置	过	型/	价格/	样品	范	例程序	波特率	•
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0000 📝 清除EEPROM缓冲区	打开EEPROM文件	000501	00 00	10	00 20	10	00	0.8	02	08 1	18 0	8 10	20	00	00		
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✓ 振荡器放大增益(12M以上建议)2	5择)	000B0h	00 00	00	00 02	2 00	00	00	10	08 (	0 80	8 04	04	02	02		
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RESET2脚的电平低于1.33V时芯	片复位	000D0h	00 04	06	04 04	4 04	04	04	0E	00	00 0	0 00	OE	11	11		
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看门狗定时器分频系数 256	•	*					111									- F	
✓ 空闲状态时停止看门狗计数	オコン報行向	代码长度	5 6AE4H	校验	和 33	F16A	н	区域	城 真子	3	清	空区	或	係	存数据		
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D. If the display module displays characters and graphics normally, it indicates that the program has run successfully.