GigaDevice Semiconductor Inc.

Arm® Cortex®-M3/4/23/33 32-bit MCU

应用笔记

AN014

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1. 介绍

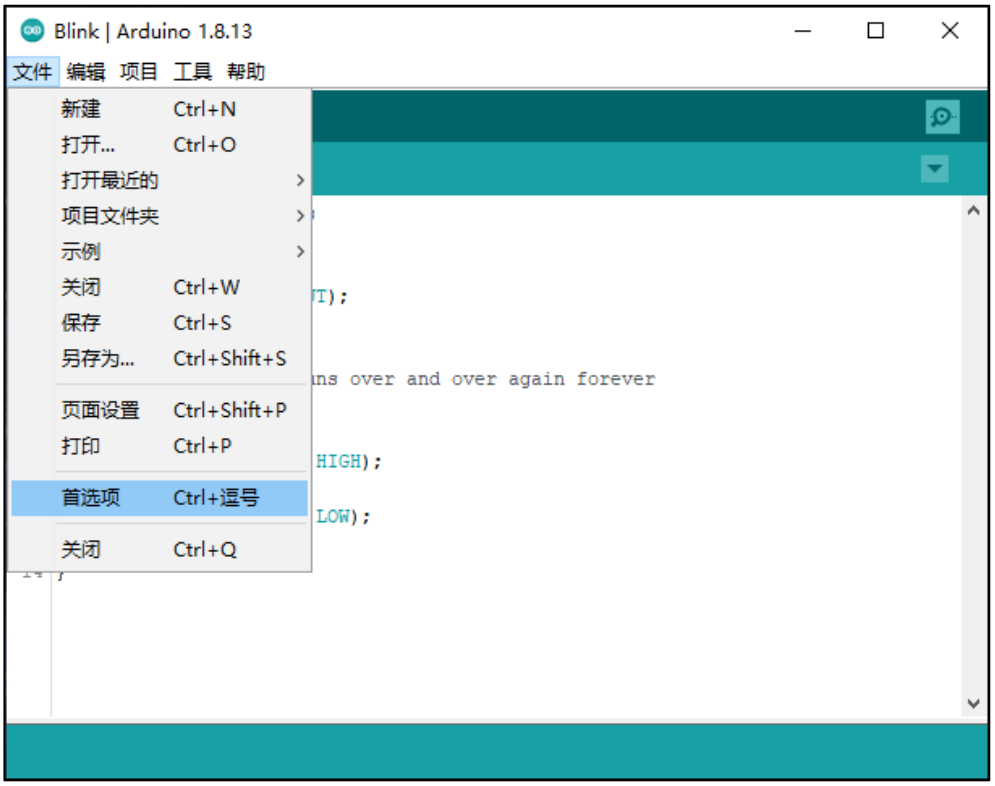
该应用笔记讲述如何使用Arduino IDE配置并开发GD32 MCU工程，过程描述如下。

2. 安装 gd32 库

用户可通过以下步骤安装 gd32 arduino 库。

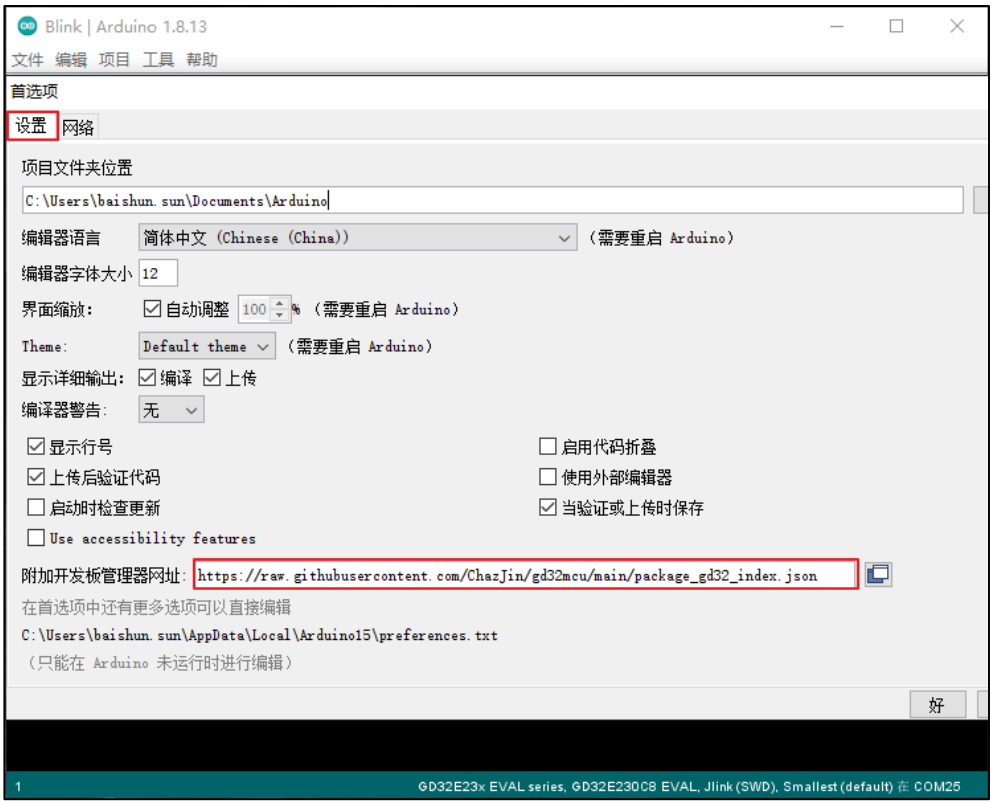
1. 打开首选项

图 2-1. 打开首选项



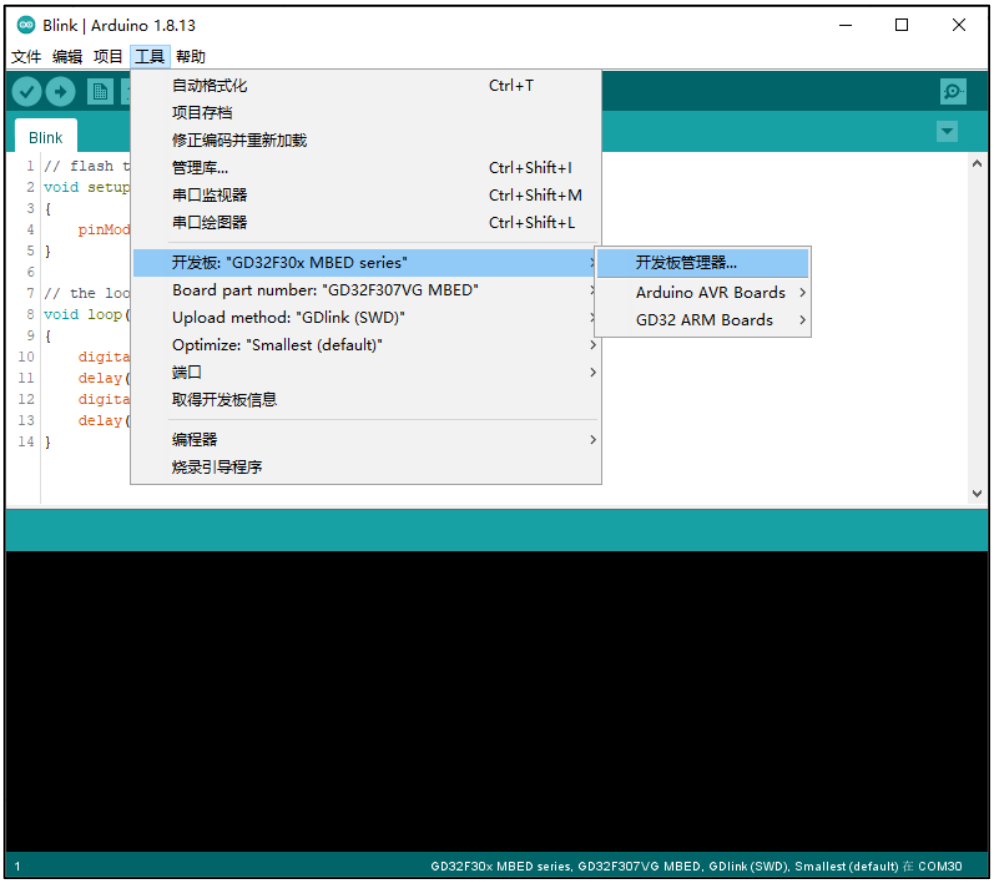
2. 添加 gd32 包 url，并点击“好”按钮

图 2-2. 添加 gd32 包 url



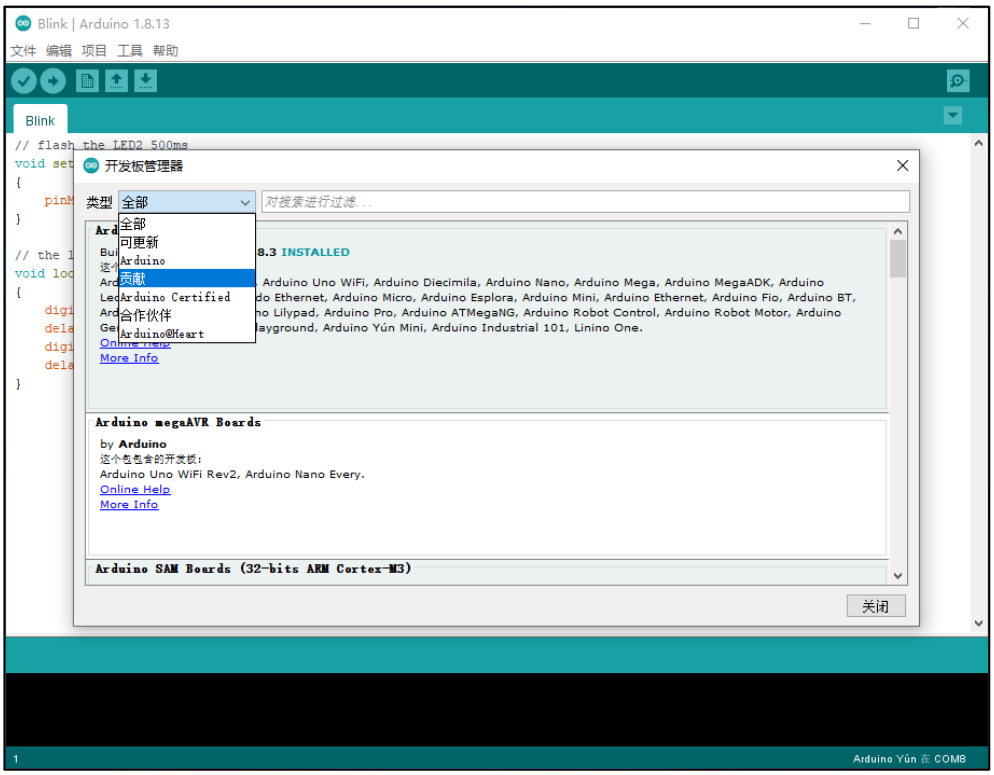
3. 打开开发板管理器

图 2-3. 打开开发板管理器



4. 选择贡献类型

图 2-4. 选择贡献类型



5. 选择 GD32 ARM Boards 并安装

图 2-5. 选择 GD32 ARM Boards 并安装

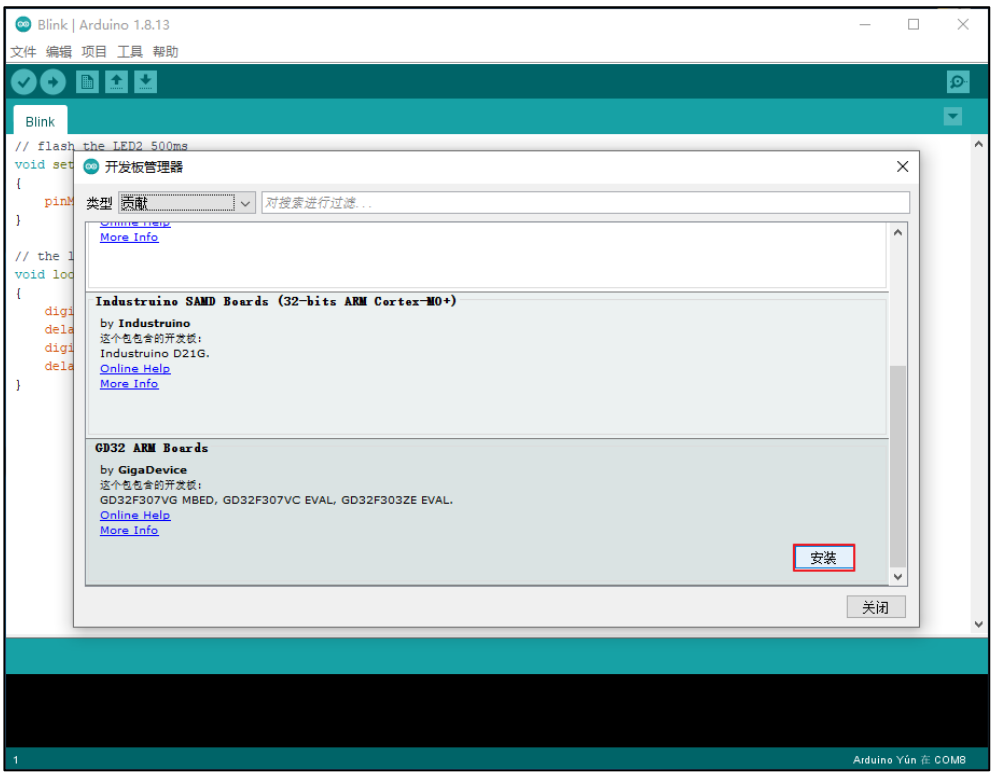
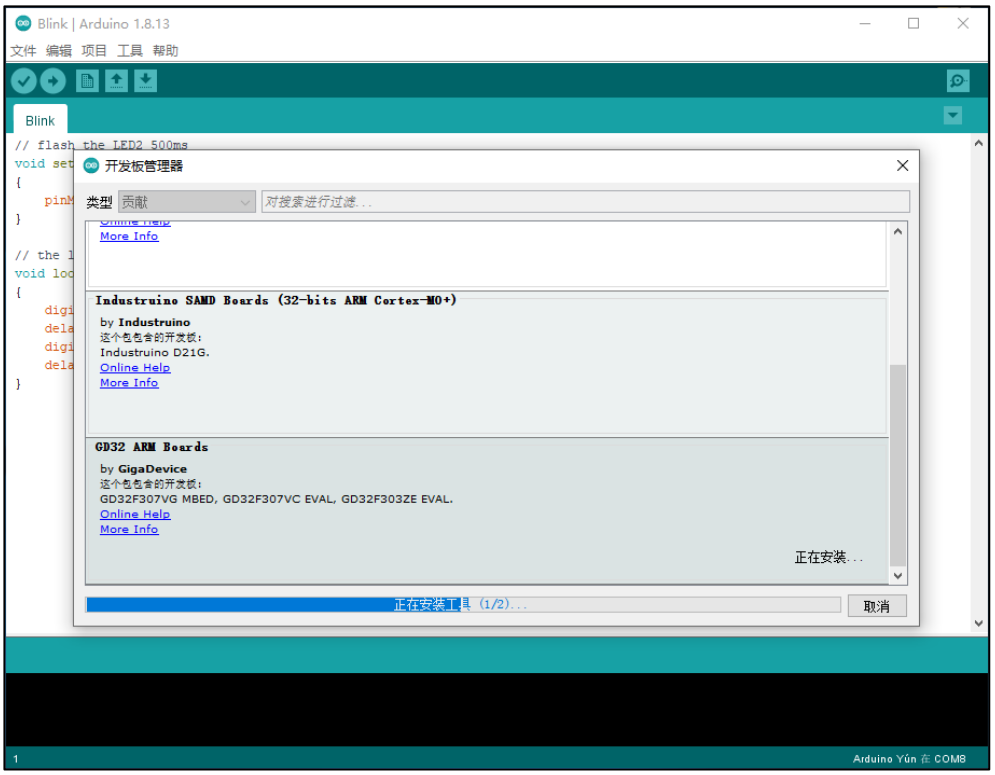


图 2-6. 安装开发板

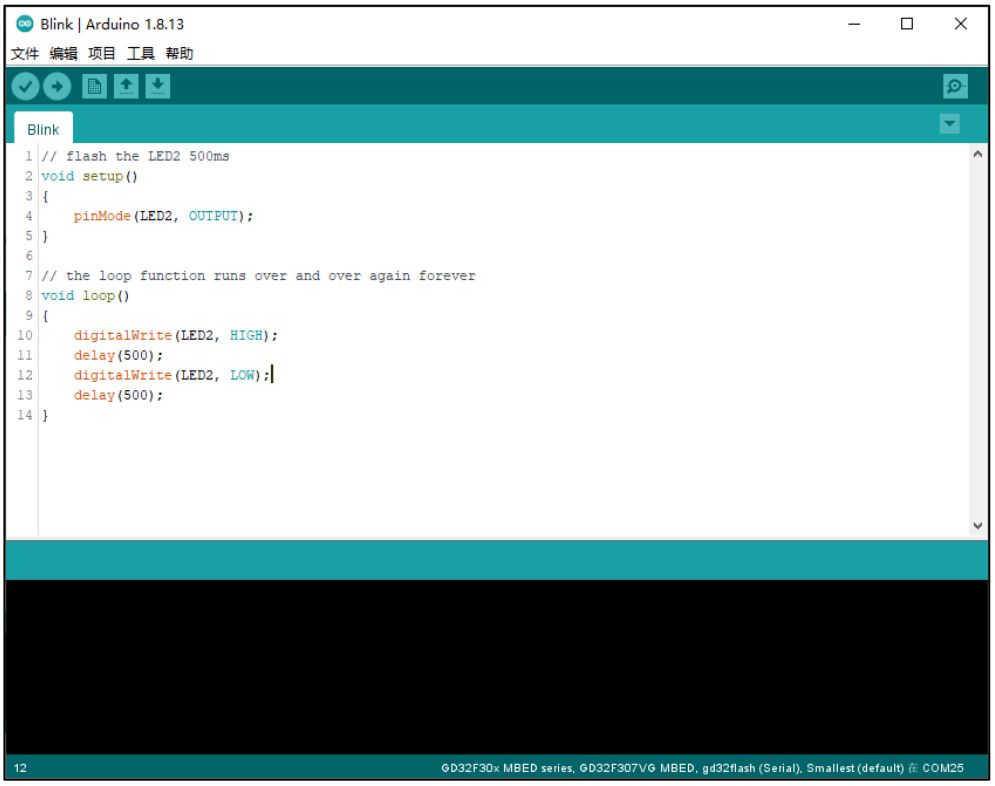


3. 开发 gd32 arduino 工程

以 GD32F307VG-MBED 开发板为例，具体操作如下。

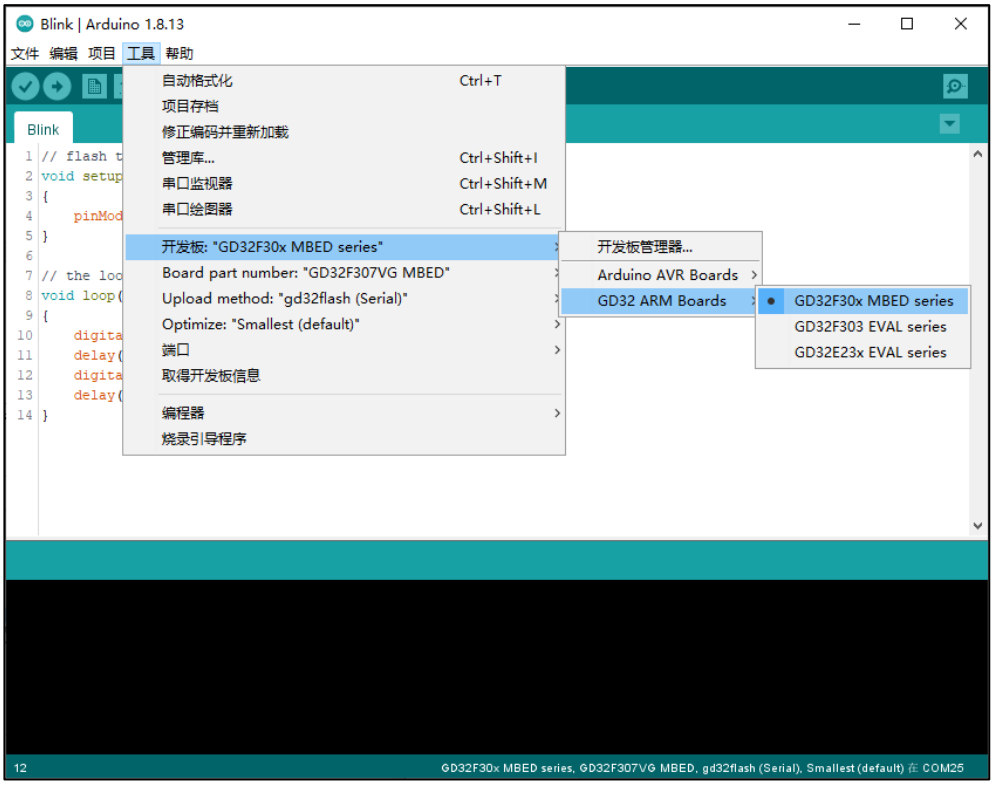
1. 打开 Arduino IDE

图 3-1. 打开 Arduino IDE



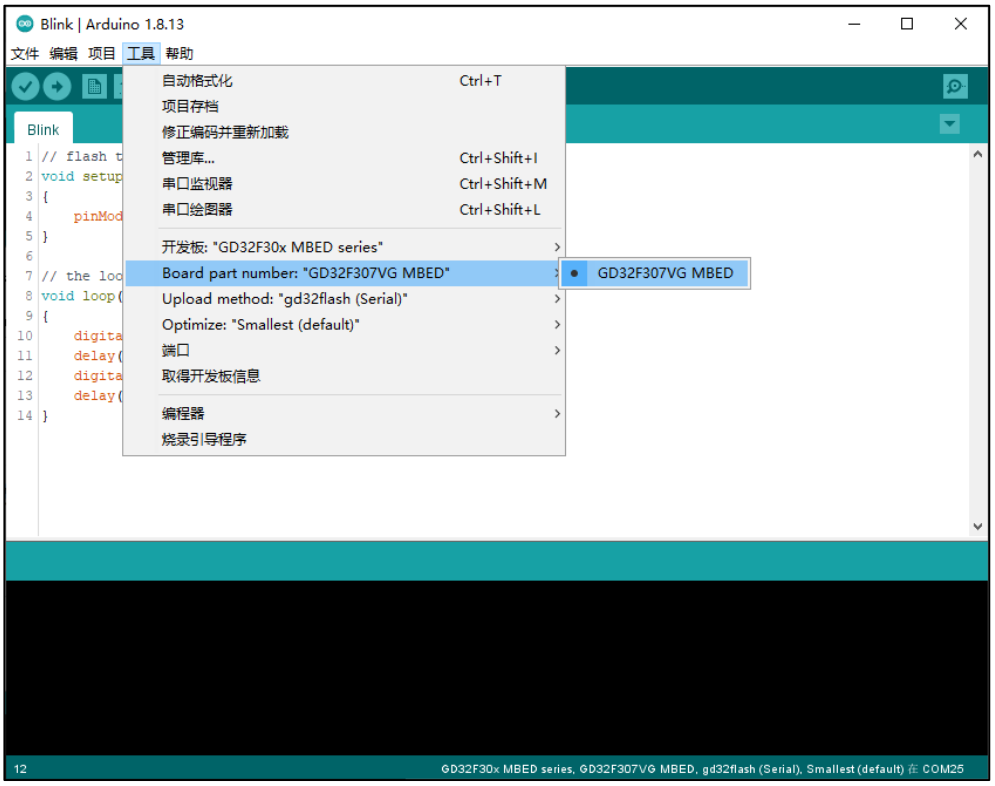
2. 选择 GD32 MCU 开发板系列

图 3-2. 选择开发板系列



3. 选择指定 GD32 MCU 开发板

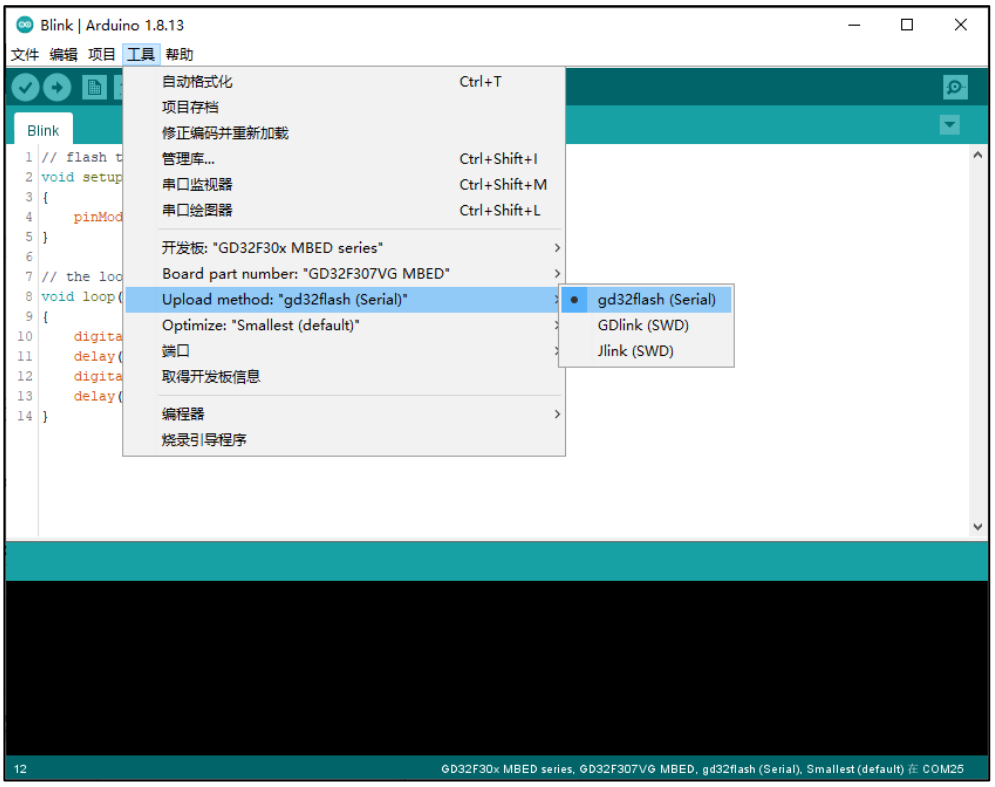
图 3-3. 选择指定开发板



4. 选择 GD32 MCU 程序下载方法

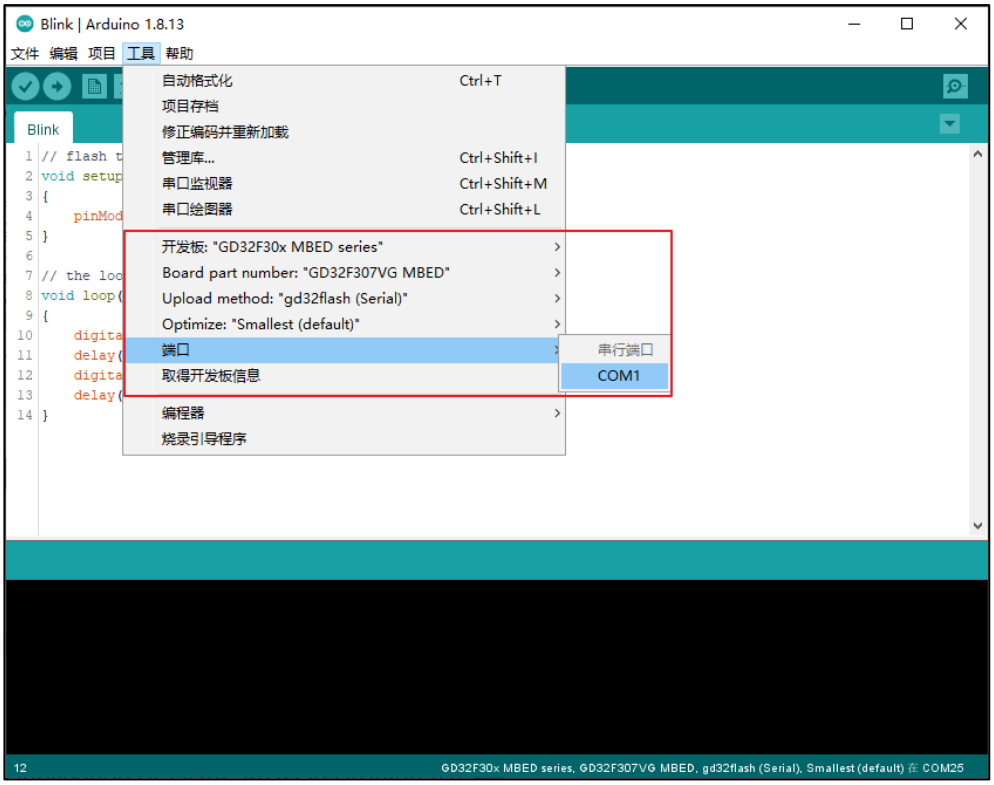
用户可以选择gd32flash（串口）、GDlink（SWD）或jlink（SWD）下载方法。对于GD32F307VG-MBED开发板，如果用户使用串口下载方法，需要将PD5、PD6分别连接至串行端口的RX与TX。

图 3-4. 选择下载方法



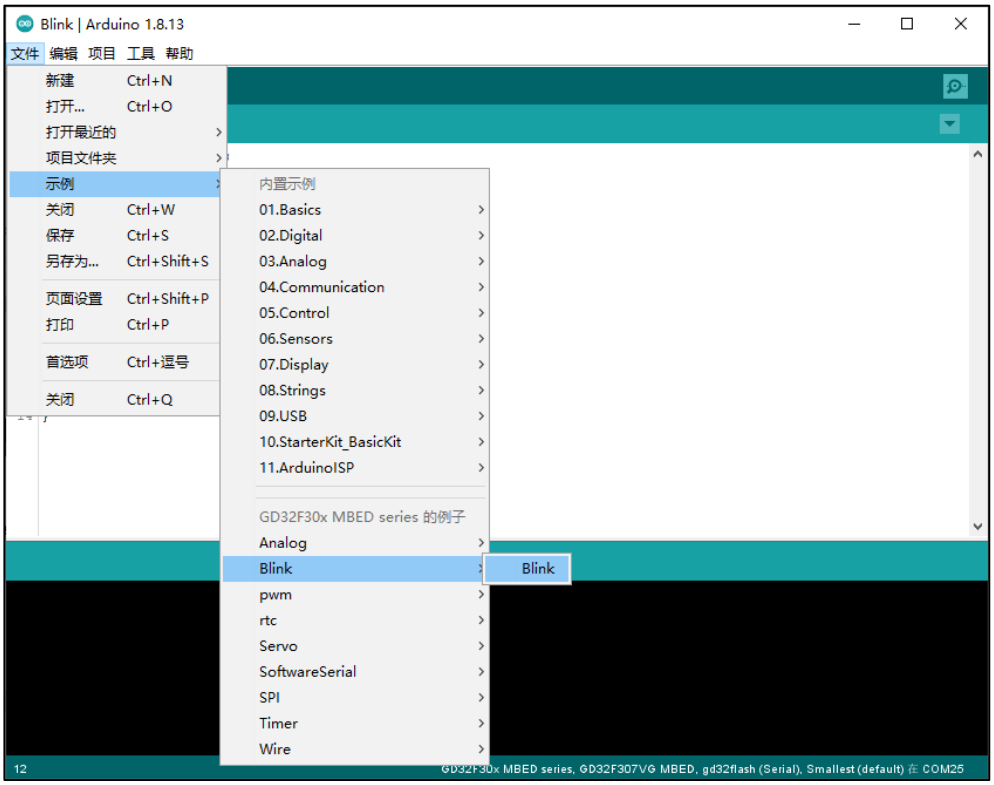
5. 选择 GD32 MCU 串行端口

图 3-5. 选择串行端口



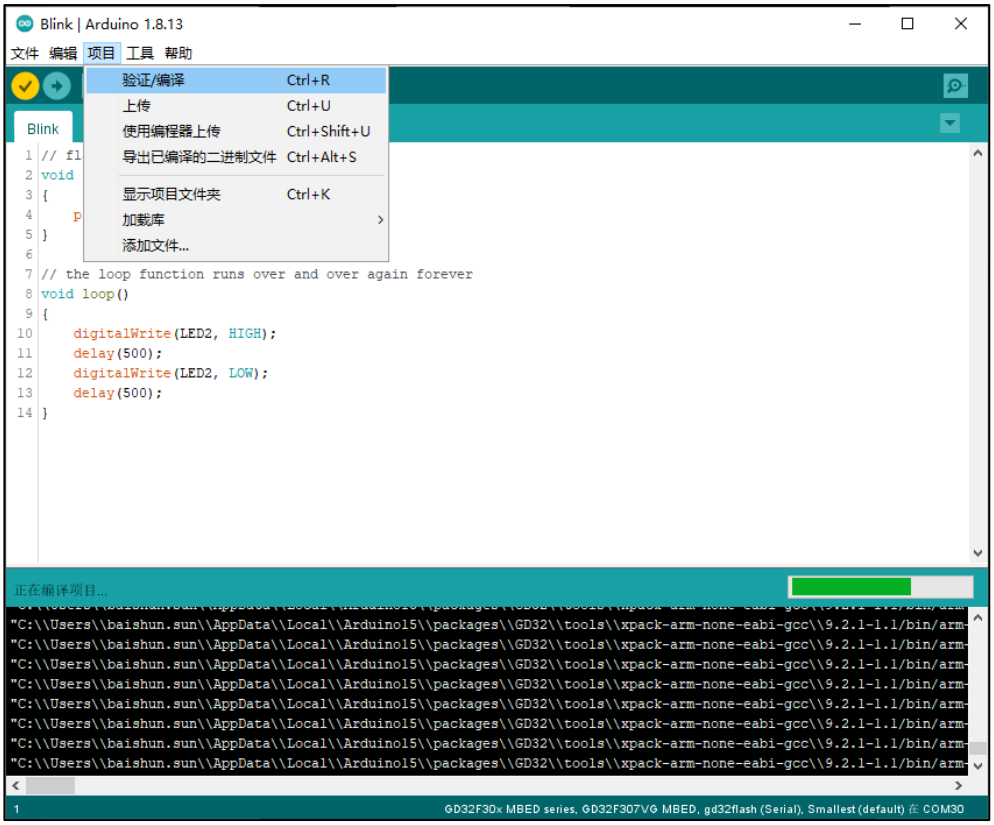
6. 选择 GD32 MCU 开发板例程，例如，Blink。

图 3-6. 选择开发板例程



7. 编译工程

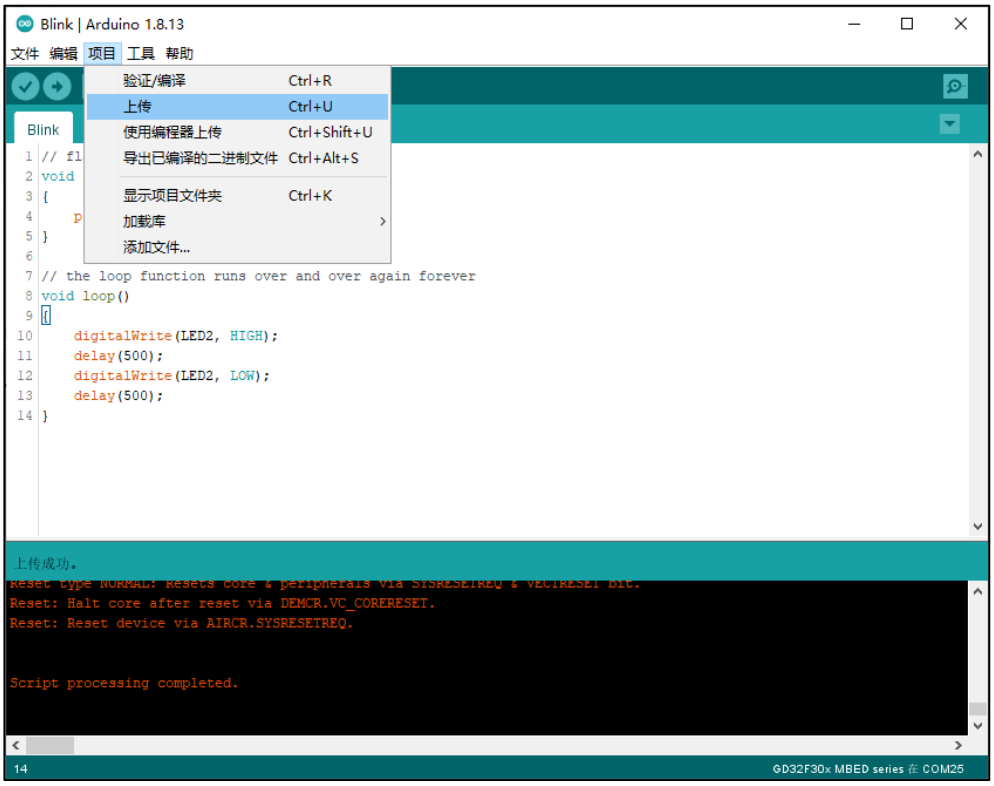
图 3-7. 编译工程



8. 下载工程

当Blink工程下载完成，LED2将以500ms为周期闪烁。

图 3-8. 下载工程



4. 下载程序至 GD32F307VG-MBED 开发板

4.1. gd32flash（串口）

在 GD32F307 系列中，启动加载程序位于内部启动 ROM 中（系统存储器）。可通过串口 0（PA9 和 PA10），串口 1（PD5 和 PD6）及快速 USB 接口（PA9，PA111 和 PA12）为 Flash 存储器重新编程。在 GD32F307VG-MBED 开发板中，由于 PA9 和 PA10 被占用，可使用 PD5 和 PD6。

选择下载方法：gd32flash（串口）。连接 BOOT0 跳帽 1-2，BOOT1 跳帽 2-3。连接 PD5 至串口 RX 和 PD6 至串口 TX。详细参考*表格 4-1. 启动模式*和*图 4-1. GD32F307VG-MBED 开发板描述*。编程结果显示在*图 4-2. 使用 gd32flash（串口）方式下载成功*

图 4-2. 使用 gd32flash（串口）方式下载成功。

表格 4-1. 启动模式

引导源选择	启动模式选择引脚	
	Boot1	Boot0
主FLASH存储器	x	0
系统存储器	0	1
片上SRAM	1	1

图 4-1. GD32F307VG-MBED 开发板描述

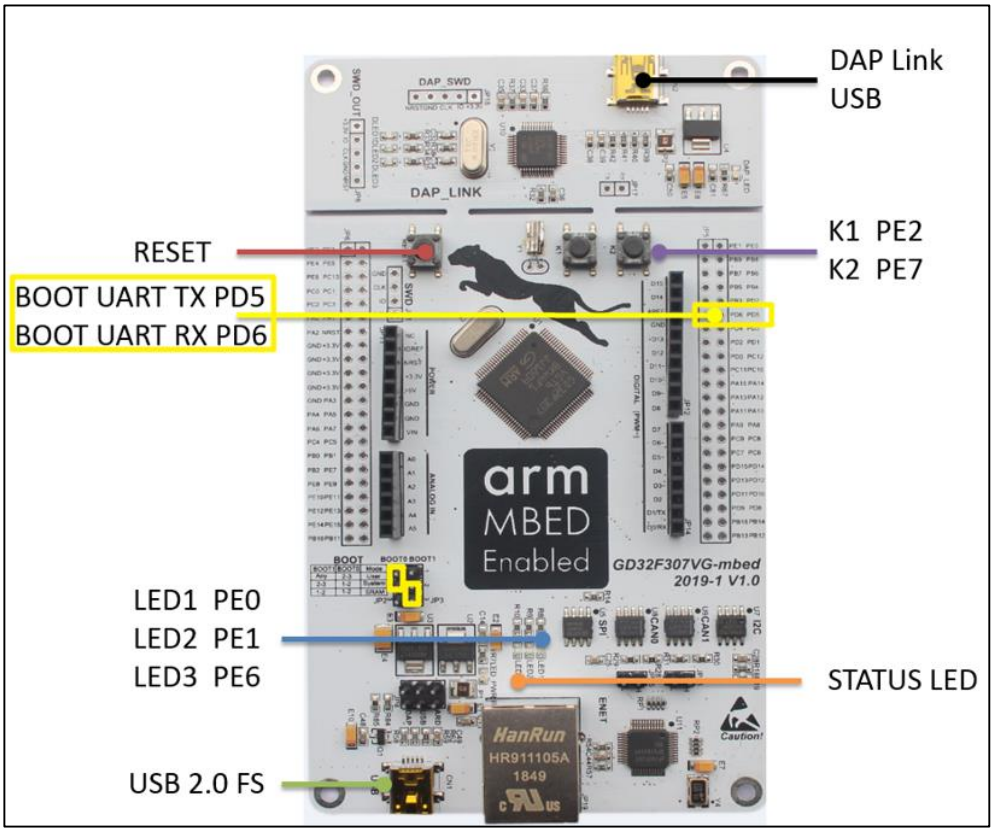
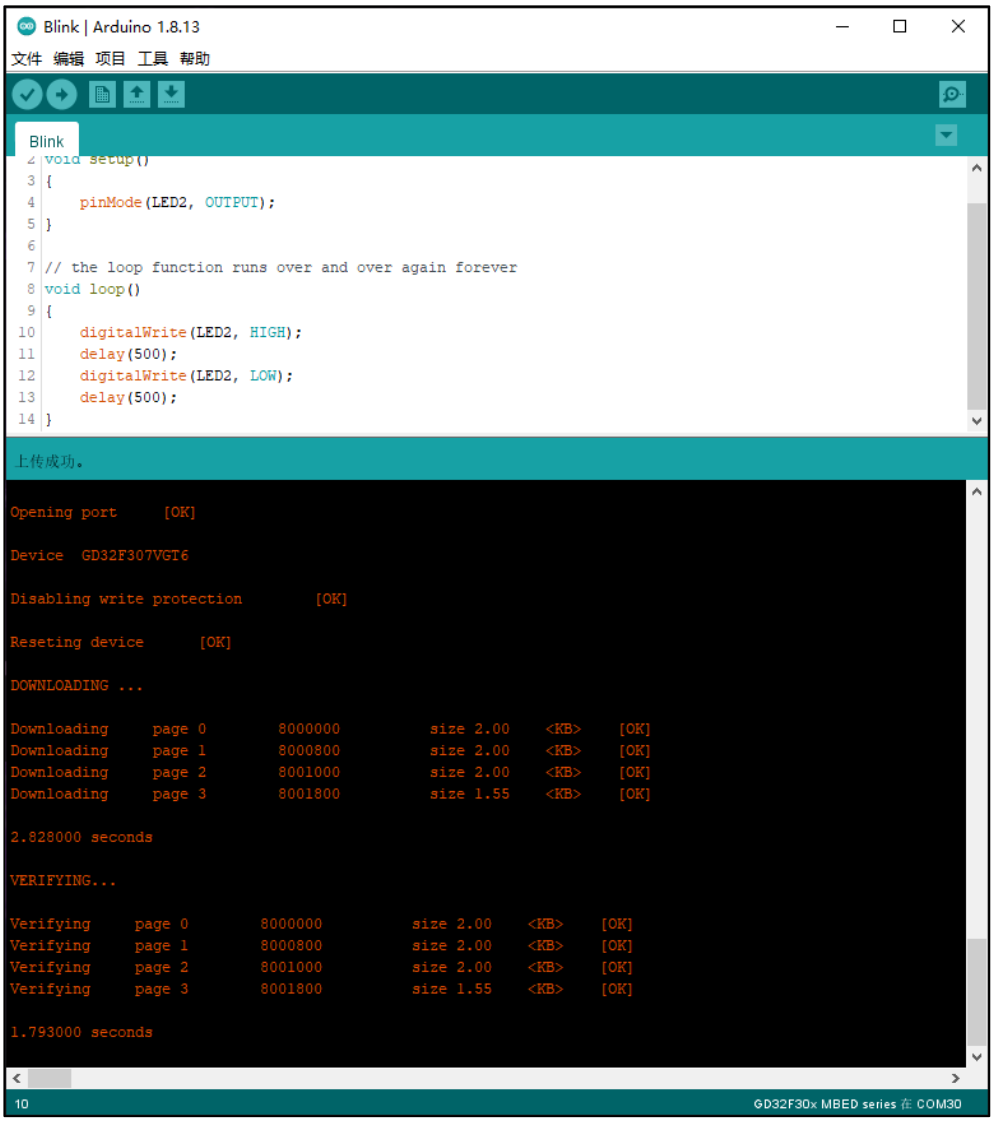


图 4-2. 使用 gd32flash（串口）方式下载成功



4.2. JLink（SWD）

选择 JLink（SWD）下载方法。连接 BOOT0 跳帽至 2-3，BOOT1 跳帽至 2-3。SWD 端口显示在*图 4-3. GD32F307VG-MBED 开发板 JLink 调试端口*。使用 SWD 端口连接 JLINK 与 GD32 MCU。编程结果显示在*图 4-4. 使用 JLink (SWD)方式下载成功错误!未找到引用源。*。

图 4-3. GD32F307VG-MBED 开发板 JLink 调试端口

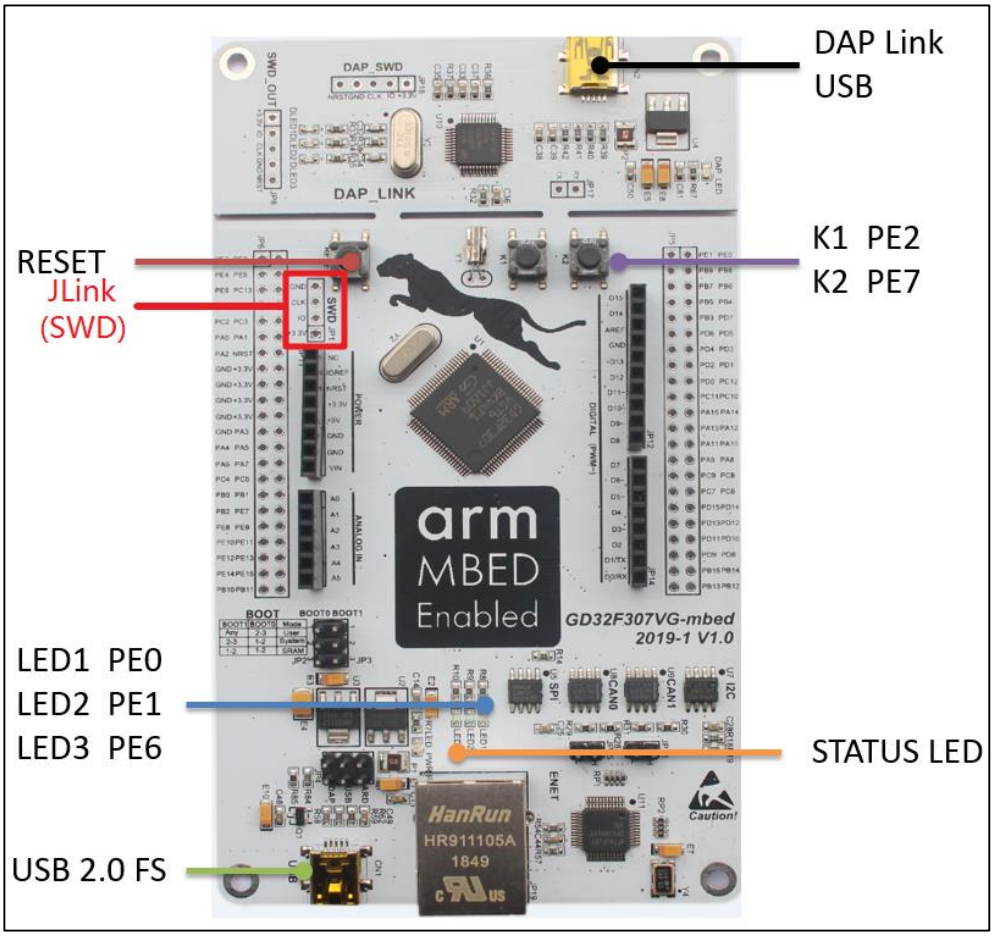
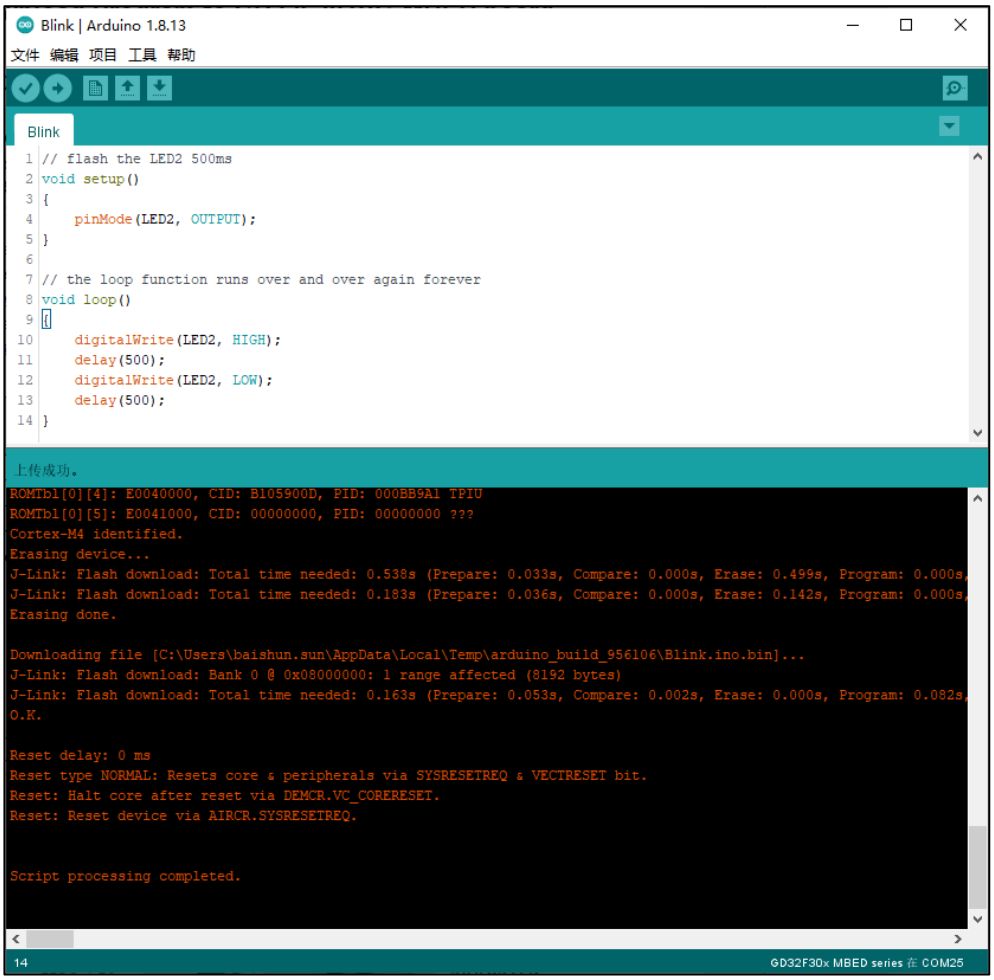


图 4-4. 使用 JLink (SWD)方式下载成功



4.3. GDLink（SWD）

选择 GDLink（SWD）下载方法。连接 BOOT0 跳帽至 2-3，BOOT1 跳帽至 2-3。SWD 端口显示在*图 4-5. GD32F307VG-MBED 开发板 GDLink 调试端口*。使用 SWD 端口连接 GDLINK 与 GD32 MCU。编程结果显示在*图 4-6. 使用 GDLink (SWD)方式下载成功*。

图 4-5. GD32F307VG-MBED 开发板 GDLink 调试端口

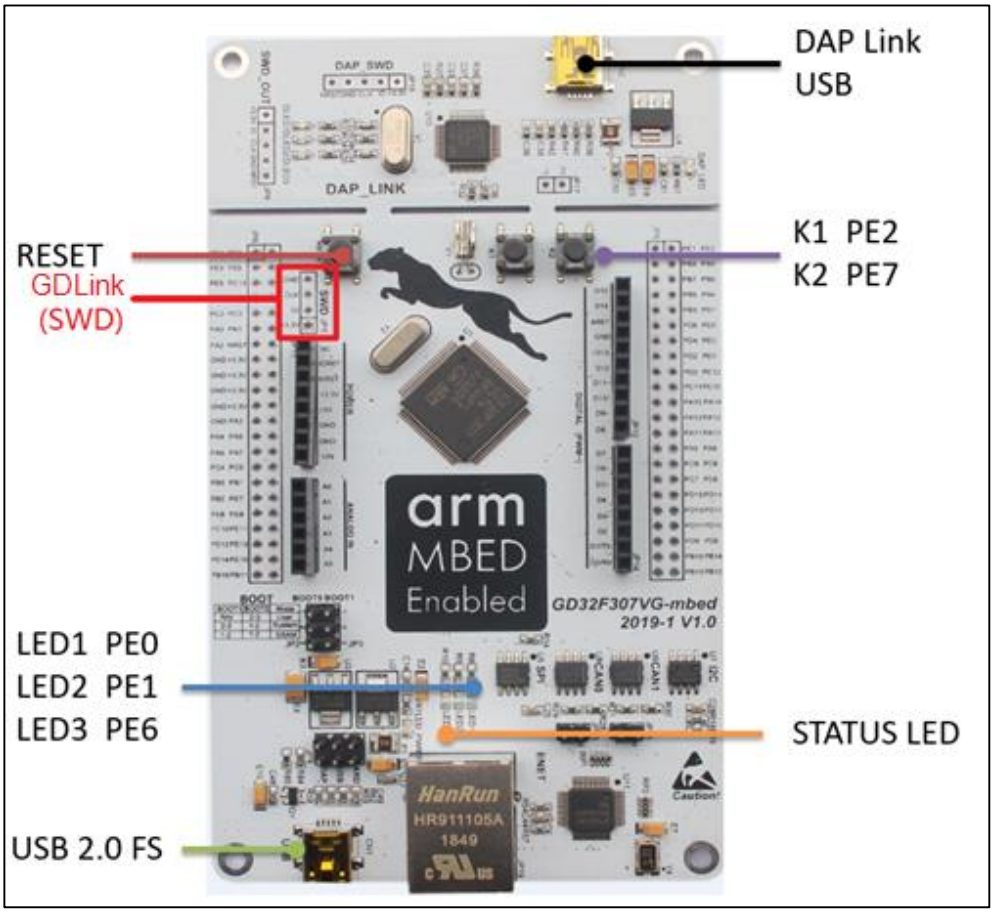
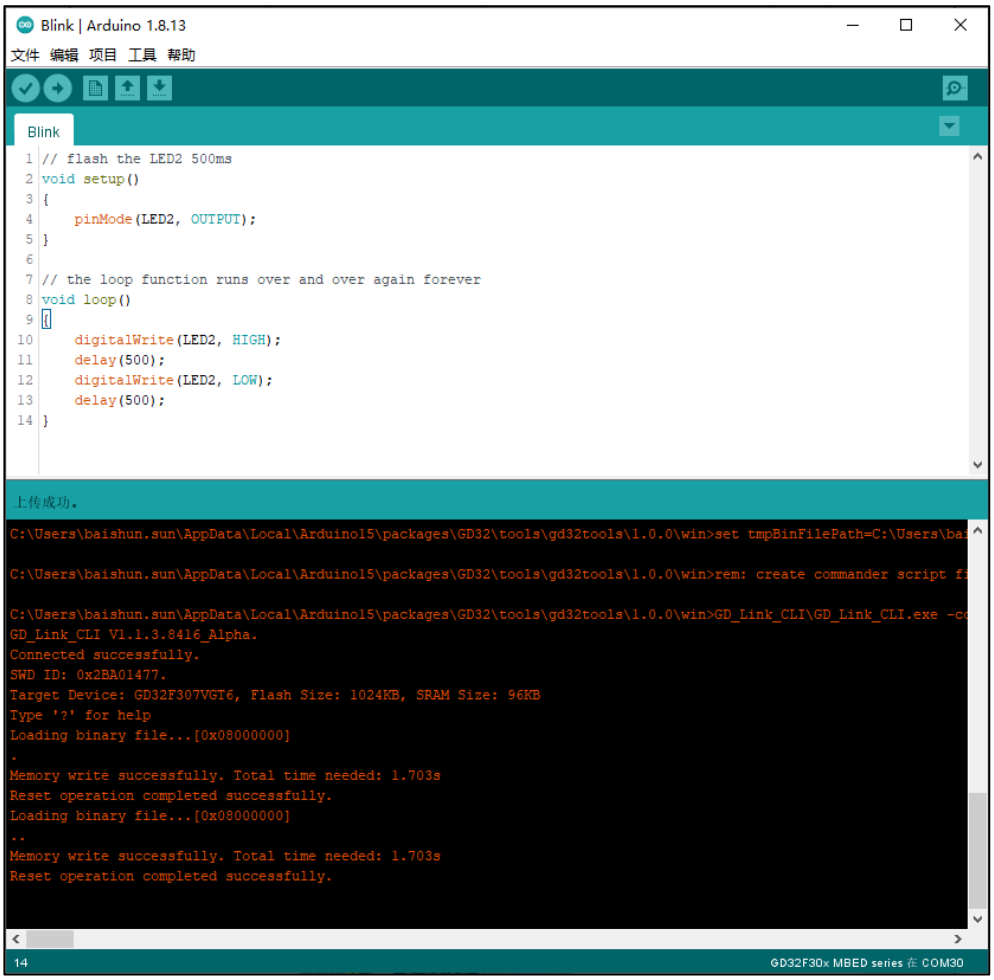


图 4-6. 使用 GDLink (SWD)方式下载成功


Blink | Arduino 1.8.13
文件 编辑 项目 工具 帮助
Blink
// flash the LED2 500ms
void setup()
{
pinMode(LED2, OUTPUT);
}
// the loop function runs over and over again forever
void loop()
{
digitalWrite(LED2, HIGH);
delay(500);
digitalWrite(LED2, LOW);
delay(500);
}
上传成功。
C:\Users\baishun.sun\AppData\Local\Arduino15\packages\GD32\tools\gd32tools\1.0.0\win>set tmpBinFilePath=C:\Users\ba
C:\Users\baishun.sun\AppData\Local\Arduino15\packages\GD32\tools\gd32tools\1.0.0\win>rem: create commander script f
C:\Users\baishun.sun\AppData\Local\Arduino15\packages\GD32\tools\gd32tools\1.0.0\win>GD_Link_CLI\GD_Link_CLI.exe -c
GD_Link_CLI V1.1.3.8416_Alpha.
Connected successfully.
SWD ID: 0x2BA01477.
Target Device: GD32F307VGT6, Flash Size: 1024KB, SRAM Size: 96KB
Type '?' for help
Loading binary file...[0x08000000]
.
Memory write successfully. Total time needed: 1.703s
Reset operation completed successfully.
Loading binary file...[0x08000000]
..
Memory write successfully. Total time needed: 1.703s
Reset operation completed successfully.
14
GD32F30x MBED series 在 COM30

5. 版本历史

表格 5-1. 版本历史

版本号	描述	日期
1.0	初稿发布	2021 年 7 月 1 日

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