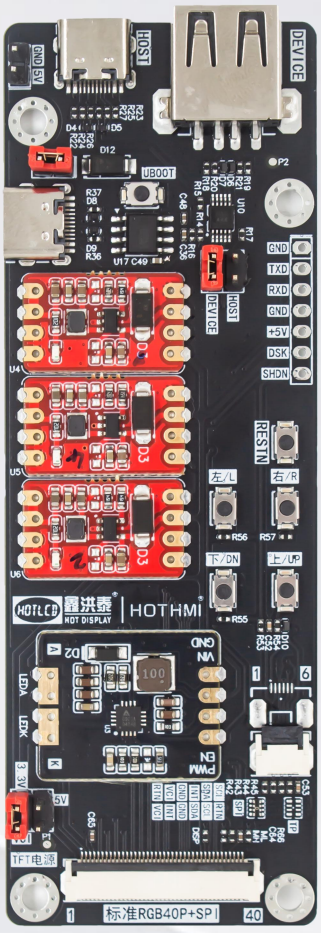
TFT 驱动板规格书

TFT DRIVER BOARD SPECIFICATION

☑ 初定规格 Preliminary specification

☐ 正式规格 Official specifications



HTM-H215-DEMO-A02_V0

REVISION: 0.1

2026-05-07

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一、产品介绍 Product Introduction

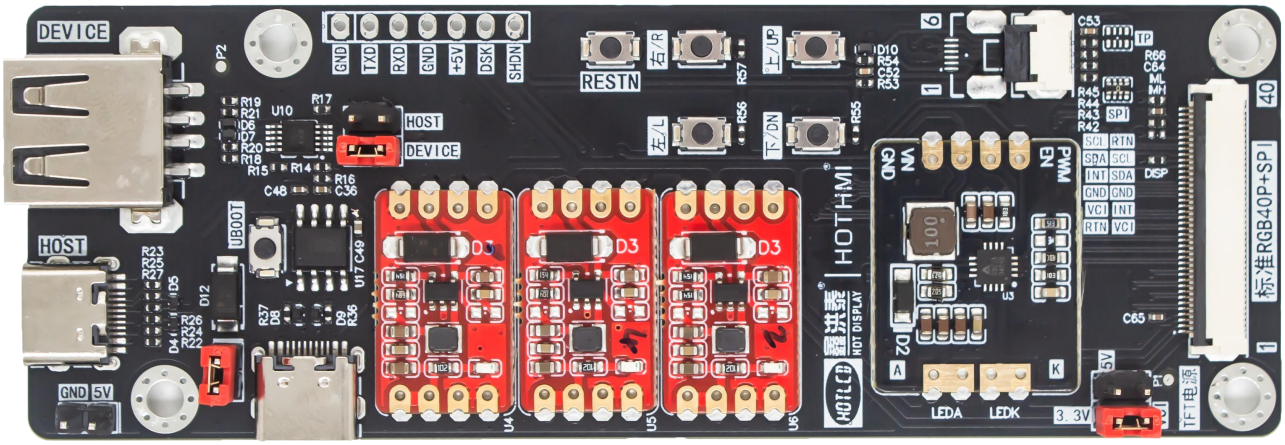
HTM-H215-DEMO-A02_V0 是一款基于国产自主 RISC-V 架构的工业级显示控制驱动板，专为智能显示屏、工业 HMI、串口屏等场景设计。板载 ArtinChip D21x 高性能 MCU，集成 2D 图形加速与 PNG/JPEG 硬件编解码等多媒体能力，提供丰富的显示接口，可快速实现高清显示与智能控制功能，具备高可靠性、高开发性与工业级宽温特性，是泛工业与智能家居领域显示方案的理想选择。本产品专为高性能和高安全应用设计，满足嵌入式系统在人机交互、边缘计算、IO 扩展等方面的需求，可广泛应用于便携扩展屏、电脑机箱副屏、键盘屏等产品。

- 采用 RISC-V 架构 D21x MCU，主频高达 600MHz，片内集成 32KB BROM + 96KB SRAM，板载 1Gbit Nand Flash，满足复杂图形与多任务处理需求。
- 支持 2D 图形加速和 JPEG/PNG 解码，最高性能 1080P@60fps
- 配备标准 RGB 显示屏接口和电容触摸功能，最高性能 1080P@60fps
- 可选配我司 6903/6934/9284 背光驱动模块，最大驱动 43V/360mA 高亮 TFT 背光
- 支持 USB2.0 高速接口，USB0 支持 DEVICE/ HOST 模式切换
- 支持 USB Display 功能，可作为电脑副屏/扩展屏，支持 Windows、Linux 与 macOS 操作系统

HTM-H215-DEMO-A02_V0 is an industrial-grade display control driver board based on the domestic independent RISC-V architecture. It is specifically designed for intelligent displays, industrial HMI, serial port screens, etc. The board is equipped with ArtinChip D21x high-performance MCU, integrating 2D graphics acceleration and PNG/JPEG hardware encoding and decoding capabilities, providing a rich set of display interfaces, enabling rapid implementation of high-definition display and intelligent control functions. It features high reliability, high development flexibility, and industrial-grade wide-temperature characteristics, making it an ideal choice for display solutions in the general industrial and smart home fields. This product is specifically designed for high-performance and high-security applications, meeting the requirements of embedded systems in human-computer interaction, edge computing, and IO expansion, and can be widely applied to portable expansion screens, computer chassis secondary screens, keyboard screens, and other products.

- Utilizing the RISC-V architecture D21x MCU, with a maximum clock frequency of 600 MHz, the chip integrates 32KB BROM + 96KB SRAM, and is equipped with 1Gbit Nand Flash, meeting the requirements for complex graphics and multi-task processing.
- Supports 2D graphics acceleration and JPEG/PNG decoding, with the highest performance of 1080P at 60fps.
- Equipped with standard RGB display interface and capacitive touch function, with the highest performance of 1080P at 60fps.
- Optional with our 6903/6934/9284 backlight driver module, capable of driving high-brightness TFT backlight up to 43V/360mA..
- Supports USB 2.0 high-speed interface. USB0 supports switching between DEVICE and HOST modes.

- Supports USB Display function, which can be used as an auxiliary screen or expansion screen for the computer. It is compatible with Windows, Linux and macOS operating systems.

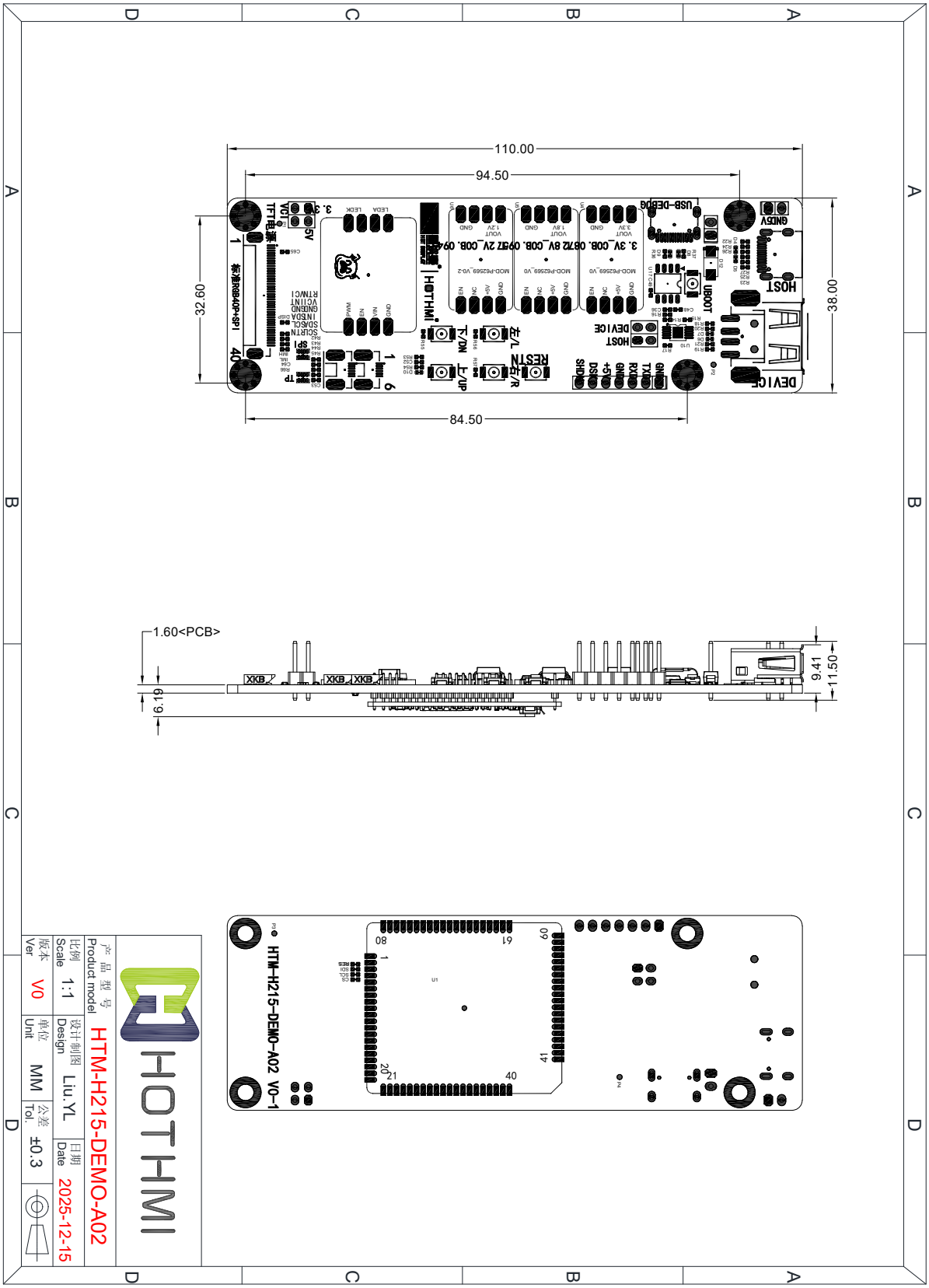


二、主要参数 Main Parameters：

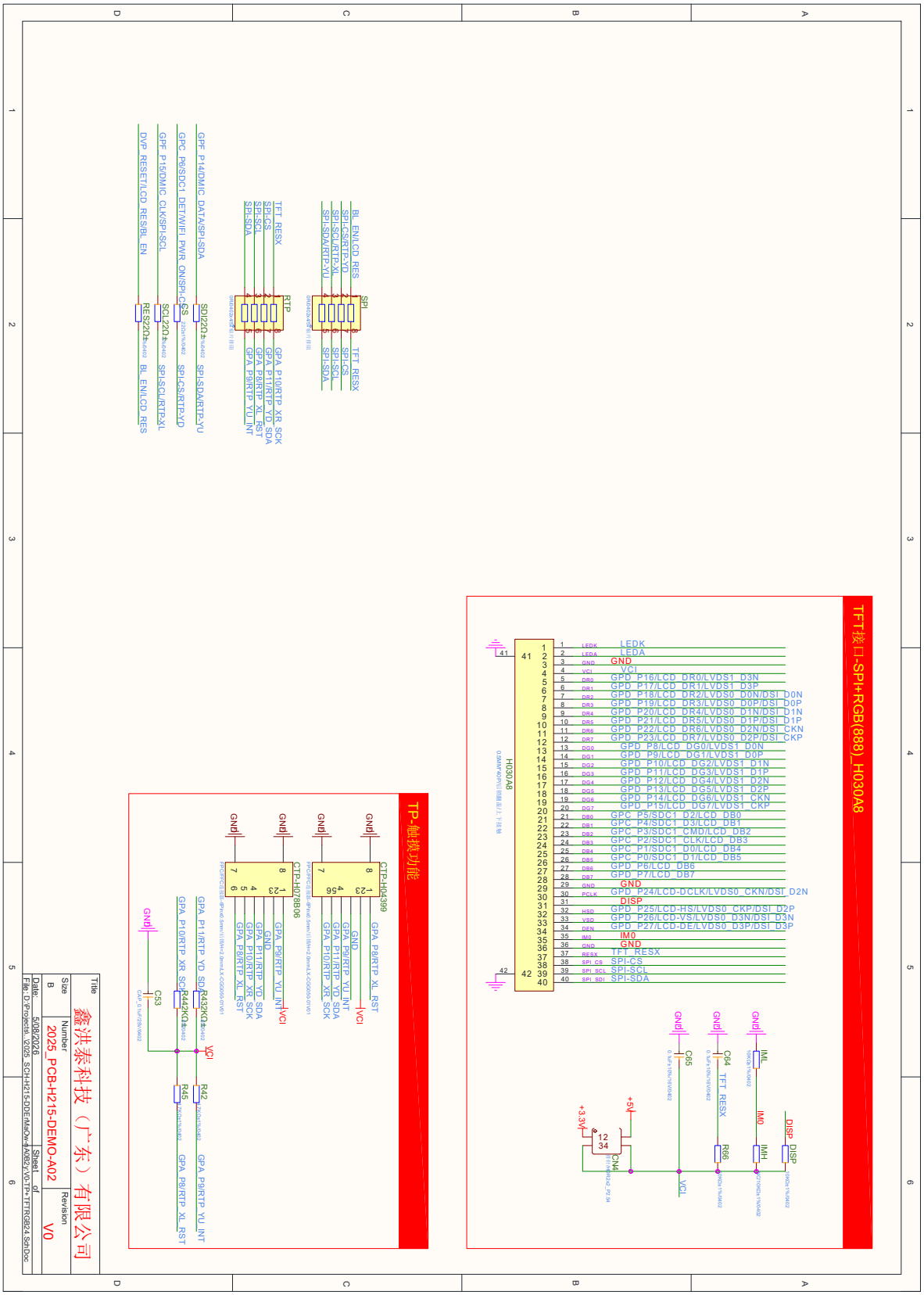
项目 Item	说明 Explanation
产品型号 Main Control Chip	HTM-H215-DEMO-A02_V0
开发平台 Development Platform	Luban(Linux) Luban-lite(Windows)
固件下载方式 Firmware Download Method	USB(Need to download the driver)
外形尺寸 Outside Dimensions	110.0mm*38.0mm*1.60mm
支持显示接口 Support Display Interface	I8080、RGB 24Bit、LVDS、MIPI DSI
工作温度 Operating Temperature	-20.0℃ ~ 85.0℃
工作电压 Operating Voltage	5V(USB、UART)
工作电流 Operating current	90mA~100mA（5V，仅驱动板）

说明 Description:

三、外形尺寸 Outline Dimensions



四、参考原理图 Reference schematic diagram



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五、使用说明 Instructions of use

5.1 开发环境 Development environment

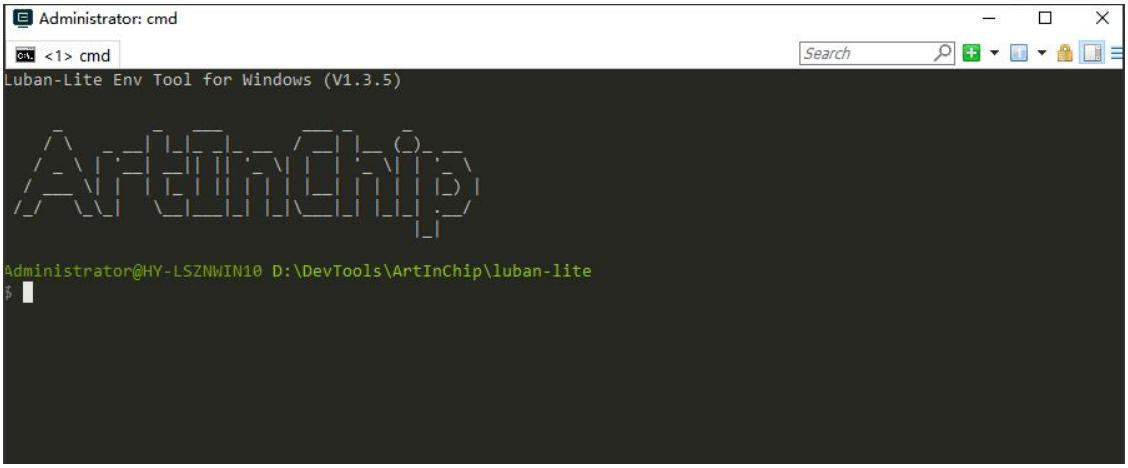
在使用开发板之前，请确保已根据官方文档下载 Luban-lite 1.2.1 以上版本，并搭建好运行环境。

Before using the development board, please ensure that you have downloaded Luban-lite version 1.2.1 or above according to the official documentation and set up the runtime environment.

推荐使用 Git 用户端下载代码，可以进行版本管理的同时获取服务器补丁和版本的发布：

It is recommended to use the Git client to download the code. This allows for version management while also enabling access to server patches and the release of versions.

git clone https://gitee.com/artinchip/luban-lite.git



为了方便用户使用开发板，我司已提供板级配置包文件。

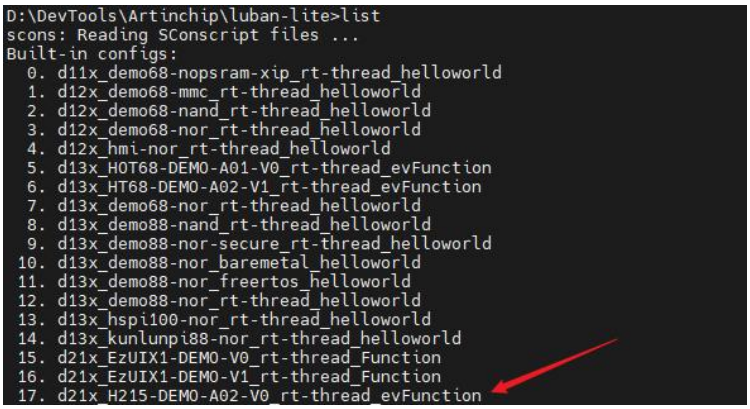
To facilitate users' use of the development board, our company has provided the board-level configuration package file.



将该目录下的两个 config 文件放入到 Luban-lite SDK 目录下的 target/configs 文件夹中，H215-DEMO-A02-V0 文件夹放入 target/d13x 目录下。使用 list 命令列出当前工程配置，可以看到列表中已经有了开发版的工程配置，输入 lunch+工程编号来应用该配置。

Put the two config files in this directory into the target/configs folder under the Luban-lite SDK

directory, and the HT68-DEMO-A02-V1 folder into the target/d13x directory. Use the list command to list the current project configuration. You can see that the development version project configuration is already in the list. Enter lunch+ project number to apply this configuration.

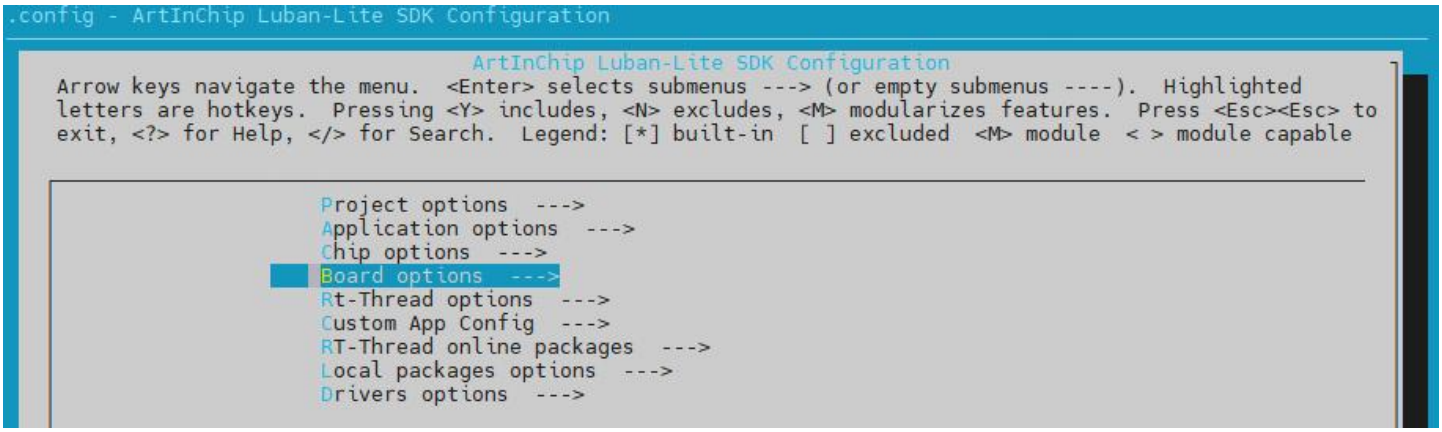


5.2 显示屏配置 Display Configuration(Default RGB Interface)

使用 me 命令打开当前工程配置的 RT-Thread 配置页面，参考官方文档步骤配置 RGB 显示驱动。其他命令如下图所示。

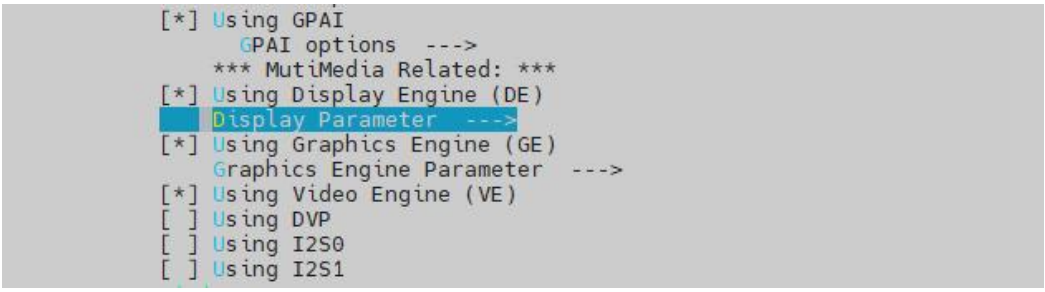
Use the "me" command to open the RT-Thread configuration page of the current project configuration, and refer to the official documentation steps to configure the LVDS display driver.The other commands are shown in the following figure.

```
Luban-Lite SDK OneStep commands:
    hmm|h                    : Get this help.
    lunch          [keyword] : Start with selected defconfig.e.g. lunch mmc
    menuconfig|me            : Config application with menuconfig
    bm                       : Config bootloader with menuconfig
    km                       : Config application with menuconfig
    m|mb                     : Build bootloader & application and generate final image
    ma                       : Build application only
    mu|ms                    : Build bootloader only
    c                        : Clean bootloader and application
    mc                       : Clean & Rebuild all and generate final image
    croot|cr                 : cd to SDK root directory.
    cout|co                  : cd to build output directory.
    cbuild|cb                : cd to build root directory.
    ctarget|ct               : cd to target board directory.
    godir|gd       [keyword] : Go/jump to selected directory.
    list                     : List all SDK defconfig.
    list_module              : List all enabled modules.
    i                        : Get current project's information.
    buildall                 : Build all the *defconfig in target/configs
    rebuildall               : Clean and build all the *defconfig in target/configs
    addboard|ab              : Add new board *defconfig in target/configs
    aicupg                   : Burn image file to target board
```



在进入 menuconfig 配置界面后，选择 Board options 进入板级配置。

After entering the menuconfig configuration interface, select "Board options" to proceed to the board-level configuration.



选择 Display parameter，请参考此官方文档完成屏幕的配置：

Select "Display parameter" and refer to this finish document for screen configuration:

https://aicdoc.artinchip.com/topics/sdk/bringup/lite-bringup-display-lite.html

屏幕配置完成后，保存并退出 menuconfig 界面，在终端输入 mb 来编译固件，等待编译完成。

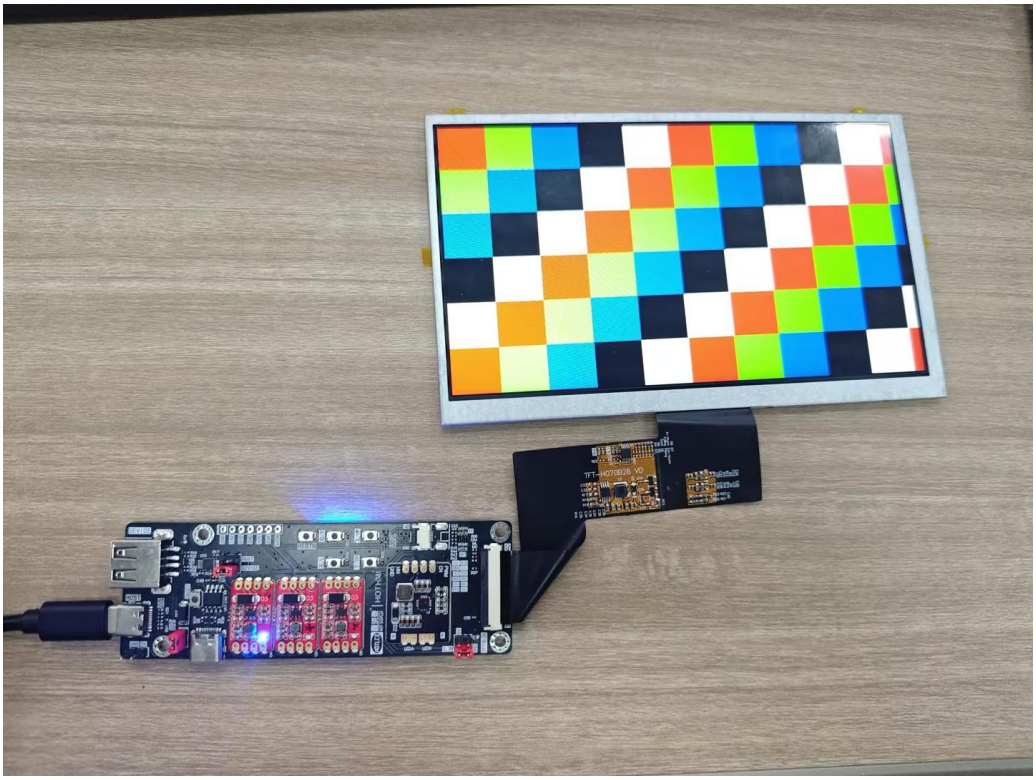
After the screen configuration is completed, save and exit the menuconfig interface. In the terminal, enter "mb" to compile the firmware and wait for the compilation to be finished.

5.3 编译烧录 Compilation and burning

工程配置完成后，使用 mb 命令同时编译 bootloader 与 application，等待编译完成生成镜像文件，并使用 Aiburn 工具与 USB 数据线烧录镜像至开发板中。

After the engineering configuration is completed, use the "mb" command to compile the bootloader and the application simultaneously. Wait for the compilation to be completed and generate the image file. Then, use the Aiburn tool and the USB data cable to burn the image into the development board.


AiBurn v1.5.3
烧写镜像
制作启动卡
数据擦写
中文
English
连接方式：
USB
按分区烧写
USB设备：1:9-2-2
启动阶段：BROM
安全启动：否
Boot加密：否
防回滚：否
强制升级
烧写成功后重启设备
全片擦除
并烧录
设备已连接
进度：
速率：
用时：
结果：
:MO-V1_rt-thread_Function/images/d21x_EzUIX1-DEMO-V1_page_2k_block_128k_v1.0.0.img
开始
SoC型号： d21x
板级型号： EzUIX1-DEMO-...
版本号： 1.0.0
存储介质： spi-nand



修订记录 Revision Record:

版本 Rev	日期 DATE	修改说明 Modify description	编著 Editorial
0.1	2026-05-08	初次编制 First compilation.	Li

- - 结束 - -

- - END - -