

开发板说明书

Development Board Instructions

☒初定规格 Preliminary specification

☐正式规格 Official specifications

项目编号 Project No.	DEMO_STM32F103RET6_V0
产品描述 Product Description	Development Board
客户确认签章: Signature by customer:	
☒小批量试产 Trial Production ☐大批量生产 Mass Production 请返回一份带有您的签名和评论的确认副本 Please return one copy confirmation with signature and your comments	

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一、产品介绍 Product Introduction

DEMO_STM32F103RET6开发板搭载原装STM32F103RET6芯片，基于ARM Cortex-M3内核架构，工作主频可达72MHz，其配备512KB FLASH（程序存储）与64KB SRAM（数据运行），支持Thumb-2指令集，兼顾代码执行效率与存储容量，能满足中复杂度嵌入式程序的开发需求。本开发板适配多个显示屏接口，且与我司大部分采用MCU接口和SPI接口的显示屏及显示模块相兼容，方便用户即插即用，提高开发效率。DEMO_STM32F103RET6开发板硬件设计特点包括：

- 1) 引出多种显示屏接口，包括：HTM-34P, HTM-8P, HTM-14P, SPI-10P和MCU-40P。此外，开发板背面设置了电阻跳选，用户可根据实际MCU显示屏接口定义自行更改电阻跳选配置。
- 2) USB Type-C接口正反插兼容设计。借助USB-A转Type-C数据线的特性，通过正反插数据线可实现不同功能，单个USB接口既支持串口一键下载功能，又保留了单片机的USB设备通信功能。
- 3) 存储资源丰富。主控芯片自带512KB FLASH空间，外扩了16MB FLASH芯片并预留了SD卡座，满足大数据存储需求。
- 4) 交互资源丰富。板载了4个按键（包括一个RESET复位按键）和5个LED灯（包括一个PWR电源指示灯），可对相关的引脚进行配置，以实现交互开发。
- 5) 程序更新方式多样。开发板提供了JTAG接口，SWD接口和串口一键下载接口，可自行选择任一接口进行程序更新，自由度高。
- 6) 便于开发使用。选用拨码开关进行BOOT选择和串口选择，摒弃了传统的“排针+跳线帽”的跳选设计，无需拔插跳线帽便可切换选择，使用更便捷。此外，各接口均通过丝印清晰标注，使用时一目了然；接口布局设计合理，便于操作；充分规划板载资源，实现高效利用。

The DEMO_STM32F103RET6 development board is equipped with the original STM32F103RET6 chip, based on the ARM Cortex-M3 core architecture, with an operating frequency of up to 72MHz. It has 512KB FLASH (for program storage) and 64KB SRAM (for data operation), supports the Thumb-2 instruction set, balances code execution efficiency and storage capacity, and can meet the development requirements of embedded programs with medium complexity. This development board is compatible with multiple display interfaces and is compatible with most of our company's display screens and display modules with MCU interfaces and SPI interfaces, facilitating plug-and-play for users and improving development efficiency. The hardware design features of the DEMO_STM32F103RET6 development board include:

1. Multiple display interfaces are led out, including: HTM-34P, HTM-8P, HTM-14P, SPI-10P, and MCU-40P. In addition, resistor jump selection is set on the back of the development board, and users can change the resistor jump selection by themselves according to the actual MCU display interface definition.

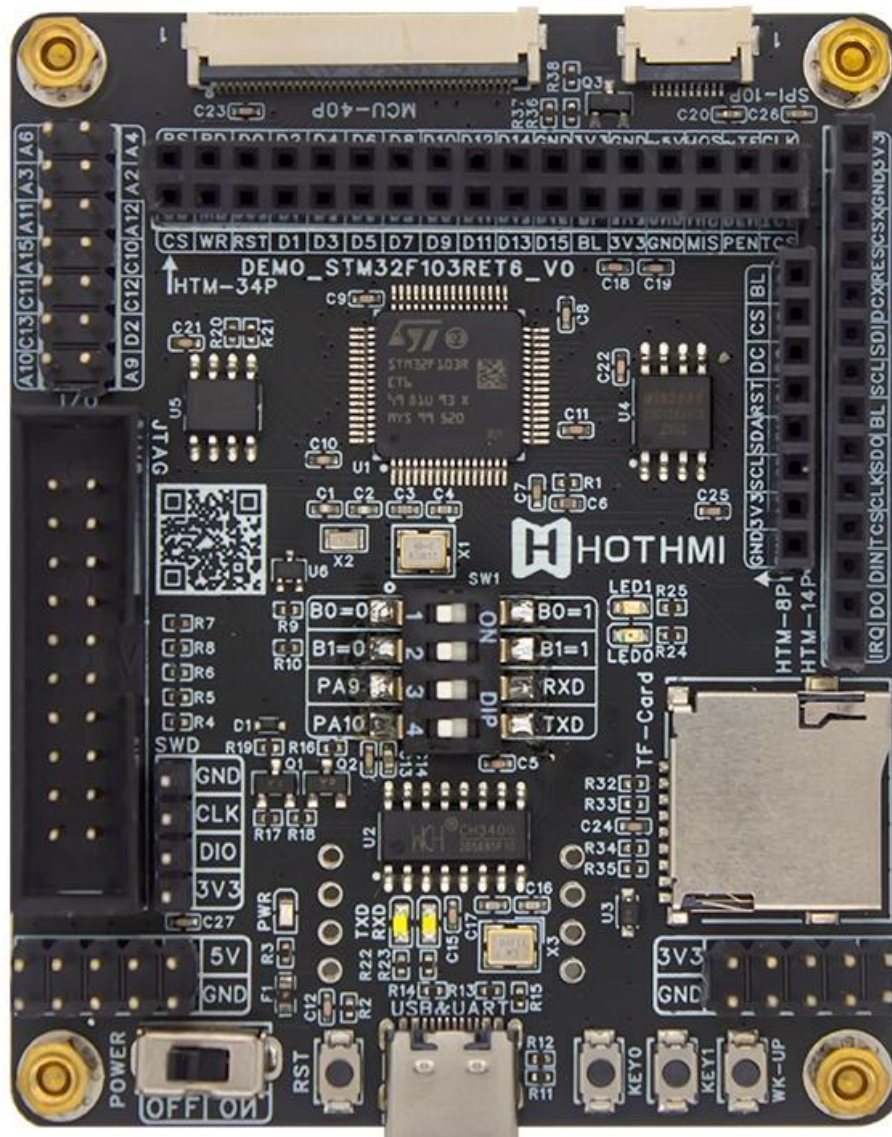
2. The USB Type-C interface adopts a front-and-back plug-compatible design. Utilizing the characteristics of the USB-A to Type-C data cable, different functions can be realized by plugging the data cable in the front or back direction. A single USB interface not only realizes the one-key download function via serial port but also retains the USB device communication function of the microcontroller.

3. It is rich in storage resources. The main control chip has a built-in 512KB FLASH space, and an external 16MB FLASH chip is expanded with an SD card slot reserved, meeting the requirements of large data storage.

4. It is rich in interactive resources. There are 4 buttons (including a RESET button) and 5 LED lights (including a PWR power indicator light) onboard, and the corresponding pins can be configured to realize interactive development.

5. There are multiple program update methods. The development board provides JTAG interface, SWD interface, and one-key serial port download interface. Users can choose any interface for program update, with a high degree of freedom.

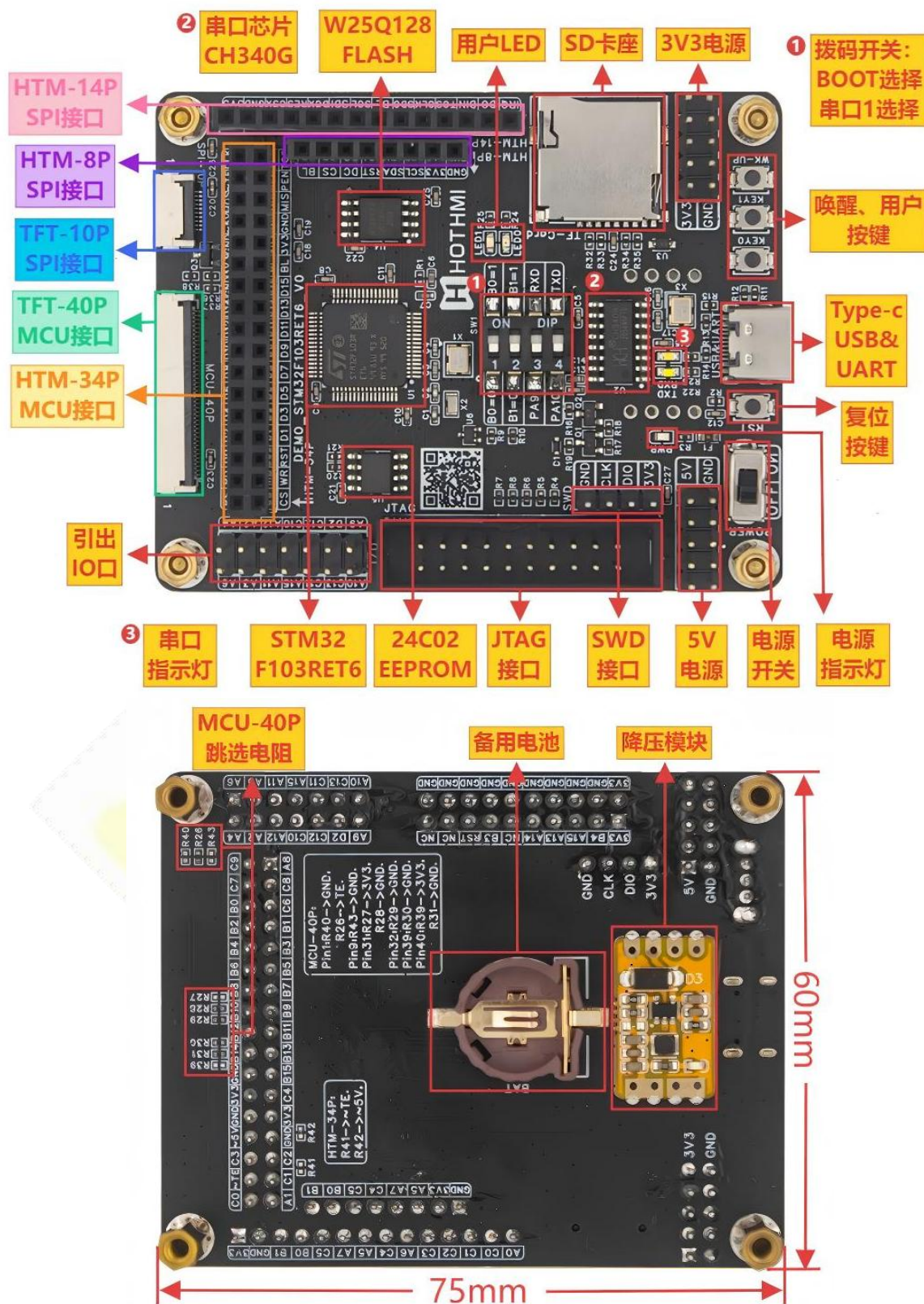
6. For ease of development and use, DIP switches are used for BOOT selection and serial port selection, abandoning the traditional jump selection design of pin headers with jumper caps. Users can switch selections without plugging or unplugging jumper caps, making it more convenient to use. Furthermore, all interfaces are clearly labeled via silk-screen printing, ensuring clear visibility during use; the interface layout is reasonably designed, facilitating ease of operation; and the on-board resources are subject to rational planning, enabling efficient utilization.



二、主要参数 Main Parameters

项目 Item	说明 Instruction
产品型号 Product Model	DEMO_STM32F103RET6_V0
主控芯片 Main Control Chip	STM32F103RET6 (LQFP64)
时钟频率 Clock Frequency	72 MHz
更新方式 Update Method	JTAG, SWD, UART
显示屏接口 Display Interface	MCU: MCU-40P, HTM-34P SPI: SPI-10P, HTM-8P, HTM-14P
存储拓展 Storage Expansion	16MB FLASH, SD Card
外形尺寸 Overall Dimensions	75mm * 60mm
工作电压 Operating Voltage	5V (USB Type-C)
工作温度 Operating Temperature	-20°C~+70°C

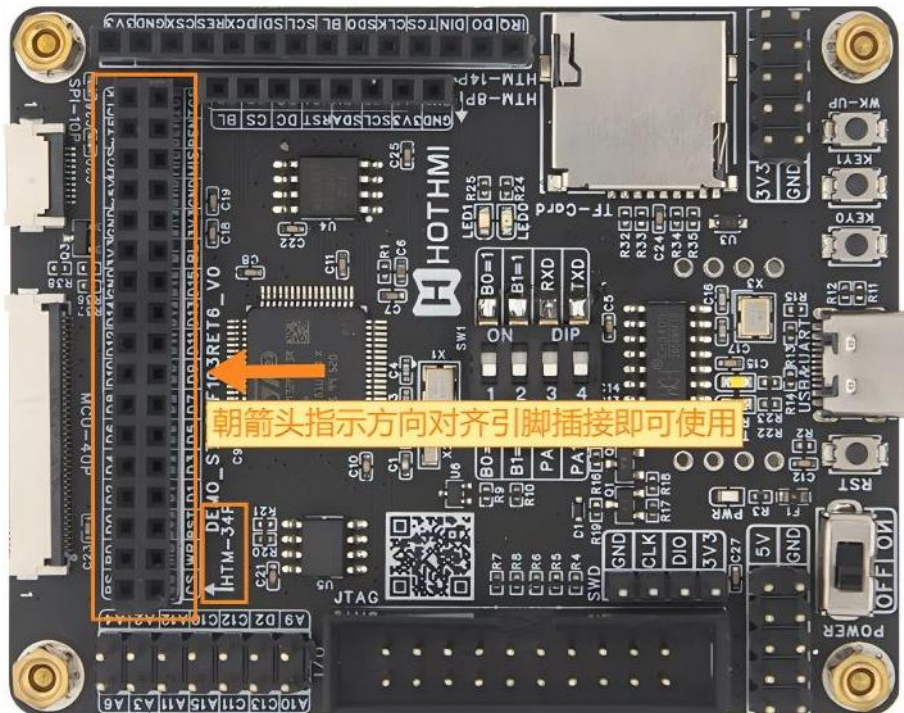
三、硬件布局 Hardware Layout



四、应用示例 Application Examples

①HTM-34P接口使用示例（演示HTM型号:HTM-H032A05-MCU-A01R）

1. 接口说明图（插接使用请参考下图，**断电连接**）

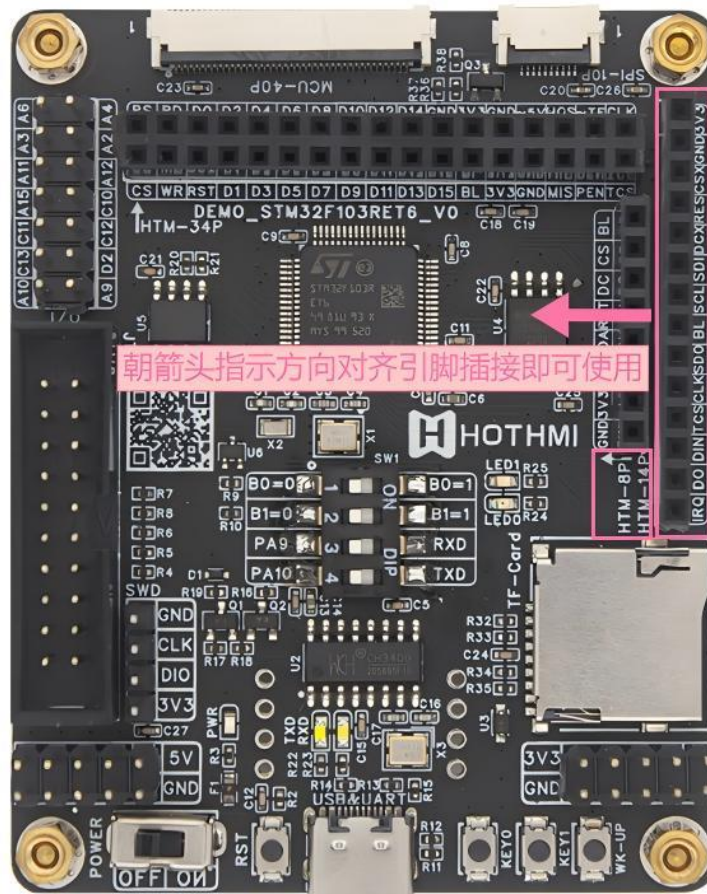


2. 演示实拍图（仅作接口功能展示，不代表实际显示效果）

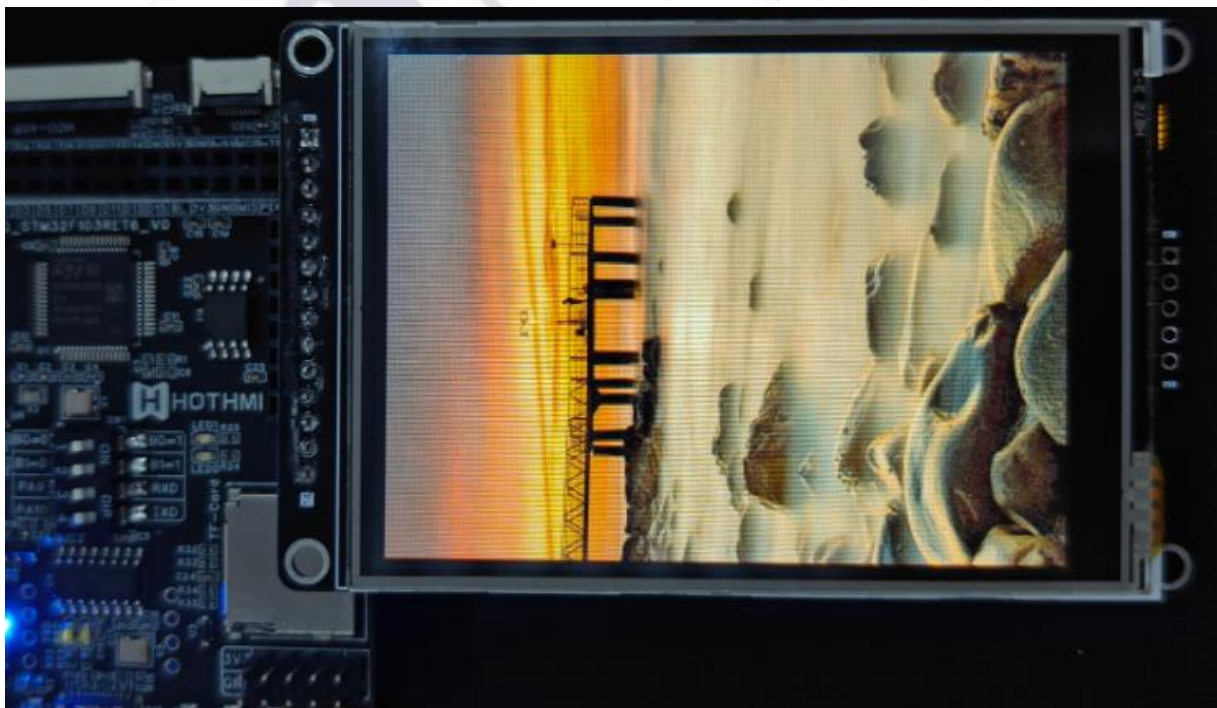


②HTM-14P接口使用示例（演示HTM型号:HTM-H032A05-SPI-A01R）

1. 接口说明图（插接使用请参考下图，**断电连接**）

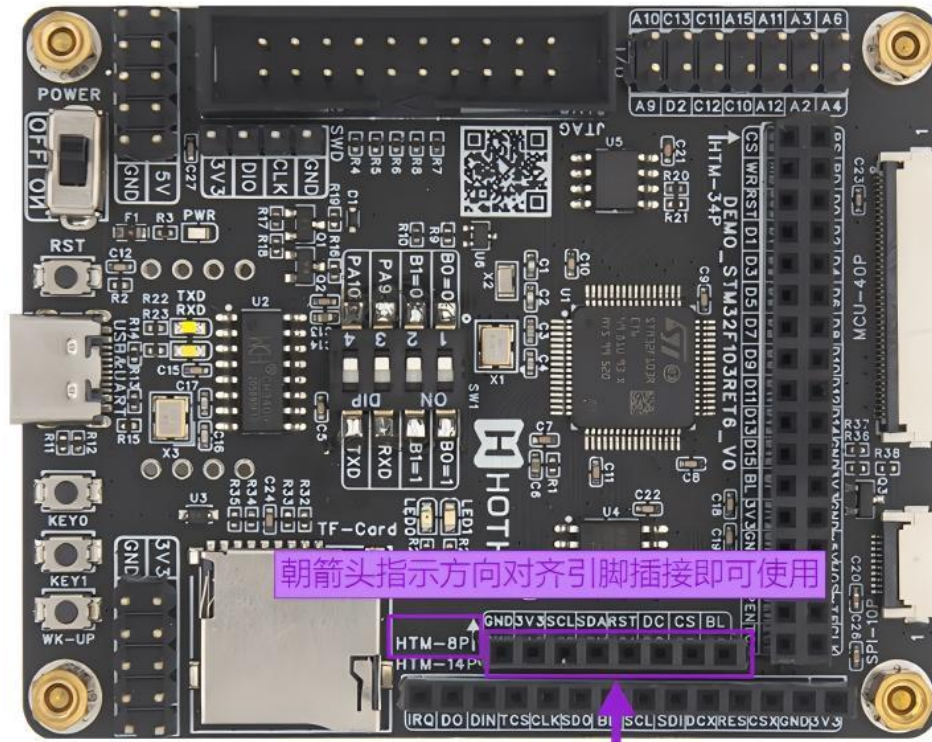


2. 演示实拍图（仅作接口功能展示，不代表实际显示效果）



③HTM-8P接口使用示例（演示HTM型号:HTM-H014A3-SPI-V0）

1. 接口说明图（插接使用请参考下图，**断电连接**）

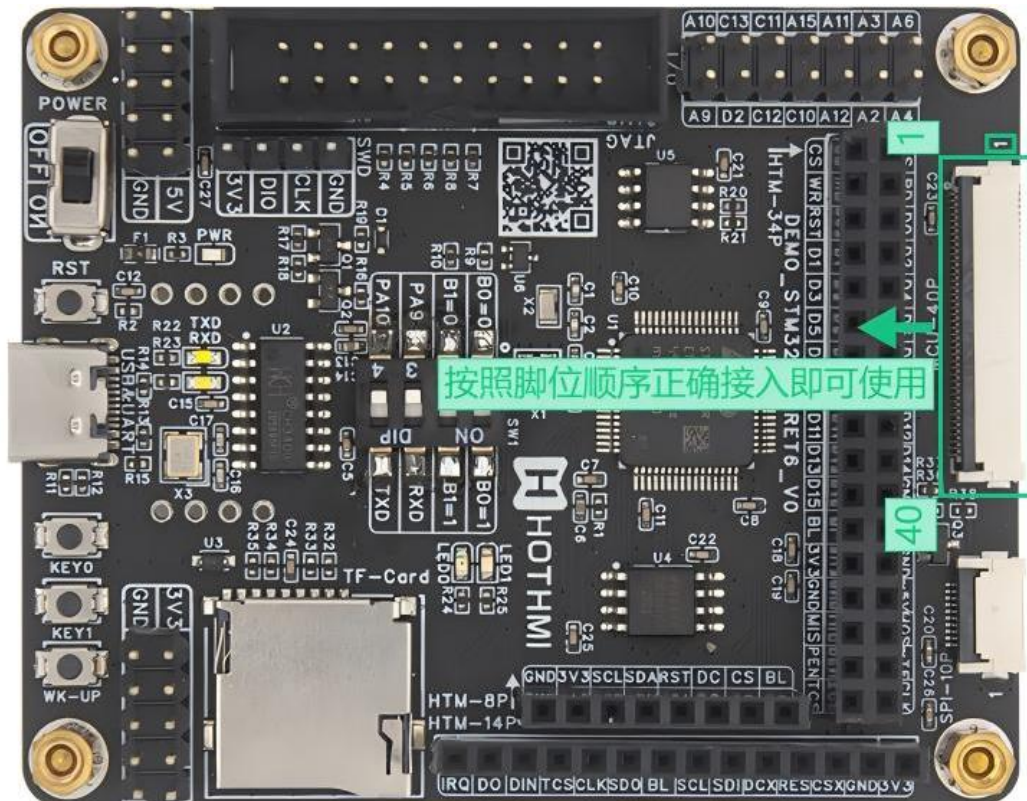


2. 演示实拍图（仅作接口功能展示，不代表实际显示效果）

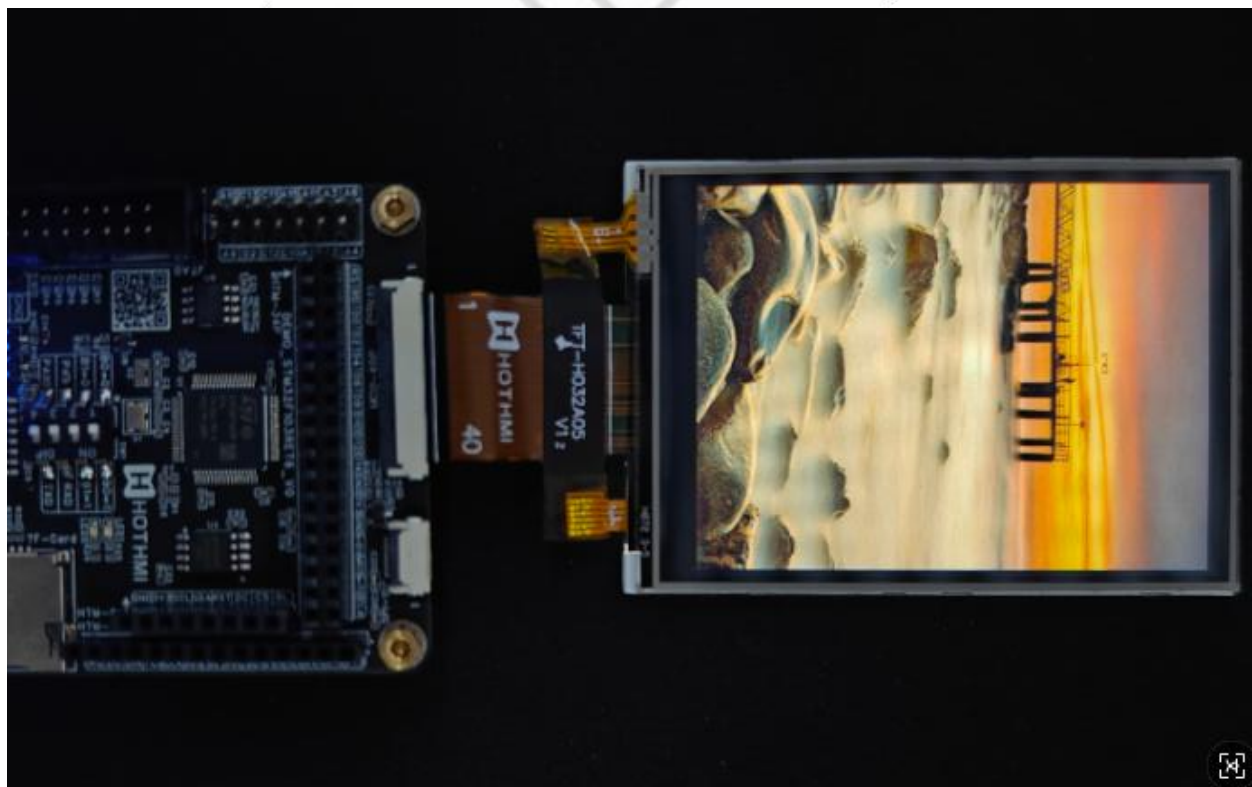


④MCU-40P接口使用示例（演示TFT型号:TFT-H032A05QVIST6N40）

1. 接口说明图（插接使用请参考下图，**断电连接**）

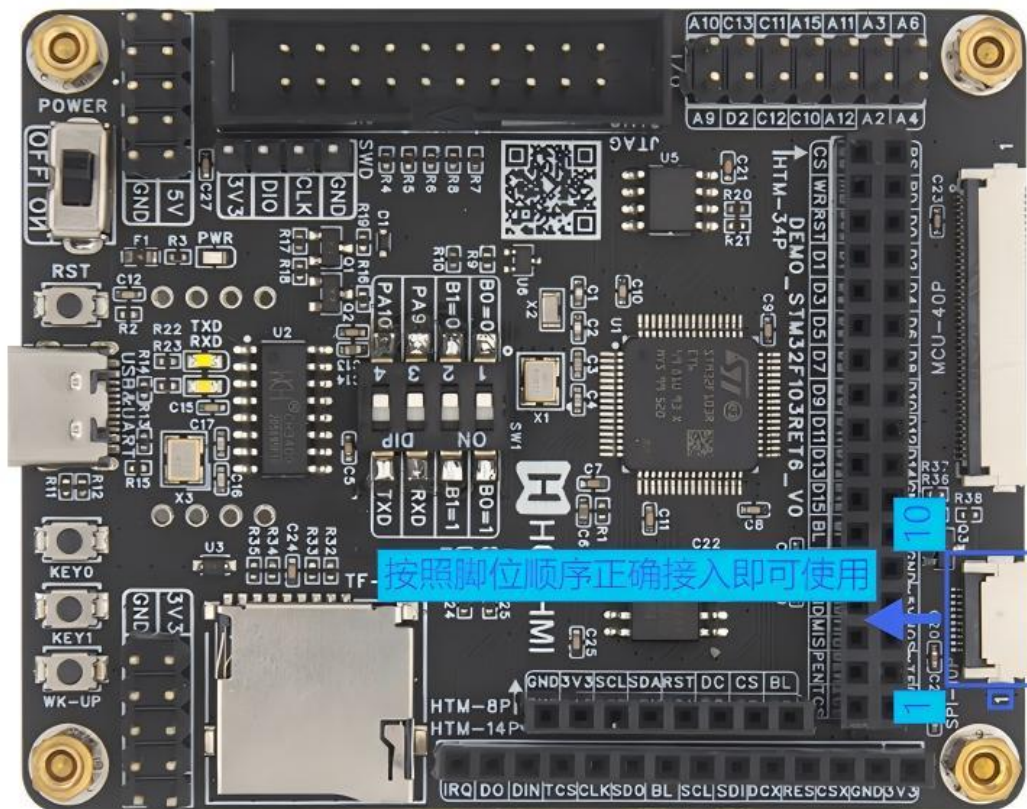


2. 演示实拍图（仅作接口功能展示，不代表实际显示效果）

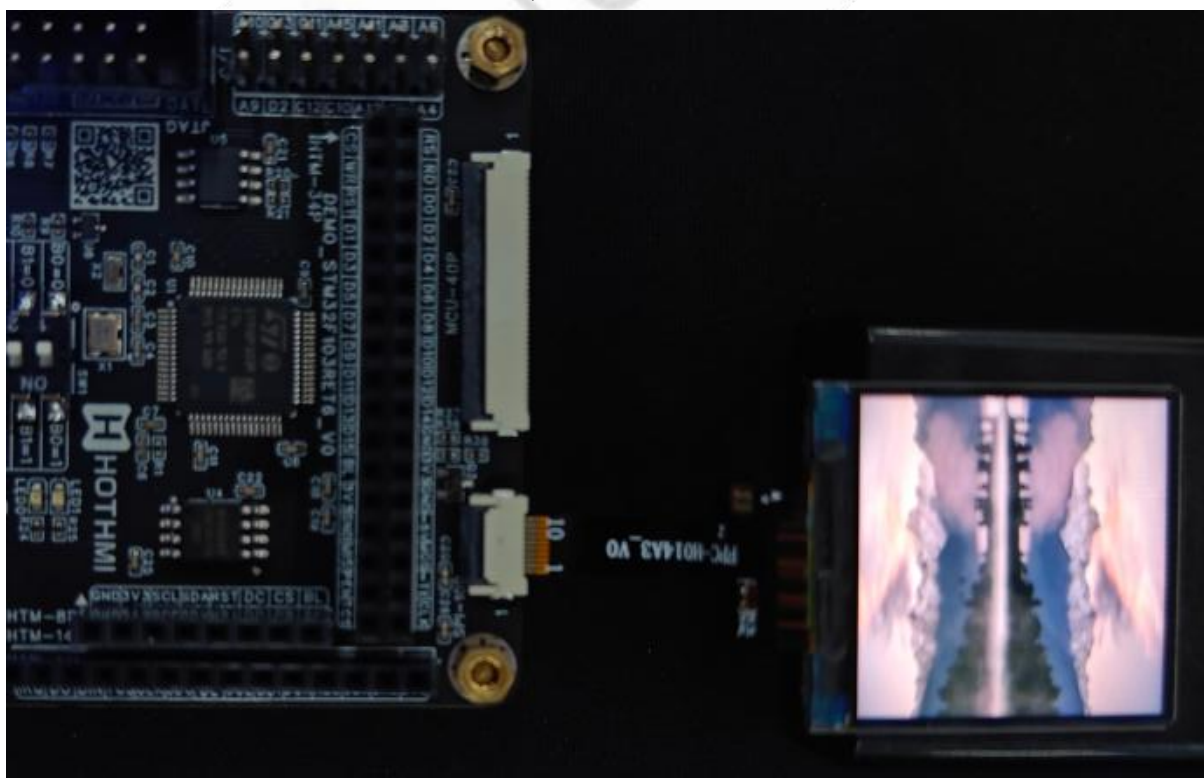


⑤SPI-10P接口使用示例（演示TFT型号:TFT-H014A3DQIST4N10）

1. 接口说明图（插接使用请参考下图，**断电连接**）



2. 演示实拍图（仅作接口功能展示，不代表实际显示效果）





文档修订记录 Document revision history

版本 Version	日期 Date	修改说明 Modification Notes	编著 Compiler
0-0	2025-10-13	初次编制 First Compilation	CN

-- 结束 --

-- END --