Test platform introduction:

Development board: STC89/STC12 development board

MCU ：STC89C52RC、STC12C5A60S2

Wiring instructions:

Picture1. Pin silkscreen picture

important:

1. The following pin numbers 1~8 refer to the module pin numbers of our company with PCB backplane. If you are buying a bare screen, please refer to the pin definition of the bare screen specification, refer to the wiring according to the signal type instead of directly according to the following. The module pin number is used for

wiring. For example: DC is 6 feet on our module. It may be x pin on different size bare screen. The following wiring instructions tell you that the DC signal is connected to the P12 pin of the MCU. of.

2. About VCC supply voltage: The IPS display module can only be connected to 3.3V.

3. About backlight voltage: The module with PCB backplane has integrated triode backlight control circuit, only need to input high level or PWM wave on BL pin to backlight. If you are buying a bare screen, the LEDAx is connected to 3.0V-3.3V, and the LEDKx can be grounded.

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**	3.3V	LCD power supply is positive (3.3V)
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 register / data selection control signal(Low level: register, high level: data)
7	**CS**	P13	LCD chip select control signal (low level enable)
8	**BLK**	P32	LCD backlight control signal (high level lighting, if you do not need control, please connect 3.3V)

Demo function description:

1. This set of test program procedures is applicable to the STC89C52RC and STC12C5A60S2 platforms;
2. This module uses 4-line-SPI communication interface;
3. This test program includes software SPI and hardware SPI function tests (STC89C52RC only software SPI function);
4. Please follow the above wiring instructions to find the corresponding development board and MCU for wiring;
5. STC89C52RC microcontroller RAM is only 25KB, so only a simple brush test, other test items can not be tested;
6. This set of tests supports display switching in four directions. For details, see the display direction switching instructions.
7. STC12C5A60S2 microcontroller test program contains the following test items:
   A. The main interface displays the test;
   B. 3D menu display test;
   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