Hlink 仿真器的使用说明书

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Hlink v9 是一款 CMSIS_DAP 仿真器,也是一款支持各种 ARM Cortex 芯片的离线烧录器,还可以通过第三方软件烧录多种固件,比如 Jlink V9 固件,进行测试。

本公司不具有 Jlink 相关软件的版本,如果用户测试安装了 Jlink 相关固件,请测试完成后尽快删除无版权的固件,更不能将 jlink 相关固件用于商业场合。





第0章多固件的切换

如果您买的的仿真器在 Windows 电脑"设备管理器"显示为 HP_CMSIS_DAP 设备,则可能是一个可烧写多固件的仿真器和用于 ARM 芯片的离线下载器。



则表明您购买的只是一个兼容 jlink 的硬件,需要通过第 3 方软件来烧写 jlink 固件。公网上下载软件名称:JlinkFirmwareDownloaderForZSS.exe。该软件提示仅供测试使用。

| 💀 仿真器管理程序 | <u>517</u> 7 | | × |
|------------------------|--------------|---------|------------|
| ☞烧写Jlink固件并启动 | | 擦除 固 | flink 件 |
| ○以HP_CMSIS_DAP方式启动 | | | |
| 永久烧写为jlink,将不能再作为DAP() | 方真者 | 居使月 | Ħ |

当前的 HP_CMSIS_DAP 固件已经支持离线烧写功能,功能升级后能支持所有 ARM cortex cpu 的固件烧写。

第1章 驱动程序的安装

1.1 通过软件安装驱动程序

如果已经安装了比较新的应用软件比如 MDK5.25 或者 IAR 最新的版本,驱动一般刘安装好了。如果没有这些软件或者软件版本较低,则需要安装驱动。 购买了仿真器,第一件事情就是安装驱动程序。由于在安装工具软件 jlink_windows.exe(比如 jlink_windows_v630k.exe)后一般能自动安装驱动程序,所以获得和安装这个软件,是首先要做的工作。请在 https://www.baidu.com/s?ie=utf8&wd=jlink+windows&tn=87048150_dg 下载最新的驱动,请遵守下载页面的协议。 卖家或者技术支持一般会提供这个程序,读者也可以自行下载安装。 这个软件安装好后,驱动程序也就自己安装好了。

1.2 判断驱动程序是否已经工作

安装完成后,将仿真器插入 pc 的 usb 口,应该看到仿真器绿灯亮,基本不闪烁。 打开电脑的"设备管理器",则看到仿真器的驱动已经安装了在工作。



如果设备管理器里面有 j-link driver,则说明仿真器已经能和 pc 正常通信,驱动正常。 如果设备管理器里面没有 j-link driver,则请插拔仿真器 usb 接口,看是否有设备出现,如果有, 则可以找到设备,这个设备如果显示为其他设备(比如 bulk device)或者驱动上带有黄色感 叹号,则需要手工安装驱动程序。

手工安装驱动程序的方法详见本手册 1.3 节

<u>如果设备管理器里面显示为不能识别的设备,或者仿真器插入电脑设备管理器没有反应,则</u> 说明

1 仿真器的 usb 线有问题, 需要换线

2 需要给设备重装固件,参见第9章

3 仿真器硬件故障, 需要维修这个仿真器, 参加第14章

1.3 Hlink 驱动程序的手动安装。

如果仿真器接到电脑绿灯明显闪烁,且电脑 设备管理器 里面能找到 jlink,但是有感叹号或 者其他非正常符号,表示驱动安装不对,这时候应该收到安装驱动程序。 步骤如下:

1 拔掉仿真器

ILink_Windows_V630h.exe 2 安装 jlink-windows.exe 软件。比如 3 打开上面程序的安装路径,找到:

对于 32 位电脑 为

Program Files (x86) > SEGGER > JLink_V630h > USBDriver > x86 名称 修改日期 类型 大小 💐 dpinst x86.exe 2018-01-31 1:36 应用程序 JLink.cat 2018-01-31 1:36 安全目录 JLink.inf 2018-01-31 1:36 安装信息 JLink.sys 2018-01-31 1:36 系统文件 JLinkCDC.cat 2018-01-31 1:36 安全目录 JLinkCDC.inf 2018-01-31 1:36 安装信息 JLinkCDC.sys 2018-01-31 1:36 系统文件

对于 64 位电脑,则是:

> Program Files (x86) > SEGGER > JLink_V630h > USBDriver > x64 ~ なも (송고) 다 다 방문 HETTI.

| 白空 | TS CX. LL HD | 天空 |
|------------------|-----------------|------|
| 💐 dpinst_x64.exe | 2018-01-31 1:36 | 应用程序 |
| JLink.cat | 2018-01-31 1:36 | 安全目录 |
| 🔊 JLink.inf | 2018-01-31 1:36 | 安装信息 |
| JlinkCDC.cat | 2018-01-31 1:36 | 安全日录 |
| | | |

鼠标右击 安装文件,以管理员身份安装运行



| 用戶账户控制 | 设备进行更改吗? | × |
|---|--------------------------------|---|
| | | |
| Driver Package Inst | aller | |
| 已验证的发布者: SEGGER Micro 文件源:此计算机上的硬盘驱动 | ocontroller GmbH & Co. KG 器 | |
| 显示更多详细信息 | | |
| 是 | 否 | |
| 上面的界面一定哟啊选 是 | | |
| 然后就会提示安装过程,显示安装成工 | 力。 | |
| 设备驱动程序安装向导 | | |
| 正在完 | 成设备驱动程序安装向导 | |

| 正在完成设备驱动程 | 序安装向导 |
|---|-------------------------|
| 此计算机上成功地安装了此别 现在您可以将设备连接到此; 请先阅读。 | ⊠动程序。 ┼算机。如果此设备附有说明, |
| 驱动程序名 ✔Segger (jlink) USB ✔SEGGER (JLinkCDC_x | 状态 可以使用了 可以使用了 |
| < 上一步(<u>B</u>) | 完成 取消 |

第2章 仿真器的初步检测

仿真器不要连接开发板,将仿真器接到电脑。

<u>在安装了 jlink windows.exe 软件后,则安装了一组软件,可以使用这一组软件来初步测试仿</u> <u>真器。</u>



上面的几个信息比较重要:

1 dll version. 如果显示的版本小于 v6,比如 v4.96,则说明你没有安装 jlink_windws.exe V6, 或者没有打开 v6 版本的 jink.exe

2 vref=3.3v 如果这个数字小于 2.5,说明仿真器 1 脚电压过低。仿真器 1 脚是用于检测开发 板总线电压的,缺省状态应该是 3.3v。如果不对的话,后面要注意将开发板总线电压引入仿 真器 1 脚。

3 如果软件跳出需要给仿真器升级固件,请选择"是",升级仿真器固件。

第3章 仿真器和开发板的硬件接口连接

硬件接口

V9.42版本及之前和9.44版本之后的硬件接口





1

JTAG接口

| REF 3.3 | VI | | 2 | NC | VREF 3.3 | 11 | | 2 | NC |
|---------|----|-------|----|-----|----------|----|----|----|-----|
| TRST | 3 | | 4 | GND | N/U | 3 | | 4 | GND |
| TDI | 5 | | 6 | GND | ТХ | 5 | | 6 | GND |
| TMS | 7 | | 8 | GND | SWDIO | 7 | | 8 | GND |
| TCLK | 9 | | 10 | GND | SWCLK | 9 | | 10 | GND |
| RTCK | 11 | | 12 | GND | SWO | 13 | | 14 | GND |
| TDO | 13 | | 14 | GND | RESET | 15 | | 16 | GND |
| RESET | 15 | | 16 | GND | RX | 17 | | 18 | GND |
| N/C | 17 | | 18 | GND | 5V | 19 | | 20 | GND |
| 5V | 19 | | 20 | GND | | | | | |
| | | - | 1 | | S | ND | 接口 | | |



V9.43版本硬件接口

JTAG接口

2 VCC3.3V VREF 1 2 vcc3.3V VREF 1 N/U 3 GND TRST 3 4 GND 4 TX 5 6 GND TDI 5 6 GND SWDIO 7 8 GND TMS 7 8 GND SWCLK 9 10 GND TCLK 9 10 GND N/U 11 **12 GND** RTCK 11 12 GND SWO 13 14 GND **TDO 13** 14 GND RESET 15 16 GND RX 17 0 0 18 GND **RESET 15 16 GND** 5V 19 20 GND N/C 17 **18 GND** 5V 19 20 GND

SWD接口

1 Vref 为外部 cpu 电压检测,为**输入**端口。调试非 **3**.3v cpu,则必须接此脚。比如 nrf**52833**,这个脚请接 **1**.8v

2 脚为 3.3v 电源**输出**接口。**如果开发板或者被烧写板子有外接电源,此脚可以不接** 对于有转接板的用户,如要仿真器对外输出电压,则请将转接板 1-2 脚短路。这时候转接板 有 3.3v 输出,但是只能调试 3.3v 的 cpu。

如果要调试非 3.3vcpu 且用转接板,则 1-2 脚不能短路,1 脚接入 cpu 电压, cpu 板要自己供电,仿真器不能对外供电 3.3v。

调试 3.3v cpu, 最简 SWD 接口接法只需要 7910 三根线, 有些 cpu 还需要 15 复位线。

请注意:用杜邦线连接的话请不要用套件中的 20P 排线,直接用杜邦线连接被调试板和仿 真器。

Swd 接法实例,当前用到17912 等脚



转接板的使用





对于使用 4 线制 swd 烧写模式的用户,喜欢使用转接板,并使 4 线制的 Swd 接口烧录 (如上图)。由于仿真器 2 脚对外供电,而 4 线接口是用 vref 对外供电 (这是一个转接板的设计错误),有 必要想办法将仿真器 2 脚和 vref 脚短路。如果将上图中圈红处将 1-2 脚 2 根线短路,就可以使得仿真器的 Vref 得电,从而能用 4 线制 swd 对外供电进行烧录操作。

第4章 仿真器的再次检测

将开发板接到仿真器,或者通过转接板接到仿真器。注意要让开

发板有电。如果开发板较小,可以让仿真器给开发板供电,详细 原理和过程参见仿真器和开发板的接口连接部分。如果开发板较大,需要外 接电源。

| 副选择J-Link Commander V6.30b | <u> 199</u> 7 | | × |
|---|---------------|--------|---|
| SEGGER J-Link Commander V6.30b (Compiled Feb 2 201 DLL version V6.30b, compiled Feb 2 2018 18:36:54 | 8 18: | 37:08) | î |
| Connecting to J-Link via USBO.K. Firmware: J-Link V9 compiled Mar 29 2018 17:46:13 Hardware version: V9.40 S/N: 59404122 License(s): RDI, GDB, FlashDL, FlashBP, JFlash VTref = 3.298V | | | |
| Type "connect" to establish a target connection, '? J-Link>_ | , for | help | ~ |

注意 vtref,如果这个电压和开发板需要的总线电压不符合,则需 要想办法将开发板需要的总线电压加到仿真器的1脚。

第5章 仿真器在 jflash 软件中的使用

参见 <u>文档\jlink 在 J-flash 下的设备测试.pdf</u> 如果测试不通过,你还可以测试是仿真器那条线有问题。 <u>文档\JlinkV9 的简易检修方法.pdf</u>

参见第1章,如果安装好了jlink_windows.exe 软件,也就安装了jflash 软件。参见如下:

| └12 [〒] ノ 手 | Link_V640 持事 | 直 看 | | | | | _1 | □ × ~ ₹ |
|--------------------------|-----------------|---------------------------------------|------------------------|--------|-----------|-----|----------------|------------|
| · → • ↑ | ↓ > 此电服 | V] 酉 → 本地磁盘 (D:) → Program Files (| (x86) > SEGGER > JLink | V640 → | | ڻ ~ | 搜索"JLink_V640" | م |
| | | 名称 | 修改日期 | 类型 | 大小 | | | ^ |
| ★ 快速访问 | | ETC | 2018/11/12 16:33 | 文件夹 | | | | |
| 直桌面 | * | GDBServer | 2018/11/12 16:33 | 文件夹 | | | | |
| 🕹 下载 | * | RDDI | 2018/11/12 16:33 | 文件夹 | | | | |
| 🔮 文档 | * | Samples | 2018/11/12 16:33 | 文件夹 | | | | |
| 图片 | * | LISPDriver | 2018/11/12 16:33 | 文件夹 | | | | |
| | - 0 | JFlash.exe | 2018/10/26 21:07 | 应用程序 | 697 KB | | | |
| 此电脑 | | The Select it rexe | 2018/10/26 21:07 | 应用程序 | 343 KB | | | |
| 网络 | | 🛃 JFlashSPI.exe | 2018/10/26 21:07 | 应用程序 | 408 KB | | | |
| | | 🛃 JFlashSPI_CL.exe | 2018/10/26 21:07 | 应用程序 | 560 KB | | | |
| | | 🛃 JLink.exe | 2018/10/26 21:07 | 应用程序 | 291 KB | | | |
| | | JLink_x64.dll | 2018/10/26 21:06 | 应用程序扩展 | 17,282 KB | | | |
| | | JLinkARM.dll | 2018/10/26 21:06 | 应用程序扩展 | 16,094 KB | | | |
| | | 🛃 JLinkConfig.exe | 2018/10/26 21:07 | 应用程序 | 439 KB | | | |
| | | JLinkDevices.xml | 2018/10/26 20:05 | XML 文档 | 134 KB | | | |
| | | 🛃 JLinkDLLUpdater.exe | 2018/10/26 21:07 | 应用程序 | 138 KB | | | |
| | | 🛃 JLinkGDBServer.exe | 2018/10/26 21:07 | 应用程序 | 707 KB | | | |
| | | 🛃 JLinkGDBServerCL.exe | 2018/10/26 21:07 | 应用程序 | 683 KB | | | |
| | | 🛃 JLinkLicenseManager.exe | 2018/10/26 21:07 | 应用程序 | 209 KB | | | |
| | | JLinkRDI.dll | 2018/10/26 21:06 | 应用程序扩展 | 299 KB | | | |
| | | 🛃 JLinkRDIConfig.exe | 2018/10/26 21:07 | 应用程序 | 116 KB | | | |
| | | 🛃 JLinkRegistration.exe | 2018/10/26 21:07 | 应用程序 | 249 KB | | | |
| | | 🔜 JLinkRemoteServer.exe | 2018/10/26 21:07 | 应用程序 | 338 KB | | | |
| ∿项目 | | ILinkRemoteServerCL.exe | 2018/10/26 21:07 | 应用程序 | 390 KB | | | |

1、连线:在硬件上,把JLINK用 USB 线连接到电脑 USB 和板子的 JTAG 接口上。

2、安装驱动:在完成第一步后,右击我的电脑图标选择属性,然后 点击设备管理器,在设备管理器中点击显示未知设备,然后找到 JLINKV9 驱动下载路径,点击安装即可。

驱动安装方法也可参考本公司的专门驱动安装文档。

3、连接好 V9 和目标板;

4、 打开 SEGGER J-Flash (SEGGER 安装目录找)



| Target Device | |
|------------------|-------------|
| Cortex-M0 | |
| Little endian 💌 | <u> </u> |
| Target Interface | Speed (kHz) |
| SWD 🔻 | 4000 👻 |

如果出现上面的对话框,点击红色部分,出现项目设置窗口如下 面所示。

5、 设置 J-Flash

Options→Project Settings

| eneral Target | Interface CPV | Flash Production | | | |
|-----------------|----------------|----------------------------------|-----------|-------------------|----------|
| Use J-Link scri | ipt file | | | | |
| Core @ Des | vice | - Deck core ID | | | |
| boy AC33M6128 | 8 | | | | |
| 001 AC0010120 | | ID TONOGHT | | | |
| ittle endian 🔄 | Select device | | | | |
| | Manufacturer * | • | | | |
| | | | 10 | | |
| | Manufacturer | Device | Core | Flash size | RAM size |
| nit steps | ST | STM32F103VD (allow opt. bytes) | Cortex-M3 | 16 Bytes + 384 KB | 64 KB |
| tt Action | ST | STM32F103VE | Cortex-M3 | 512 KB | 64 KB |
| # Action | SI | STM32F1U3VE (allow opt. bytes) | Cortex-M3 | 16 Bytes + 512 KB | 64 KB |
| 0 Reset | ST | STM32F1U3VF | Cortex-M3 | 768 KB | 96 KB |
| | SI | STM32F1U3VF (allow opt. bytes) | Cortex-M3 | 16 Bytes + 768 KB | 96 KB |
| | ST | STM32F103VG | Cortex-M3 | 1024 KB | 96 KB |
| | ST | STM32F103VG (allow opt. bytes) | Cortex-M3 | 16 Bytes + 1024 | 96 KB |
| | ST | STM32F103ZC | Cortex-M3 | 256 KB | 48 KB |
| | ST | STM32F103ZC (allow opt. bytes) | Cortex-M3 | 16 Bytes + 256 KB | 48 KB |
| | ST | STM32F103ZD | Cortex-M3 | 384 KB | 64 KB |
| | SI | UTHIO21 TOLED (allom opt bytes) | Cortex-M3 | 16 Bytes + 384 KB | 64 KB |
| | | STM32F1U32E | Cortex-M3 | 512 KB | 54 KB |
| | SI | ormioan rocal (allow opt. bytes) | Cortex-M3 | 16 Bytes + 512 KB | 64 KB |
| | SI | STM32F1032F | Cortex-M3 | 768 KB | 96 KB |
| Add | SI | STM32F1U32F (allow opt. bytes) | Cortex-M3 | 16 Bytes + 768 KB | 96 KB |
| | 51 | STM32F1032G | Lortex-M3 | 1024 KB | 96 KB |
| | 51 | STM32FTU32G (allow opt. bytes) | Contex-M3 | 16 Bytes + 1024 | 96 KB |
| | SI | STM32F105R8 | Contex-M3 | 64 KB | 64 KB |
| | 51 | STM32FT05H8 (allow opt. bytes) | Lottex-M3 | 16 Bytes + 64 KB | 64 KB |
| | ОК | | | | Cancel |

Device 我们默认选择 STM32F103ZE(根据自己的单片机型号选择自己要下载的目标板型号),点击 "OK"

然后点击"应用","确定",其他的都为默认设置。

| ject settings | | | ? | × |
|---|-------------------|----------------------------|---|---|
| ieneral Target Interface MCU FI | lash Production | n] | | |
| SWD speed before init steps Auto selection 25000 KHz | SWD speed after | rr init steps n kHz. | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

特别说明:如果你的要调试的 CPU 为 ARM7 类型的,则调试接口只能选择 JTAG,不能选 SWD,且速度设置不要超 过 1M。

| 点击"Target"->"TI | EST",按下图生产 | ^立 随机测试代码; |
|-----------------|------------|----------------------|
|-----------------|------------|----------------------|

| Project - Der Connect Instance | |
|--|---|
| Name Disconnect Host connection Test Generate test data 9 A B C D E F ASCII Taget interface Int JTAG speed Manual Programming F7 Show CFI info 9E 00 00 97 9E 00 | |
| Test Generate test data 7 A B C D Test speed Test speed Show CFI info JAG speed JAG speed Show CFI info JTAG speed Show CFI info JE 000 000 87 9E 00 000 Show CFI info JE 000 000 87 9E 00 000 Show CFI info JE 000 000 87 9E 00 000 Show CFI info JE 000 000 87 9E 00 000 Show CFI info JE 000 000 87 9E 00 000 97 9E 00 000 97 9E 00 000 Show CFI info JE 000 000 A7 9E 00 00 A7 9E 00 00 A7 9E 00 00 | |
| Test Centerior less table | |
| Target Interface Production Programming F7 Manual Programming Show CFI info 9E 00 00 88 9E 00 00 89 9E 00 00 89 9E 00 00 89 9E 00 00 89 9E 00 00 97 9E 00 00 98 9E 00 00 <td></td> | |
| JTAG speed , Manual Programming > The field for all of all | |
| ITAG scan chain Auror operations 0002 mm 300 Hardware >> 91 000 000 92 91 000 000 93 91 000 000 92 91 000 000 92 91 000 000 92 91 000 000 92 91 000 000 92 91 000 000 92 91 000 000 92 91 000 000 92 91 000 000 92 91 000 000 92 91 000 000 92 91 000 000 92 91 000 000 92 91 000 000 92 91 000 000 91 91 000 000 91 91 000 000 91 000 000 91 000 000 91 000 000 91 000 000 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 </td <td></td> | |
| B0227A40 90 91 90 91 | |
| B027A50 94 9E 00 00 97 9E 00 00 98 9E 00 00 97 9E 00 00 98 9E 00 00 97 9E 00 00 98 9E 00 00 00 97 9E 00 00 00 00 | |
| Biology Contention Biology Carbon Bio | |
| Check core D Yes (0x48A00477) Use target RAM 128 (B @ 0x2000000 Flash memory Internal bark 0 Base address 0x8000000 Base address 0x800000 Base address 0x8027AD8 B4 9E 00 00 B5 9E 00 00 B5 9E 00 00 <t< td=""><td></td></t<> | |
| Use target RAM 128 kB @ 0x20000000 8027A88 A0 9 E 00 00 A1 9E 00 00 A2 9E 00 00 A2 9E 00 00 A3 9E 00 00 Flash memory Internal bank 0 8027A80 A4 9E 00 00 A5 9E 00 00 A6 9E 00 00 A7 9E 00 00 A8 9E 00 00 B8 9E 00 00 B8 9E 00 00 B8 9E 00 00 B8 9E 00 00 B1 9E 00 00 B5 9E 00 00 B5 9E 00 00 B5 9E 00 00 B8 9E 00 00 B8 9E 00 00 8027AB0 AC 9E 00 00 B5 9E 00 00 B5 9E 00 00 B5 9E 00 00 B5 9E 00 00 B8 9E 00 00 B. S0 00 00 B5 9E 00 00 B5 9E 00 00 B5 9E 00 00 B5 9E 00 00 B8 9E 00 00 8027AB0 BK 9E 00 00 B5 9E 00 00 B5 9E 00 00 B8 9E 00 00 B5 9E 00 00 B8 9E 00 00 S0 27AF0 8027AB0 BC 9E 00 00 C1 9E 00 00 B5 9E 00 00 B5 9E 00 00 B5 9E 00 00 C2 9E 00 00 C3 9E 00 00 C 8027B10 C4 9E 00 00 C3 9E 00 00 C4 9E 00 00 C3 9 | |
| Flash memory Base address Internal bank 0 0x6000000 B027AP0 A4 9E 00 00 A5 9E 00 00 A7 9E 00 00 | |
| Flash memory Internal bark 0 11 12 03 03 10 12 03 03 11 12 03 03 10 12 03 03 11 12 03 03 11 12 03 03 11 12 03 03 11 12 03 03 11 12 03 03 11 12 03 03 11 12 03 03 10 11 12 03 03 10 11 12 03 | |
| Base address UX800000 UX8000000 UX80000000 UX8000000000 < | |
| Hash Skd 1024 Kb 8027AB0 HC 9E 00 00 HL 9E 0 | |
| 8027AC8 B0 9E 00 00 B1 9E 00 00 B2 9E 00 00 B3 9E 00 00 B3 9E 00 00 B7 9E 00 00 C3 9E 00 | |
| 8027AD0 B4 9E 00 00 B5 9E 00 00 B6 9E 00 00 B5 9E 00 00 B5 9E 00 00 B7 9E 00 00 B7 9E 00 00 B8 9E 00 00 B7 9E 00 00 B8 9E 00 00 C2 9E 00 00 C3 9E 00 | |
| 8027AE0 B8 9E 00 00 B9 9E 00 00 B1 9E 00 00 B1 9E 00 00 C2 9E 00 00 C3 9E 00 | |
| 8027AF0 BC 9E 9E 00 00 BE 9E 00 00 C2 9E 00 00 C3 9E 00 <t< td=""><td></td></t<> | |
| 8027B00 C0 9E 00 00 C1 9E 00 00 C2 9E 00 00 C3 9E 00 00 C3 9E 00 00 8027B10 C4 9E 00 00 C5 9E 00 00 C6 9E 00 00 C7 9E 00 00 C8 9E 00 00 C6 9E 00 00 C8 9E 00 00 C8 9E 00 00 8027B20 CC 0E 00 00 C9 9E 00 00 C6 9E 00 00 C8 9E 00 00 C8 9E 00 00 C8 9E 00 00 Se 00 00 C9 9E 00 00 C8 9E 00 00 C8 9E 00 00 C8 9E 00 00 C8 9E 00 00 8027B20 CC 0E 00 00 C9 9E 00 00 C4 9E 00 00 C8 9E 00 00 Se 00 00 C8 9E 00 00 C | |
| 8027B10 C4 9E 00 00 C5 9E 00 00 C7 9E 00 00 | |
| B027B20 CS 9E 00 00 C7 9E 00 00 CA 9E 00 00 CB 9E 00 DE 00 D | |
| Description of the set | |
| Destance of the second | |
| DubleCOOOD - 0x80FFFFF (007 Sectors, 896 KB) Start of verifying flash Start of verifying flash Start of restoring Ind of restoring In | |
| - Ux002000 - Ux007FFF (007 Sectors, 600 AD) - End of verifying flash - End of restoring - End of restoring - Executing exit sequence - De-initialized successfully - Target erased, programmed and verified successfully - Completed after 22.399 sec RRING: Supply voltage too low or too high, disconnecting target! - Soonnecting - Disconnected | |
| DISCOLLECTED | |
| | |
| | > |

注:如果要下载自己的 BIN 文件,如果是 STM32 下载,打开 文件时会提示地址选择,一定要输入"8000000",其他 类型的单片机,地址也要按期单片机的特性来选取。

6、下载测试

点击 "Target" -> "auto" 或者按 "F7" 下载。

如果下载成功:



下载失败:



下载失败的原因:

<1> JTAG 线是否连接正常

<2> 目标板是否供电

<3> 接口是否连接正常

JTAG:

1, Vref 电压参考,用于 Jlink 测试被调试设备的 总线电压,一般接被调试设备的 Vcc。

2-----3.3V。Jlink 输出 3.3v 给外部设备(可选)

5-----TDI

7-----TMS

9-----TCK

13-----TDO

15------RESET (有些芯片不接正常)

4,6,8,10,12,14,16,18,20 任一个接地

SWD:

1, Vref 电压参考,用于 Jlink 测试被调试设备的 总线电压,一般接被调试设备的 Vcc。

2------3.3V。Jlink 输出 3.3v 给外部设备(可选)

7-----SWDIO

9-----SWCLK

15-----RESET (有些芯片不接正常)

4,6,8,10,12,14,16,18,20 任一个接地

第6章 仿真器在 MDK 软件中的使用

对于初学者,强烈要求先看第5章,然后才可以学习本章。

关于 mdk 软件动态库的更新

对于 MDKv4 版本的用户,请将 MDK 升级到较新的版本,比如 MDKv474. 较低的版本比如 v412 发现会有问题,不能正常使用 v9 仿真器。 KEIL MDK 软件要使用 jlink 仿真器,必须要一个原厂提供的中间 件 JlinkArm.dll。以前安装完 jlink_windows.exe 软件,会自动更新 MDK 软件所需要的动态库,但是当前比较新的 jlink_windows.exe 软件比如 v6.14 后的版本,都不支持自动更新 MDK 软件了。 为此提供 2 种更新方法

手动更新动态库

| 📕 I 🖉 📕 🖛 I | JLink_V640 | | | 27 <u>—</u> 70 | |
|--|----------------------------------|---------------------|--------------|----------------|-----|
| 文件 主页 | 共享 查看 | | | | ~ 🕜 |
| $\leftrightarrow \rightarrow \cdot \uparrow$ | Register → Program Files (x86) → | SEGGER > JLink_V640 | ~ Ū | 搜索"JLink_V640" | Q |
| | 名称 个 | 修改日期 | 类型 | 大小 | ^ |
| ★ 快速访问 | 🔜 JLink.exe | 2018/10/26 21:07 | 应用程序 | 291 KB | |
| 三 桌面 | * Nink x64 dl | 2018/10/26 21:06 | 应用程序扩展 | 17,282 KB | |
| 👆 下载 | JLinkARM.dll | 2018/10/26 21:06 | 应用程序扩展 | 16,094 KB | |
| 🔮 文档 | * Still C. Gyicke | 2018/10/26 21:07 | 应用程序 | 439 KB | |
| | | | 10 a. a. b.b | | |

替换 MDK 软件中的 同名文件

| 📙 🛃 🖛 🖛 Se | egger | | | |
|--|---------|-------------|------------------|--------|
| 文件 主页 | 共享 查看 | | | |
| $\leftrightarrow \rightarrow \cdot \uparrow$ | → 此电脑 → | Keil_v5 | > ARM > Segger > | 5 V |
| 🛃 快速访问 | 名称 | ^ | 修改日期 | 类型 |
| 「「「「「「」」」 | ے _ L | JSBDriver | 2018/9/8 17:47 | 文件夹 |
| | j 🗟 J | L2CM3.dll | 2018/7/30 20:30 | 应用程序扩展 |
| | Link J | Link.exe | 2018/6/18 16:39 | 应用程序 |
| 置 文档 | ر 🔊 * | LinkARM.dll | 2018/7/30 20:30 | 应用程序扩展 |
| 💽 图片 | * 💿) | LIAgoilall | 2018/3/21 16:42 | 应用程序扩展 |
| | | | | |

软件在自动更新动态库

为此这里提供一个软件 "MDK_DLL_Updater.用于更新 MDK 软件 的动态库更新.exe ",专门用于在安装 jlink_windows.exe 后更新 动态库。程序\mdk dll_updater.用于更新 mdk 软件的动态库.请先 安装 jlink_windows_vxxx.exe。

请注意,每次安装 MDK 后都需要运行此程序

| 💀 MDK软件jlinkarm.d | 川升级工具 | E. | ₽ ', ⋓ ॷ ॡ ₹ ᄽ | 8558 | × |
|-------------------|-------|----|-----------------|------|---|
| Hlink : | | | | | |
| 选择jlink固件版本 | V630k | • | renew | | |
| | | | Start | | |

当前的jlink_window软件不能自动升级MKD需要的dl1,这个软件帮助大家干这个事情

详细过程,参见文档: <u>文档\Hlink 在 MDK 下的设备测试.pdf</u>

Jlink 在 MDK 中的使用

1、连线:在硬件上,把 JLINK 用 USB 线连接到电脑 USB

和板子的 JTAG 接口上。

2、安装驱动:在完成第一步后,右击我的电脑图标选择属性,然后点击设备管理器,在设备管理器中点击显示未知设备,然后找到 JLINKV9 驱动下载路径,点击安装即可。

驱动安装可参考本公司的驱动安装文档。

3、打开 MDK 平台,新建一个工程, Project-New uVision Project 保存 文件。在出现的 Select Device for Target 'Target 1'…选择你的单片机型 号如图所示(测试的时候可以随便选择一个,下载的话就需要选择自 己的单片机型号),这里以选择 STM32F407ZG 为例,然后点击 OK

| Device | - | |
|----------|--------------------|---|
| | Software Packs | × |
| Vendor: | STMicroelectronics | |
| Device: | STM32F407ZGTx | |
| Toolset: | ARM | |
| Search: | | |
| | | Des <u>cription</u> : |
| | | The STM32F4 family incorporates high-speed embedded memories and an extensive range of enhanced I/Os and peripherals connected to two APB buses three AHB buses and a 32 bit multi-AHB bus matrix |
| | 🗄 🕸 STM32F407VE | A Khuta of CCM (and an unlad mamor) data PAM |
| | 🗄 🙀 STM32F407VG | - LCD parallel interface, 8080/6800 modes |
| | | - Timer with quadrature (incremental) encoder input - 5 V-tolerant I/Os |
| | STM32F407ZG | - Parallel camera interface |
| | STM32F407ZG | - RTC: subsecond accuracy, hardware calendar |
| | | - 96-bit unique ID |
| • | u | |
| 0 | | d J |

出现 Manage Run-Time Environmeng 界面直接点击 cancel 关闭即可。

4、在 IDE 里面点击 都即打开 Options for Target 选项卡



- 5、在 Debug 栏选择仿真工具为 J-LINK/J-TRACE Cortex, 如图图 2 所
- 示,然后点击 Settings

| evice Target Output Listing User C/ | C++ Asm Linker Debug Utilities |
|--|--|
| C Use <u>S</u> imulator <u>with restrictions</u> <u>Set</u> ☐ Limit Speed to Real-Time | ings Settings |
| ✓ Load Application at Startup ✓ Run to main Initialization File: | 0 Iv Load Application at Startup Iv Run to main() Initialization File: |
| Restore Debug Session Settings F Breakpoints Vatch Windows & Performance Analyzer Memory Display System Viewer | Restore Debug Session Settings Breakpoints Toolbox Watch Windows Memory Display System Viewer |
| CPU DLL: Parameter: | Driver DLL: Parameter: |
| SARMCM3.DLL -REMAP -MPU | SARMCM3.DLL -MPU |
| Dialog DLL: Parameter: | Dialog DLL: Parameter: |
| DCM.DLL pCM4 | TCM.DLL PCM4 |
| Manage Compo | ment Viewer Description Files |

6、如下图所示,则表示设备连接成功

| J-Link / | J-Trace Adapter- | | JTAG Devi | ce Chain | | | |
|-------------------------|--------------------|------------------------------------|-----------|--------------------|--|------------------------------------|--|
| SN: | 788594227 | | Г | | De ' N | | IR len Move |
| Device: | J-Link A | RM | TDO | • 0x4BA00477 | ARM CoreSigh | t JTAG-DP | 4 Up |
| HW : | V8.00 dll : | V5.12e | | 0x06413041 | Unknown JTAG | i device | 5 |
| FW : | J-Link ARM V8 c | ompiled No | TDI | < | | | > |
| P | | Max | ₢ Autor | natic Detection | ID CODE | | |
| (| TAG 🚽 10 | MHz 💌 | C Manu | al Configuration | Device Name | | |
| | | Auto CIk | Add | Delete Ur | date IR ler | | |
| | | AULO CIK | | | | 1 | |
| Conne | ect & Reset Option | r Reset: Nor | mal | Cach 이 및 이 및 | ne Options Cache Code Cache Memory | Download □ Verify C □ Downlo | Options ode Download ad to Flash |
| Conne | eset after Connect | | | | | | 22.5 |
| Conne Re Interfac | eset after Connect | тср/IP | | | | | Misc |
| Conne Re Interfac | eset after Connect | TCP/IP Network Se | ttings | Port (A | Auto: | odetect | Misc JLink Info |
| Conne Re Interfac | eset after Connect | TCP/IP Network Se IP-Address | ttings | Port (4 | Auto: Auto | odetect | Misc JLink Info |

如果仿真器和开发板没有通过 jtag 接口相连,则看不到 IDCore。

| SN: | 788594227 | | | | | |
|---------------------------------|--|--------------------------------|----------------------------------|---|---------------------------|---|
| | | | 18000 | E Device N | Name | Move |
| Device: | J-Link | ARM | SWDI O 0x2B | A01477 ARM Co | reSight SW-DP | Up Up |
| HW : | V8.00 dl | I: V5.12e | | _ | | Down |
| FW : | J-Link ARM V8 | compiled No | | | | |
| Pe | ort: | Max | Automatic De | tection IC | CODE: | |
| s | sw 🚽 1 | 0 MHz 👻 | Manual Confi | guration Device | Name: | |
| Ţ | TAG | | | | IR lent | |
| | w | Auto Cik | Add Dele | upuate | 1111011 | |
| | | | | | | |
| Conne Conne I⊽ <u>R</u> e | ect & Reset Optio ect: Normal eset after Conne | ons Reset: Norma | al 💌 | Cache Options ✓ Cache <u>C</u> od ✓ Cache <u>M</u> er | e Downloa nory Downloa | d Options Code Download load to <u>F</u> lash |
| Interfac | ce | TCP/IP | | | | Misc |
| C LICI | B C TCP/IP | Network Settin | ngs | | Autodetect | JLink Info |
| (• USI | | IP-Address | | Port (Auto: | | |
| (• US | Scan | 127 0 | 0 1 | . 0 | | |
| | Scan | 127 . 0 | . 0 . 1 | : 0 | Ping | JLink Cmd |
| Interfac | eset after Conne ce B C TCP/IP | ct TCP/IP Network Settin | ngs | Port (Auto: | Autodetect | Misc |

| ownload LOAD SA | Function | ✓ Program ✓ Verify ✓ Reset an | d Run | AM for Algorithm | Size: 0x1000 | |
|-----------------------|---------------|---|--------------|------------------|--------------|--|
| ogramm | ing Algorithm | | | | | |
| Descripti | ion | Device Size | Device Type | e Address | Range | |
| PAC52XX | 32kB Flash | 326 | ()n-chin Hac | E INWWWWWWW | 00007FFFH 4 | |
| | | JER . | On-chip has | M 0000000H- | | |
| | | | | Start: | Size: | |

如果没有红圈中的 下载逻辑,则表示 mdk 安装不完全,需要安

装中间件。

| Use Target Driver for Flash Programming | g 🔽 Use Debug Driver |
|---|---|
| Use Debug Driver | Settings 🛛 🔽 Update Target before Debugging |
| Init File: | Edit |
| Arguments: Run Independent Configure Image File Processing (FCARM): - | |
| Output File: | Add Output File to Group: |
| | device 👻 |
| | |

注意红圈中的内容。

然后就可以下载程序或者调试程序了

设备测试完成,可进行程序下载仿真 JTAG线连接:

JTAG:

1, Vref 电压参考,用于 Jlink 测试被调试设备的 总线电压,一般接被调试设备的 Vcc。

2------3.3V。Jlink 输出 3.3v 给外部设备

5-----TDI

7-----TMS

9-----TCK

13-----TDO

15------RESET (有些芯片不接正常)

2,4,6,8,10,12,14,16,18,20 任一个接地

SWD:

1, Vref 电压参考,用于 Jlink 测试被调试设备的 总线电压,一般接被调试设备的 Vcc。

2------3.3V。Jlink 输出 3.3v 给外部设备

7-----SWDIO

9-----SWCLK

15------RESET (有些芯片不接正常)

2,4,6,8,10,12,14,16,18,20 任一个接地

MDk 中间件的安装

| ExUsers\Administrator\Desktop\仿真器圖件探写与測试工具\多功能仿真器\STM32F205\V2at08060000\CMSIS_DAPorg.uvprojc - µVision Elie Edit View Project Fiash Debug Perjpherals Jools SVCS Window Help Poiet Project Text Part Part Part Part Part Part Part Par | X | DAPorg.uvprojx - µVision → | 060000\CMSIS_ wd_write_memor | 32F205\V2at08 <u>H</u> elp /=//╦ | 8写与测试工具\多功能仿真器\ST nerals <u>T</u> ools <u>S</u> VCS <u>W</u> indow | ator\Desktop\仿真器固件炉 ect Fl <u>a</u> sh <u>D</u> ebug Pe <u>r</u> ipl | E:\Users\Administrat |
|---|--|--|--|--|---|---|--|
| File Edit View Project Figsh Debug Peripherals Tools SVCS Window Help File Edit View Project Figsh Debug Peripherals Tools SVCS Window Help File Edit View Project Figsh Debug Peripherals Tools SVCS Window Help File Edit View Project CMSIs DAPorg File Edit View Project CMSIs DAPorg File State Project CMSIs DAPorg File State Project CMSIs DAPorg Source Books TO Functions: Due Tools View Project Color Color): Source Books TO Functions: Due Tools View Colloc (Color color): State Project Color Color): Source Books TO Functions: Due Tools Source | O | y 🖂 💸 🔍 + 🔶 🔿 | wd_write_memor | <u>H</u> elp /=_//╦ 29 b_s | nerals <u>T</u> ools <u>S</u> VCS <u>W</u> indow | ect Fl <u>a</u> sh <u>D</u> ebug Pe <u>r</u> ipl | <u>File E</u> dit <u>V</u> iew <u>P</u> rojec |
| Image: Project Wanage Run-Time Environment Image: Run-Time Envir | ○ | y 🔽 🔜 🥐 🔍 🖌 🌢 🔿 | wd_write_memor | 🗄 //👷 🛛 🖄 b_s | | n on Line and S | |
| Project Project (MSIS_DAPorg Windows STM32P205_RELEASE_Single Windows Stm32P205_RELEASE_Single Woid prii Stm32P205_RELEASE_Single Woid feed(); Stm32P205_V2at08060000\pac52xx.cp Find In Files Stm32P205_V2at080600000\pac52xx.cp E: \Users\Administrator\Desktop\/GjatBalfk@S5%jitt12_l\SJBt/fig2B\STM32P205_V2at08060000\purclaskz.cc E: \Users\Administrator\Desktop\/GjatBalfk@S5%jitt12_l\SJBt/fig2B\STM32P205_V2at08060000\purclask.cc E: \Users\Administrator\Desktop\/GjatBalfk@S5%jitt12_l\SJBt/fig2B\STM32P205_V2at08060000\purclask.cc E: \Users\Administrator\Desktop\/GjatBalfk@S5%jitt12_l\SJBt/fig2B\STM32P205_V2at08060000\purclask.cc E: \Users\Administrator\Desktop\/GjatBalfk@S5%jitt12_l\SJBt/fig2B\STM32P205_V2at08060000\purclask.cc E: \Users\Administrator\Desktop\/GjatBalfk@S5%jitt12_l\SJBt/fig2B\STM32P205_V2at08060000\purclask.cc <t< td=""><td>const.h ♥ ></td><td>Fun2.cpp burnTask.cpp</td><td>nvironment</td><td></td><td> 『 ほ ほ ほ 評 評 !</td><td>4a 📫 🤊 (° 🖛 =</td><td>🗋 📬 🛃 🗿 🛛 🖉</td></t<> | const.h ♥ > | Fun2.cpp burnTask.cpp | nvironment | | 『 ほ ほ ほ 評 評 ! | 4a 📫 🤊 (° 🖛 = | 🗋 📬 🛃 🗿 🛛 🖉 |
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| ************************************ | | | nvironment | | hummer.com | д 🛛 | Project |
| StruszP205, RELEASE_Single Surve | | | | nage kun-time E | 22 Oortorn " | APora | Project: CMSIS DAP |
| Sindar Double Links and a set of the product of t | > | | poments for the | ect Sottware Com | 34 woid pri | | |
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您需要选中左边的 CPU 型号,安装右边的圈红的支持库

第7章 仿真器在 IAR 软件中的使用

学习本章前,请一定要先学习第5章 仿真器在jflash中的 使用 1、连线:在硬件上,把 JLINK 用 USB 线连接到电脑 USB 和板子的 JTAG 接口上。 确认设备已经上电, Jlink LED 灯为绿色。

4、安装驱动:在完成第一步后,右击我的电脑图标选择属性,然后 点击设备管理器,在设备管理器中点击显示未知设备,然后找到 JLINKV9 驱动下载路径,点击安装即可。

驱动安装方法也可参见本公司的专门文档。

3、打开 IAR 软件



4、新建工程-File-New-Workspace



5、Project-Create New Project,选择空项目,选择保存位置

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|-----------------|---------------------------|-------|--|--|--|--|--|--|--|
| File Edit View | Project Tools Window Help | | | | | | | | |
| | Add Files | | | | | | | | |
| Workspace | Add Group | DI | | | | | | | |
| | Import File List | | | | | | | | |
| Files | Edit Configurations | | | | | | | | |
| | Remove | | | | | | | | |
| | Create New Project | | | | | | | | |
| | Add Existing Project | | | | | | | | |
| | Options Alt+I | 7 | | | | | | | |
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6、新建一个文件夹,保存在相同文件夹里面

| a IAR Embedded Workben | ch IDE | | - and - |
|--|-----------------------|--------------------------|---------|
| D G G G G & | Simulator To | pols Window Help | / • |
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7、鼠标移到工程那里,右击,Add-Add"main.c"(main.c是刚才保存的文件)

| Vorkspace | × main.c | |
|-------------|---------------------|--------------|
| Debug | T Constant | |
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| 🗊 1 - Debug | Options Make | |
| | Compile | |
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| | Stop Build | |
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| VVVV | Remove | Add *main.c* |
| | Rename | Add Groupme |
| | Source Code Control | |
| | File Properties | |
| | Set as Active | 1 |

8、鼠标移到工程那里,右击,选择第一个 Options, General Options-Target-Device,选择你的单片机型号

| Integoly: Inter Options C/C++ Compiler Assembler Output Converter Custom Build Build Actions Linker Debugger Simulator STice ST-LINK | Target Output Library Configuration Library Options S 1 * Device: STMO - Unspecified Code Small • Data Medium • |
|---|---|
| | DK Cancel |

9、继续修改

| Category General Options C/C++ Compiler Assembler Output Converter | N. docm. Factory Settings |
|--|----------------------------|
| Custom Build Build Actions | Generate additional output |
| Linker | Output format: |
| Simulator | Intel extended • |
| STICE ST-LINK | Output file |
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| alegoly. | | | | | | | Factory Settings |
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| Custom Build Build Actions Linker | Driver | | | <u> R</u> un to | | | |
| Scougget Simulator Angel CMSIS DAP GDB Server IAR ROM-monitor I-jet/JTAGjet J-Link/J-Trace TI Stellaris | Setu | p macros <u>U</u> se macro f | île(s) | | | | |
| Macraigor PE micro RDI ST-LINK Third-Party Driver XDS 100/200/ICDI | Devi | <u>c</u> e descriptio <u>O</u> verride de | on file fault | | | | *** |

10、然后就可以开始编程了



11、编写后编译一下,看一下有没有错误,有的话就修改

| AR Embedded Workbench IDE | | | | | | | | |
|---|---|--|--|--|--|--|--|--|
| File Edit View Recject Tools | Window Help | | | | | | | |
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| Interes . | man e fante hath (m25) (m25) | | | | | | | |
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| Files 5: 10 G DUART - Deb H D man c H D ma25.c | <pre>#include "wart.b" #include "mails.b" word CLM_Init(word)</pre> | | | | | | | |

12、没有错误之后就点击烧录,程序就可以烧到单片机里面了

• 🗢 🍓 🌬 | Bì 😲 🕅 🧶 🕭 🕭

JTAG 线连接:

JTAG:

1, Vref 电压参考,用于 Jlink 测试被调试设备的 总线电压,一般接被调试设备的 Vcc。

2-----3.3V。Jlink 输出 3.3v 给外部设备

5-----TDI

7-----TMS

9-----TCK

13-----TDO

15------RESET (有些芯片不接正常)

2,4,6,8,10,12,14,16,18,20 任一个接地

SWD:

1, Vref 电压参考,用于 Jlink 测试被调试设备的 总线电压,一般接被调试设备的 Vcc。

2------3.3V。Jlink 输出 3.3v 给外部设备

7-----SWDIO

9-----SWCLK

15------RESET (有些芯片不接正常)

2,4,6,8,10,12,14,16,18,20 任一个接地

第8章 仿真器升降级固件的方法

8.1 升降级固件的方法

一般来说,不需要手工升级固件。当软件提示你升级固件,你点 击同意升级就可以了。

下面是手动升降级固件的方法



点击 OK 就坐等升级降级固件了

8.2 升降级失败的处理方法

对于 9.7 以上的版本的多固件仿真器,如果个别升降固件失败,可以重装固件,然后使用最新的 jlink.exe 软件,运行中同意升级,就能升级到最新固件。 参见 9.1 方法 1,用于当前出厂的仿真器

第9章 仿真器的固件恢复

9.1 方法 1, 用于当前出厂的仿真器

2018年8月以后出厂的仿真器 V9 和 v9 Mini,已经修改了电路和固件, 做的完全不掉固件了,就是故意想擦除固件都做不到。但是,也可以 用简单的方法复位固件,使得仿真器恢复到出厂时的状态



先拔掉仿真器 usb 电源线, 且仿真器不要连接开发板, 然后将 usb 的数据线短接, (参见上图, 可以将图中的 2 个孔用镊子短路, 也可以将 usb 数据线相连的 22 欧阻处通过任何方法比如焊接短路), 通过 usb 线给仿真器上电 1s 以上时间再断电, 再去掉之前的短路, 然后再上电, 则仿真器就回复到出厂状态了。这时候设备管理器里面能看到仿 真器, 且打开最新版的 Jlink.exe 软件或者使用仿真器会提示重置 固件。

最新 jlink. exe 软件的安装方法,参见 1.1 通过软件安装驱动程序

9.2 方法 2, 用于比较旧的仿真器固件修复

如果方法1不行,说明仿真器是8月之前的产品,请按下面的方法处理:

Hlink v9.41 以上的版本基本不掉固件,但是如果想要重烧固件,可以用如下方法: 1 硬件设置,看图,按红线框中跳线 bo 短接 v33,20p 输出口的 17-18 脚也要短路。



下图的短接 DFU, 然后短接输出口的 17-18





下图的 版本是将 bo 脚接 v33. jtag 的 17 18 脚短路



上面的板子 bo 脚和 v33 脚短路 输出 jiag 接口的 17-18 脚短路

2将仿真器插到(win7以上系统)电脑,控制面板会显示如下:



如果驱动没有安装好,请自行安装 dfu 驱动。当前驱动在程序目录中。

| 式丁目 、 DELL 、 Binany 、 因件面新 、 LISB Driver |
|--|
| |
| 名称 |
| Win7 2018-03-14 15 |
| Win8 2018-03-14 15 |
| Win8.1 2018-03-14 15 |
| version.txt 2015-08-30 22 |

打开程序界面,然后再将仿真器插入电脑,过 10 多秒就会有编程过程显示,然后等烧写接上。如果仿真器插入电脑鼠标边忙,等 10 多秒再次打开同一个软件,一般就行了。

| | | | 12000 | ŕ |
|--|----------------|----------------|---------|-------|
| Available DFU Devices | | | | |
| | \sim | ☑随机序列号 | | |
| | | ☑可重烧固件 | | |
| Actions | | | | |
| Select <u>T</u> arget(s): | Target Id | Name | Availat | ole 🔨 |
| \\?\usb#vid_0483&pid_df11#31573{ | 00 | Internal Flash | 12 sec | 1 |
| | 01 | Option Bytes | 1 secto | or: |
| | 02 | OTP Memory | 2 secto | :10 |
| | 03 | Device Feature | 1 secto | or: 🗸 |
| | | | | |
| I ransferred data size | | | | |
| 0 KB(0 Bytes) of 240 KB(245760 Bytes) | | | | |
| Operation duration | | | | |
| 00:00:04 | | | | |
| | | | | |
| Target 00: Ug | oradino - Fras | e Phase (79%) | | |

| FirmwareUploader | | |
|---|---------------------------------------|-------------|
| Available DFU Devices | | |
| | ───────────────────────────────────── | 列号 |
| | ☑可重烧□ | 固件 |
| Actions | | |
| Select <u>T</u> arget(s): | Target Id Name | Available S |
| | | |
| | | |
| | | |
| Transferred data size | | |
| 240 KB(245760 Bytes) of 240 KB(245760 Bytes) | | |
| Operation duration | | |
| 00:00:11 | | |
| | | |

完成后请去掉各跳线,仿真器就恢复可使用了。

注意:如果开发板有外接电源,则请想办法不要将仿真器2脚接到开发板。以免再次掉固件

如果仿真器的固件完全丢失,仿真器的灯完全不亮,则可以修改 固件。参见:<u>Hlink 仿真器固件修复方法.pdf</u>

程序\固件.内有说明书.rar

第10章 打开和关闭虚拟串口的方法

| . 🖸 | - | | | 应用程 | B序工具 · | JLink_V6 | 32h | | | | | | | | | |
|--------------------|----------|-----------------|---------------------|----------|-----------|--|-----------|---------|-----------|-------------------|---------|---|------|----------------|-----|----------|
| 文件 | 主页 | 共享 | 查看 | 1 | 理 | | | | | | | | | | | ~ 🔞 |
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| ← → | ~ 个 | >=>=>= | t电脑 → オ | 5地磁盘 | (D:) > Pr | ogram f | Files (x8 | 86) > 1 | SEGGER | JLink V632 | | 1111 | 2034 | | ٽ ~ | 搜索"儿in 。 |
| | MathT | уре | | ^ | 名称 | | ^ | | | 修改日期 | | 类型 | | 大小 | | ^ |
| | MathT | ype1 | | | JLink_ | x64.dll | | | | 2018-07-0 | 6 0:14 | 应用程序扩 | 展 | 17,769 KB | | |
| | Meitu | | | | JLink4 | ARM.dll | | | | 2018-07-0 | 06 0:14 | 应用程序扩 | 展 | 16,932 KB | | |
| | Micro | soft Offic | e | | 🔝 JLink(| Config.es | xe | | | 2018-07-0 | 6 0:13 | 应用程序 | | 443 KB | | |
| Microsoft C | | oft Visu | al Studio | | 🔮 JLink[| Devices. | ml | | | 2018-07-0 | 5 17:38 | XML 文档 | | 110 KB | | |
| | | | | | | | | | | | | | | | | |

打开和关闭虚拟串口的方法

显示界面如下

1 打开 JlinkConfig.exe 软件

| SEGGER J-Link Co | onfiguration V6.32h | | | | | | | × |
|---------------------------------|---|----------------------------------|----------------|-------------|------------|----------------------------|-------------------------------|-----------------------------|
| | - | | | | | | Refresh rate: Normal | × |
| | Emulators connected via L | ISB: | | Niekname | CN . | LISE Identification | Host Eirmune | Emul |
| | | | | Hickname | 1.51 | | Trost minwate | 1 E Mai |
| 11 | < | | | | | | | > |
| | Emulators connected via T | CP/IP: | | | | | <u>S</u> elect all <u>S</u> e | elect none |
| ÷÷ j-link ^{to} | # A Pro | oduct | Nickname | SN | IP Address | MAC Address | Host Firmware | Emulator |
| 21 ⁻¹ 11 12 12 | ¢ | | | | | | | , |
| | | | | | | N | <u>S</u> elect all <u>S</u> e | elect none |
| | Log: SEGGER J-Link Config Logging started @ 20: | uration V6.32h 18-07-24 09:21 | | | | | | ^ |
| | | | | | | Undate firmware of selects | ed emulators | lose |
| | | | | | - | opuate niniware or select | | JUSE |
| leady | | Searching for er | nulators: Read | у | | | 0 emulators fo | ound |
| 方真器上电, | 则显示里面有 | 仿真器了 | | | | | | |
| SEGGER J-Link Co | onfiguration V6.32h | | | | | | - 0 | × |
| | Emulators connected via L | ISB: | | 1 | (au | | Refresh rate: Normal | <u> </u> |
| | | oduct IGGER J-Link ARM V | 9.40 | NICKNAME | 59401549 | SN 59401549 | 2018 Apr 20 16:4 | 7 2018 |
| 11 | | | | | | | | |
| | < | | | | | | Colort all C | < Alexandro and a second |
| | Emulators connected via T | CP/IP: | L M L | L av | | Luccu | | Siect none |
| ± ± j-link [™] | | oduct | Nickname | <u> 5N</u> | IP Address | MAL Address | _ Host Firmware _] | Emulator |
| ÷ | < | | | | | | | > |
| | Log: SEGGER J-Link Config Logging started @ 20 | uration V6.32h 18-07-24 09:21 | | | | | <u>S</u> elect all <u>S</u> e | elect none |
| | | | | | | | | |
| | | | | | | | | ~ |
| | | | | | | Update firmware of selecte | ed emulators | Close |

双击看到的仿真器,则界面显示如下

在这个界面的下面显示可以开关虚拟串口。修改设定后,点击确定,然后仿真器重新上电, 就可以看到设备管理器里面使能或者关闭了串口

第 11 章 仿真器输出 5v 电源的方法

安装jlink-windows程序,比如jlink-windowsv630k.exe

打开jlink.exe程序,输入 power on perm.回车,然后,仿真器输出的19脚就有5v输出了

```
ין מערידע כב בון און אראי אראין אראין אראין אראין אראין אראין אראיין אראיין אראין אראין אראין אין אראין אראין א
```

```
J-Link Commander V6.30b
SEGGER J-Link Commander V6.30b (Compiled Feb 2 2018 18:37:08)
DLL version V6.30b, compiled Feb 2 2018 18:36:54
Connecting to J-Link via USB...O.K.
Firmware: J-Link V9 compiled Mar 29 2018 17:46:13
Hardware version: V9.40
S/N: 59401670
License(s): RDI, GDB, FlashDL, FlashBP, JFlash
VTref = 3.243V
Type "connect" to establish a target connection, '?' for help
 -Link>power on perm
 -Link>
        2 I. I. I. I. I.
```

44 .1.

也可以用 power off perm 永久关闭这个 5v 输出高压隔离型仿真器的使用

第12章 高压隔离型仿真器的使用说明

12.1 SWD 模式接法:

仿真器上除了接 7、9、10 这三脚外,此时 1 脚为输入端但是无电压, 用户需要给 1 脚供应被仿真器所需总线电压(一般为 3.3v,有些 cpu 位 5v,还有些为 1.8v)。具体接线方式如下照片:





这里要注意1脚无电压,接线是需接上1脚,给1脚供电。 JTAG 接法也同样注意这点。

12.2 安装驱动

安装 jlink_windows.exe 软件,一般也就自动安装好了驱动 打开网盘下载的资料中的程序,找到文件中目录程序—— Jlink_jflash——Jlink_window_V612a,点击解压出现如下安装步骤:

| SEGGER - J-Link Vo.1 | Za Setup |
|--|--|
| FGGER | Welcome to SEGGER - J-Link Vo. 12a Setup Setup will guide you through the installation of SEGGER - J-Link Vo. 12a. It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer. Click Next to continue. |
| | Next > Cancel |
| SEGGER - J-Link Vo.12 | a Setup |
| icense Agreement Please review the license | terms before installing SEGGER - J-Link V6.12a. |
| Press Page Down to see t | he rest of the agreement. |
| Important - Read careful DEFINITIONS: For the purpose of this a entire word is marked bol | y: greement, the terms shall have the following meaning when the d: |
| The 創oftware?means a the J-Link software be downloaded at: <u>ht</u> | <pre>all J-Link related software components included in & documentation pack provided by SEGGER which can tp://www.segger.com/jlink-software.html</pre> |
| If you accept the terms of agreement to install SEGG | f the agreement, click I Agree to continue. You must accept the ER - J-Link V6.12a. |
| | < <u>B</u> ack I <u>Ag</u> ree Cancel |

以下3项全部打勾:

| .hoose optional components Choose optional components to be insta | alled | . . |
|--|------------------|------------|
| choose op donal components to be insta | | Link |
| Choose optional components that shoul | ld be installed: | |
| ☑ Install USB Driver for J-Link | | |
| Choose options for creating shortcuts: | | |
| Create entry in start menu | | |
| Add shortcuts to desktop | | |
| | | |

以下确定安装位置后点 install:

| To install in a different folder, installation. |
|--|
| To install in a different folder, installation. |
| To install in a different folder, installation. |
| |
| |
| Browse |
| |
| |
| |
| |

| Select All Select None | |
|--|--|
| ect the ones you would like to replace by this version. | |
| previous version will be renamed and kept in the same folder, allowing manual "undo". ase of doubt, do not replace existing DLL(s). | |

点击 finish 完成安装:

| | Completing SEGGER - J-Link V6 12a Setup |
|--|--|
| jaliank ^{en} jaliank ^{en} | The latest version of the J-Link Software & Documentation pack can be found at the location linked below. |
| SEGGEF | J-Link Software & Documentation pack |

在桌面点击 jlink commander 图标,如下图标



若出现如下页面,看到 VTref=3.3V 左右这里,就说明仿真器驱动安装成功;不显示 Vref,说明驱动安装失败,这时可能安装的版本太低,或者连接不紧,得再装一遍 Jlink_window_V612a。



12.3 jflash 软件的使用



出现如下,点新建一个工程,如下

| C Open recent project: Other |
|---|
| |
| Create a new project. |
| Do not show this message again. Start J-Flash |

出现如下窗口:打开 Target Device 下面的开发板芯片型号选择窗口

| raiget Device | | |
|------------------|-------------|---|
| Cortex-M0 | | _ |
| Little endian 💌 | | |
| | | |
| Target Interface | Speed (kHz) | |

开发板芯片型号选择窗口如下:选择所需芯片型号,点 ok

| ManufacturerDeviceCoreFlash sizeRAM sizeUnspecifiedARM7ARM7UnspecifiedARM9ARM9UnspecifiedCortex-A5Cortex-A5UnspecifiedCortex-A5Cortex-A5UnspecifiedCortex-A7Cortex-A5UnspecifiedCortex-A8UnspecifiedCortex-A9Cortex-A12UnspecifiedCortex-A12Cortex-A12UnspecifiedCortex-A17Cortex-A12UnspecifiedCortex-A17Cortex-A17UnspecifiedCortex-M17Cortex-M10UnspecifiedCortex-M10Cortex-M10UnspecifiedCortex-M1Cortex-M1UnspecifiedCortex-M3Cortex-M3UnspecifiedCortex-M3Cortex-M3UnspecifiedCortex-M3Cortex-M4UnspecifiedCortex-M23Cortex-M3UnspecifiedCortex-M3Cortex-M3UnspecifiedCortex-M4Cortex-M3UnspecifiedCortex-M4Cortex-M4UnspecifiedCortex-M3Cortex-M3 | lanufacturer 🛛 × | • | | | |
|---|--------------------|------------|------------|---|----------|
| JnspecifiedARM7ARM7.JnspecifiedARM9ARM9.JnspecifiedCortex-A5.JnspecifiedCortex-A5.JnspecifiedCortex-A7Cortex-A5JnspecifiedCortex-A8.JnspecifiedCortex-A9.JnspecifiedCortex-A9.JnspecifiedCortex-A12.JnspecifiedCortex-A12.JnspecifiedCortex-A12.JnspecifiedCortex-A15Cortex-A17JnspecifiedCortex-A17.JnspecifiedCortex-A17.JnspecifiedCortex-M17Cortex-M17JnspecifiedCortex-M1.JnspecifiedCortex-M1.JnspecifiedCortex-M1.JnspecifiedCortex-M1.JnspecifiedCortex-M3.JnspecifiedCortex-M3.JnspecifiedCortex-M3.JnspecifiedCortex-M2.JnspecifiedCortex-M3.JnspecifiedCortex-M2.JnspecifiedCortex-M2.JnspecifiedCortex-M3.JnspecifiedCortex-R4.JnspecifiedCortex-R4.JnspecifiedCortex-R4.JnspecifiedCortex-R4.JnspecifiedCortex-R4.JnspecifiedCortex-R4.JnspecifiedCortex-R4.JnspecifiedCortex-R4. <th>Manufacturer</th> <th>Device</th> <th>Core</th> <th>Flash size</th> <th>RAM size</th> | Manufacturer | Device | Core | Flash size | RAM size |
| JnspecifiedARM9ARM9-JnspecifiedARM11ARM11JnspecifiedCottex:A5Cottex:A5-JnspecifiedCottex:A7Cottex:A7-JnspecifiedCottex:A8Cottex:A7-JnspecifiedCottex:A9JnspecifiedCottex:A12Cottex:A12-JnspecifiedCottex:A15Cottex:A15-JnspecifiedCottex:A15Cottex:A15-JnspecifiedCottex:A17Cottex:A17-JnspecifiedCottex:A17Cottex:A17-JnspecifiedCottex:M1Cottex:M0-JnspecifiedCottex:M1Cottex:M1-JnspecifiedCottex:M3Cottex:M3-JnspecifiedCottex:M3Cottex:M3-JnspecifiedCottex:M3Cottex:M3-JnspecifiedCottex:M3Cottex:M3-JnspecifiedCottex:M23Cottex:M3-JnspecifiedCottex:M23Cottex:M3-JnspecifiedCottex:M23Cottex:M3-JnspecifiedCottex:R4Cottex:M3-JnspecifiedCottex:R4Cottex:M3-JnspecifiedCottex:R4Cottex:M3-JnspecifiedCottex:R4Cottex:M3-JnspecifiedCottex:R4Cottex:M3-JnspecifiedCottex:R4Cottex:M3-JnspecifiedCottex:R4Cottex:M3-Jnspecif | Inspecified | ABM7 | ARM7 | | |
| JnspecifiedARM11ARM11-UnspecifiedCottexA5CottexA5-JnspecifiedCottexA7CottexA7-UnspecifiedCottexA8UnspecifiedCottexA9CottexA8-JnspecifiedCottexA12CottexA12-UnspecifiedCottexA12CottexA12-UnspecifiedCottexA12CottexA15-UnspecifiedCottexA17CottexA17-UnspecifiedCottexA17CottexA17-UnspecifiedCottexM0UnspecifiedCottexM0UnspecifiedCottexM0UnspecifiedCottexM0+CottexM0-UnspecifiedCottexM0+CottexM0-UnspecifiedCottexM3CottexM1-UnspecifiedCottexM3CottexM3-UnspecifiedCottexM3CottexM3-UnspecifiedCottexM3CottexM3-UnspecifiedCottexM3CottexM3-UnspecifiedCottexM3CottexM3-UnspecifiedCottexA3UnspecifiedCottexR4UnspecifiedCottexR4CottexM3-UnspecifiedCottexR4CottexR43-UnspecifiedCottexR5CottexR43-UnspecifiedCottexR4CottexR44-UnspecifiedCottexR5CottexR43-Unspecified <t< td=""><td>Inspecified</td><td>ARM9</td><td>ARM9</td><td></td><td>-</td></t<> | Inspecified | ARM9 | ARM9 | | - |
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| JnspecifiedCottex-A17Cottex-A17-JnspecifiedCottex-M0Cottex-M0-JnspecifiedCottex-M0+Cottex-M0-JnspecifiedCottex-M1Cottex-M1-JnspecifiedCottex-M3Cottex-M3-JnspecifiedCottex-M3Cottex-M3-JnspecifiedCottex-M4Cottex-M3-JnspecifiedCottex-M2Cottex-M3-JnspecifiedCottex-M23Cottex-M23-JnspecifiedCottex-M23Cottex-M33-JnspecifiedCottex-M33Cottex-M33-JnspecifiedCottex-R4Cottex-M33-JnspecifiedCottex-R5JnspecifiedCottex-R4Cottex-R5-JnspecifiedCottex-R4Cottex-R5-JnspecifiedCottex-R5Cottex-R5-JnspecifiedCottex-R5JnspecifiedCottex-R5JnspecifiedCottex-R5JnspecifiedCottex-R5JnspecifiedCottex-R5JnspecifiedCottex-R5JnspecifiedCottex-R4JnspecifiedCottex-R5JnspecifiedCottex-R5JnspecifiedCottex-R5JnspecifiedCottex-R4JnspecifiedCottex-R5JnspecifiedCote | Jnspecified | Cortex-A15 | Cortex-A15 | 5.e | |
| JnspecifiedCortex-M0-JnspecifiedCortex-M0+Cortex-M0-JnspecifiedCortex-M1Cortex-M1-JnspecifiedCortex-M3Cortex-M3-JnspecifiedCortex-M4Cortex-M3-JnspecifiedCortex-M4Cortex-M4-JnspecifiedCortex-M4Cortex-M23-JnspecifiedCortex-M23Cortex-M23-JnspecifiedCortex-M33Cortex-M33-JnspecifiedCortex-M33Cortex-M33-JnspecifiedCortex-F4Cortex-F4-JnspecifiedCortex-F5JnspecifiedCortex-F4Cortex-F4-JnspecifiedCortex-F2JnspecifiedCortex-F3Cortex-F4-JnspecifiedCortex-F3Cortex-F4-AbovAC33M6128LCortex-M3128 KBAbovAC33M8128LCortex-M3128 KBAbovAC30M8128Cortex-M3128 KBActelA2F060M3ECortex-M3128 KBActelA2F060M3ECortex-M3126 KB | Inspecified | Cortex-A17 | Cortex-A17 | 10 and | |
| JnspecifiedCortex-M0+Cortex-M0-JnspecifiedCortex-M1Cortex-M1.JnspecifiedCortex-M3Cortex-M3.JnspecifiedCortex-M4Cortex-M4.JnspecifiedCortex-M23Cortex-M23.JnspecifiedCortex-M33Cortex-M33.JnspecifiedCortex-M33Cortex-M33.JnspecifiedCortex-M33Cortex-M33.JnspecifiedCortex-R4Cortex-R5.JnspecifiedCortex-R5JnspecifiedCortex-R5JnspecifiedCortex-R5JnspecifiedCortex-R5JnspecifiedCortex-R5JnspecifiedCortex-R5JnspecifiedCortex-R5JnspecifiedCortex-R5JnspecifiedCortex-R5JnspecifiedRXRXAbovAC33M6128LCortex-M3128 KB12 KBAbovAC33M8128LCortex-M3128 KB12 KBActelA2F060M3ECortex-M3128 KB16 KBActelA2F060M3ECortex-M3256 KB16 KB | Unspecified | Cortex-M0 | Cortex-M0 | 20 | - |
| JnspecifiedCortex-M1Cortex-M1-JnspecifiedCortex-M3Cortex-M3-JnspecifiedCortex-M4Cortex-M4-JnspecifiedCortex-M7Cortex-M7-JnspecifiedCortex-M33Cortex-M33-JnspecifiedCortex-M33Cortex-M33-JnspecifiedCortex-R4Cortex-M33-JnspecifiedCortex-R5JnspecifiedCortex-R5JnspecifiedCortex-R5JnspecifiedRXRXJnspecifiedRXRXJnspecifiedCortex-R5Cortex-R5JnspecifiedRXRXAbovAC33M6128LCortex-M3128 KB12 KBAbovAC33M8128Cortex-M3128 KB12 KBAbovAC33M8128LCortex-M3128 KB12 KBActelA2F060M3ECortex-M3128 KB16 KBActelA2F060M3ECortex-M3256 KB16 KB | Inspecified | Cortex-M0+ | Cortex-M0 | ¥6 | ÷ |
| Jnspecified Cortex-M3 Cortex-M3 - Jnspecified Cortex-M4 Cortex-M4 - - Jnspecified Cortex-M7 Cortex-M7 - - Jnspecified Cortex-M23 Cortex-M23 - - Jnspecified Cortex-M33 Cortex-M33 - - Jnspecified Cortex-M33 Cortex-M33 - - Jnspecified Cortex-R4 Cortex-R4 - - Jnspecified Cortex-R5 Cortex-R5 - - Jnspecified RX RX - - Abov AC33M6128L Cortex-M3 128 KB 12 KB Abov AC33M8128 Cortex-M3 128 KB 12 KB Abov AC33M8128L Cortex-M3 128 KB 12 KB Actel A2F060M3E Cortex-M3 128 KB 16 KB Actel A2F060M3E Cortex-M3 256 KB 16 KB | Unspecified | Cortex-M1 | Cortex-M1 | | ź |
| Jnspecified Cortex-M4 Cortex-M4 - Jnspecified Cortex-M7 Cortex-M7 - Jnspecified Cortex-M23 Cortex-M23 - Jnspecified Cortex-M33 Cortex-M33 - Jnspecified Cortex-M33 Cortex-M33 - Jnspecified Cortex-R4 - - Jnspecified Cortex-R5 - - Jnspecified Cortex-R4 - - Jnspecified Cortex-R5 - - Jnspecified RX RX - Abov AC33M6128L Cortex-M3 128 KB 12 KB Abov AC33M8128L Cortex-M3 128 KB 12 KB Abov AC33M8128L Cortex-M3 128 KB 12 KB Actel A2F060M3E Cortex-M3 128 KB 16 KB Actel A2F060M3E Cortex-M3 256 KB 16 KB | Inspecified | Cortex-M3 | Cortex-M3 | 20. | 2 |
| Jnspecified Cortex-M7 Cortex-M7 - Jnspecified Cortex-M23 Cortex-M23 - Jnspecified Cortex-M33 Cortex-M33 - Jnspecified Cortex-M33 Cortex-R4 - Jnspecified Cortex-R5 - - Jnspecified Cortex-R5 - - Jnspecified RX RX - Jnspecified RX RX - Abov AC33M6128L Cortex-M3 128 KB 12 KB Abov AC33M8128 Cortex-M3 128 KB 12 KB Abov AC33M8128L Cortex-M3 128 KB 12 KB Abov AC33M8128L Cortex-M3 128 KB 12 KB Actel A2F060M3E Cortex-M3 128 KB 16 KB Actel A2F060M3E Cortex-M3 256 KB 16 KB | Jnspecified | Cortex-M4 | Cortex-M4 | 25 | ÷ |
| Jnspecified Cortex-M23 Cortex-M23 - Jnspecified Cortex-M33 Cortex-M33 - Jnspecified Cortex-R4 Cortex-R4 - Jnspecified Cortex-R5 - - Jnspecified Cortex-R5 - - Jnspecified RX RX - Jnspecified RX RX - Abov AC33M6128L Cortex-M3 128 KB 12 KB Abov AC33M8128 Cortex-M3 128 KB 12 KB Abov AC33M8128L Cortex-M3 128 KB 12 KB Abov AC33M8128L Cortex-M3 128 KB 12 KB Actel A2F060M3E Cortex-M3 128 KB 16 KB Actel A2F060M3E Cortex-M3 256 KB 16 KB | Inspecified | Cortex-M7 | Cortex-M7 | 8 | ÷ |
| Jnspecified Cortex-M33 Cortex-M33 - Jnspecified Cortex-R4 Cortex-R4 - Jnspecified Cortex-R5 - - Jnspecified RX - - Abov AC33M6128L Cortex-M3 128 KB 12 KB Abov AC33M8128 Cortex-M3 128 KB 12 KB Abov AC33M8128L Cortex-M3 128 KB 12 KB Abov AC33M8128L Cortex-M3 128 KB 12 KB Abov AC33M8128L Cortex-M3 128 KB 12 KB Actel A2F060M3E Cortex-M3 128 KB 16 KB Actel A2F060M3E Cortex-M3 256 KB 16 KB | Jnspecified | Cortex-M23 | Cortex-M23 | | |
| Jnspecified Cortex-R4 Cortex-R4 - Jnspecified Cortex-R5 Cortex-R5 - Jnspecified RX - - Jnspecified RX - - Abov AC33M6128L Cortex-M3 128 KB 12 KB Abov AC33M8128L Cortex-M3 128 KB 12 KB Abov AC33M8128L Cortex-M3 128 KB 12 KB Abov AC33M8128L Cortex-M3 128 KB 12 KB Abov AC30M8128L Cortex-M3 128 KB 12 KB Actel A2F060M3E Cortex-M3 128 KB 16 KB Actel A2F060M3E Cortex-M3 256 KB 16 KB | Unspecified | Cortex-M33 | Cortex-M33 | 20 | 2 |
| Jnspecified Cortex-R5 Cortex-R5 | Jnspecified | Cortex-R4 | Cortex-R4 | 83) 83 | 4 |
| Unspecified RX RX - Abov AC33M6128L Cortex-M3 128 KB 12 KB Actel A2F060M3E Cortex-M3 128 KB 16 KB Actel A2F060M3E Cortex-M3 256 KB 16 KB | Unspecified | Cortex-R5 | Cortex-R5 | 8 | × |
| Abov AC33M6128L Cottex:M3 128 KB 12 KB Abov AC33M6128 Cortex:M3 128 KB 12 KB Abov AC33M6128 Cortex:M3 128 KB 12 KB Abov AC33M6128L Cortex:M3 128 KB 12 KB Actel A2F060M3E Cortex:M3 128 KB 16 KB Actel A2F060M3E Cortex:M3 256 KB 16 KB | Unspecified | RX | RX | | |
| Abov AC33M8128 Cortex:M3 128 KB 12 KB Abov AC33M8128L Cortex:M3 128 KB 12 KB Actel A2F060M3E Cortex:M3 128 KB 16 KB Actel A2F060M3E Cortex:M3 128 KB 16 KB Actel A2F060M3E Cortex:M3 256 KB 16 KB | Abov | AC33M6128L | Cortex-M3 | 128 KB | 12 KB |
| Abov AC33M8128L Cortex-M3 128 KB 12 KB Actel A2F060M3E Cortex-M3 128 KB 16 KB Actel A2F060M3E Cortex-M3 128 KB 16 KB Actel A2F060M3E Cortex-M3 256 KB 16 KB | Abov | AC33M8128 | Cortex-M3 | 128 KB | 12 KB |
| Actel A2F060M3E Cortex:M3 128 KB 16 KB Actel A2F060M3E Cortex:M3 256 KB 16 KB | Abov | AC33M8128L | Cortex-M3 | 128 KB | 12 KB |
| Actel A2E060M3E Contex=M3 256.KB 1.6.KB | Actel | A2F060M3E | Cortex-M3 | 128 KB | 16 KB |
| | Actel | A2E060M3E | Cortex-M3 | 256 KB | 16 KB |

以 STM32F407ZG 型号芯片为例, 点 ok

| Wel | Target Device | 3 |
|-----|------------------------------|---|
| Ple | ST STM32F407ZG | |
| C | Little endian 💌 | 1 |
| | | |
| | Target Interface Speed (kHz) | |
| | SWD - 4000 - | |
| | | |
| | | |

点 jflash 菜单栏的 Option——Project settings,出现如下窗口,点 Target Interface,修改速度, 一般两个速度都选 Auto selection,点应用。

| SwD SwD speed before init steps Auto selection Here Auto selection Here Auto selection Here Auto selection Here Here | General larget interface MCU | Flash Production | |
|--|---|--|--|
| | SWD Speed before init steps Auto selection C 4000 Y kHz | SWD speed after init steps • Auto selection • 4000 • kHz | |
| | | | |
| | | | |
| | | | |

接着点 MCU,确认 Device 处的型号是否为你的开发板上的芯片型号,确认无误后点确定。

| | | | | <u>β</u> Σ |
|--|---------------|------------|--|------------|
| General Target | Interface MCU | Flash Pr | roduction | |
| 🔲 Use J-Link scri | pt file | | | |
| Device ST STM32F407ZC Core Cortex-M4 Little endian | 3 | ۲ ۱ | Check core ID ID 4BA00477 Mask 0F000FFF Use target RAM (faster) Addr 20000000 128 KB | |
| Init steps # Action | | Value1 | Comment | |
| Lan Land | | * | | |
| | | | | |
| | | | | |
| | | | | |
| Add | nsert Delet | e Edit | Up Down | |
| Add | Insert Delet | e Edit | Up Down | |
| Add | Insert Delet | e Edit | Up Down | |
| Add | Insert Delet | e Edit | Up Down | |
| Add | Insert Delet | e Edit | Up Down | |

接着,点击 Target——Connect,出现下面窗口,点是:



会看到下面提示 Connected successfully,表明开发板、仿真器、电脑 3 者连接成功,可以进行烧录测试了:

| LOG | | | |
|--|-----------|---------------------|----------------|
| List of MCU devices read successfully (6261 Devices) Creating new project New project created successfully Connecting | | | |
| Connecting via USB to J-Link device 0 Target interface speed: 2000 kHz (Auto) Vlarget = 3.280V Initializing CPU core (Init sequence) Initialized successfully Target interface speed: 2000 kHz (Auto) Connected successfully | | | а Ш |
| | | | ▼ h. 4 |
| Ready | Connected | Core Id: 0x2BA01477 | Speed: 2000 kH |

| Generate test (| data | |
|------------------|---------|--------|
| Start Addr (hex) | 8000000 | ок |
| Max. size (hex) | 100000 | Cancel |

点确定



烧录测试如下步骤,点击 Target——Text——Generate text data,出现如下图,点 ok

| | w p | Test data | (ge | nera | ted l | oy J-I | Flash |) * | | | | | | | | | | | |
|-----------------|------------------------------|-----------|-------|------------|-------|--------|-----------|------------|------|----|-----------|------------|---------|----|-----------|----|----|---------|-------------|
| Name | Value | Address: | 0x800 | 10000 | i. | _ | x1 | x2 | x4 | | | | | | | | | | |
| lost connection | USB [Device 0] | Addusse | a | | 2 | 2 | 4 | | ···· | 9 | 0 | 0 | • | р | C | D | F | P | 00011 |
| arget interface | SWD | 800000 | 00 | 08 | 60 | 20 | 91 001 | 9 04 | 0 | 08 | 11 | 94 | н 00 | D | 11 | 04 | 00 | г 08 | HOULI |
| nit SWD speed | Auto recognition | 8000010 | 21 | 04 | 00 | 69 | 21 | 04 | 00 | 60 | 21 | 04 | 00 | 60 | 21 | 04 | 00 | 90 | • • • • |
| WD speed | Auto recognition | 9000010 | 41 | 01 | 00 | 60 | 41 | 84 | 00 | 00 | 51 | 01 | 00 | 60 | 51 | 01 | 00 | 60 | 0 0 0 0 |
| ICU. | ST STM32E4072G | 0000020 | 11 | 04 | 00 | 00 | 41 | 01 | 00 | 00 | 74 | 04 | 00 | 00 | 51 | 04 | 00 | 00 | |
| ore | Cortex-M4 | 8000030 | 61 | 04 | 00 | 60 | 61 | 04 | 00 | 80 | ~1 | 04 | 00 | 68 | 71 | 04 | 00 | 08 | aqq |
| Indian | Little | 8000040 | 81 | 04 | อด | 68 | 81 | 64 | อด | 68 | 91 | 04 | ผผ | 68 | 91 | 64 | 99 | 68 | |
| heck core ID | Yes (0x4BA00477) | 8000050 | A1 | 04 | 00 | 08 | A1 | 04 | 00 | 08 | B1 | 04 | 00 | 08 | B1 | 04 | 00 | 08 | |
| Jse target RAM | 128 KB @ 0x20000000 | 8000060 | C1 | 04 | 00 | 08 | C1 | 04 | 00 | 08 | D1 | 04 | 00 | 08 | D1 | 04 | 00 | 08 | |
| lash as easier | Laboration of Local D | 8000070 | E1 | 04 | 00 | 08 | E1 | 04 | 00 | 08 | F1 | 04 | 00 | 08 | F1 | 04 | 00 | 08 | |
| lash memory | Internal bank u 0v8000000 | 8000080 | 01 | 05 | 00 | 08 | 01 | 05 | 00 | 08 | 11 | 05 | 00 | 08 | 11 | 05 | 00 | 08 | |
| lash size | 1024 KB | 8000090 | 21 | 05 | 00 | 08 | 21 | 05 | 00 | 08 | 31 | 05 | 00 | 08 | 31 | 05 | 00 | 08 | !! |
| | | 80000A0 | 41 | 05 | 00 | 08 | 41 | 05 | 00 | 08 | 51 | 05 | 00 | 08 | 51 | 05 | 00 | 08 | AAQQ |
| | | 8000080 | 61 | 05 | ØØ | 08 | 61 | 05 | ØØ | 08 | 71 | 05 | ØØ | 08 | 71 | 05 | ØØ | 08 | aa |
| | | 8000000 | 81 | 05 | 00 | 08 | 81 | 05 | ØЙ | 08 | 91 | 05 | 00 | 08 | 91 | 05 | 00 | ØR | |
| | | 9000000 | 01 | 00 | 00 | 60 | 01 | 00 | 00 | 60 | Di | 00 | 00 | 60 | D1 | 00 | 00 | 60 | |
| | | 0000000 | 01 | 05 | 00 | 00 | | 05 | 00 | 00 | DI | 05 | 00 | 00 | DI | 05 | 00 | 00 | |
| | | 80000E0 | UI . | 05 | 00 | 08 | CI. | 05 | 00 | 08 | DI | 05 | 66 | 08 | DI | 05 | 00 | 08 | |
| | | 80000F0 | EI | 05 | 99 | 68 | EI | 05 | 99 | 68 | FI | 05 | 99 | 68 | F1 | 05 | 99 | 68 | |
| | | 8000100 | 01 | N e | NN | 68 | 61 | N e | NN | 68 | 11 | N e | NN | 68 | 11 | 66 | ии | 68 | |
| | | 8000110 | 21 | 06 | 00 | 08 | 21 | 06 | 00 | 08 | 31 | 06 | 00 | 08 | 31 | 06 | 00 | 08 | !!11 |
| | | | 44 | 00 | - | | | | | | | | - | | | | | | |

接下来,出现如下一大串数字画面,是正常的

接着按 F7 会出现如下图,说明这是在烧录:

| :0000000 | 8000060 | C1 | 04 | 00 | 08 | C1 | 04 | 00 | Ø8 | D1 | 04 | 00 | 08 | D1 | 04 | 00 | 08 | |
|----------|-----------------------|-------|--------|-------|--------|-------|--------|--------|--------|--------|----|---------|------|----|----|----|----|-----|
| | 8000070 | F1 | 04 | ØØ | 08 | F1 | 04 | ØØ | 08 | F1 | 04 | ØØ | 08 | F1 | 04 | 00 | 08 | |
| J.; | J-Flash | - | | - | | | - | | | | - | and the | - 23 | | 05 | 00 | 08 | |
| | E. S. Level | | | | | | | | | | | | | 05 | 00 | 08 | 11 | |
| | Erasing target memory | | | | | | | | | | | | | 05 | 00 | 08 | AA | |
| | Erasing ra | nae (| ພດຊຸດ: | 20000 | i. nvr | 18035 | EEE (| | or 12 | 9 K B | i | | | | 05 | 00 | 08 | aa |
| | Lidsing id | nge o | 10002 | 20000 | 0.000 | 1 | 2% | 1 3000 | 01, 12 | .0 1.0 | , | | | | 05 | 00 | 08 | |
| | | | | | | | ****** | | | | | | | | 05 | 00 | 08 | |
| | | | | | | | | 10 | | | | | | | 05 | 00 | 08 | |
| | | | | | | Ca | ncel | | | | | | | | 05 | 00 | 08 | |
| | | | _ | _ | | | - | | | | - | | - | | 06 | 00 | 08 | |
| | 8000110 | 21 | 06 | 00 | 08 | 21 | 06 | 00 | 08 | 31 | 06 | 00 | 08 | 31 | 06 | 00 | 08 | 11 |
| | 8000120 | 41 | 96 | 00 | ØQ | 41 | 96 | ØØ | ØQ | 51 | 96 | 00 | ØQ | 51 | 96 | 00 | ØQ | 0 0 |

出现这个窗口时,说明烧录成功,点确定:



看到如下图最后一行字,说明烧录测试成功,仿真器正常运行:

| | 8000100 | 01 | 06 | 00 | 08 | 01 | 06 | 00 | 08 | 11 | 06 | 00 | 08 | 11 | 06 | 00 | 08 | | | | | |
|---|--|------|----------|-------|----------|------|----------|-------|----|----|----------|----|----------|----|----------|----|----------|---|-------|----|----|-------|
| | 8000110 | 21 | Ø6 Ø6 | 00 | Ø8 Ø8 | 21 | Ø6 Ø6 | 00 | 08 | 31 | Ø6 Ø6 | 00 | Ø8 Ø8 | 31 | Ø6 Ø6 | 00 | Ø8 Ø8 | ! | - ! | .1 | .1 | - |
| LOG | | | | | | | | | | | | | | | | | | | - end | | | 23 |
| - Flash programming performed for 3 rs - 0x8000000 - 0x000FFFF (004 Sectors, - 0x8010000 - 0x801FFFF (001 Sectors, - 0x8020000 - 0x801FFFF (007 Sectors, - Start of verifying flash - End of verifying flash - Start of restoring - End of restoring - End of restoring | nges (1048576 64 KB) 44 KB) 896 KB) | byte | s) | | | | | | | | | | | | | | | | | | | * |
| - De-initialized successfully | | | | | | | | | | | | | | | | | | | | | | |
| larget erased, programmed and verifi | ed successful. | Ly - | Compi | .etec | 1 art | er Z | 6. UZ1 | 9 sec | | | | | | | | | | | | | | - |
| 10 | | | | | | | | | | | | | | | | | | | | | | - |
| | | | | | | | | | | | | | | | | | | | | | | P att |

12.4 虚拟串口的使用





SWD接口

仿真器的 5 脚接为 Tx 脚,需要接到调试的单片机串口的 Rx 脚, 17 脚为 Rx 脚,需要接外部单片机的 Tx 脚。到此,上位机可以通 过以串口与你需要调试单片机的串口通信了。

第13章 Hlink Mini 的使用方法

Jlink v9 Mini 是 Jlink v9 的全功能缩小版,功能全,接口包括 jtag swd swo 虚 拟串口。

支持 2.5v-5v 的各种 ARM 类型的 CPU 程序下载 仿真调试

有完善的 usb 保护和输出 swd 接口的 tvs 保护。

支持固件自由升级和降级。

更加难能可贵的是本产品通过优化硬件电路和固件,做到不掉固件,就是故意将 固件擦掉都办不到呀。

与单片机的接口电路(单片机在左边,右边为仿真器)



SWD 接口只需要 4 条线, JTAG 接口则需要接 SWD 接口的 4 条线, 外加黄色的 几条线。其中有很多单片机不提供 TRST 线,则这个线可以不接。RXD TXD 则 是虚拟串口线,接外部单片机的 TXD RXD 线。虚拟串口在 JTAG 模式下不可用。

Jlink-OB 是一种简化版本的 Jlink 仿真器,支持 SWD 接口程序下载和仿真调试, 支持 JFlash.exe 烧写软件,效果非常不错。JLink-OB SWD 接口接法也参照上图。

第14章, jlink 设备硬件的缺陷检测与维修

14.1 缺陷检测

方法适用于 v9 仿真器,也适用于 v8. 下面以 v9 为例说明。

Hlink 的损坏原因主要有 2 种,一种是芯片损坏,另一种是虚焊,以第二种损坏居多。下面 只是判断虚焊问题。发现虚焊请自行焊接。

1 Hlink 输出接口

| VREF | 1 | | | 2 | vcc3.3\ | VREI | = 1 | | 2 | vcc3.3 | V |
|-------|-----|---|---|-----|---------|-------|-----|----|----|--------|---|
| TRST | 3 | | | 4 | GND | N/U | 3 | | 4 | GND | 1 |
| TDI | 5 | | | 6 | GND | ТХ | 5 | | 6 | GND | 4 |
| TMS | 7 | | | 8 | GND | SWDIO | 7 | | 8 | GND | 1 |
| TOLK | | - | _ | Ĭ., | CND | SWCLK | 9 | | 10 | GND | |
| ICLK | . 9 | u | u | 10 | GND | N/U | 11 | | 12 | GND | |
| RTCK | 11 | | | 12 | GND | swo | 13 | | 14 | GND | |
| TDO | 13 | | | 14 | GND | RESET | 15 | | 16 | GND | |
| RESET | 15 | | | 16 | GND | RX | 17 | | 18 | GND | 1 |
| N/C | 17 | | | 18 | GND | 5V | 19 | | 20 | GND | 1 |
| 5V | 19 | | | 20 | GND | | | | | | |
| | | | | l | | S | ND | 接口 | | | |

JTAG接口



特别注意:对于隔离型的仿真器,您需要给1脚3.3v或者5v电压

3 仿真器接电脑,不要接开发板。打开 jlink.exe.这个程序在安装 jlink-windowse.Exe 后得到 SWD 接口状况有下列命令可用

tck0Clear TCK即 tck0 脚应该输出低电平9 脚tck1SetTCK 即 tck0 脚应该输出高电平9 脚

t0 Clear TMS(swdio) 7 脚

t1 Set TMS (swdio)7脚

以上用于 SWD 接口, JTAG 接口还需要下面的命令

| 0 | Clea | r TDI |
|-------|--------------------|-------|
| 1 | Set | TDI |
| trst0 | Clear ⁻ | TRST |
| trst1 | Set | TRST |
| r0 | Clear | RESET |
| r1 | Set | RESET |

在界面中分别输入 上面的命令(比如 tck0 命令后回车就使得 tck 脚输出低电平),配合万用 表测量各输出脚 的电压,然后参考原理图,大概就可以判断哪个脚或者哪个 ic 虚焊或者损 坏。

如果使用 swd 接口,只需要测量 tck、 tms 和 reset 几个脚,

使用 tck0 tck1 t0 t1 等4 个命令



上面的界面中,显示仿真器输入参考电压为 3.3v,如果小于 2.5v,则说明

请注意;每一次仿真器 usb 拔插,这个 软件就会失效,需要重新打开

14.2 红灯的解决方法

14.2.1 未接开发板

未接开发板,如果仿真器显示红灯,则说明仿真器 15 脚电压不足 2v。原因可能是 1 脚电压 不足,也可能是 15 脚复位脚电压异常。

如果1脚电压不对,可考虑将内部电源输出的电压3.3v直接接到1脚。

如果是 **15** 脚电压不对,建议**将连接 15 脚的三极管 8550 直接替换掉**,如果暂时没有这个三极管,也可暂时将这个三极管去掉而恢复仿真器的使用。

14.2.2 接了开发板的情况

如果仿真器接了开发板闪红灯,则需要测量仿真器1脚和15脚电压。

1 脚是用于检测外部被烧写电路电压的,一般为 3.3v 或者 5v。缺省状态因为有上拉电阻而为 3.3v。

如果1脚电压过低,请检查外部电路是否已经接到3.3v或者5v电压。

技术支持:

金鹏电子

qq: 2586676218

电话 17158800596