嵌入式开发环境搭建与程序烧写方法

一、安装 ST-LINK 驱动程序

打开专业版技术资料内的开发环境和软件安装包,ST-LINK 驱动目录,安装 STLINK 驱动,默认选项及安装即可。



安装完成后,桌面有 STM32 ST-LINK Utility 图标



二、安装及破解 Keil MDK5

打开专业版技术资料内的开发环境和软件安装包, KEIL MDK 5.25 目录, 双击 mdk525.exe 安装 MDK 主程序。

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□ 📴 2020版keil最新注册机.zip 2022-03-14 19:32 zip文件 23KB	
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点击 Next。

Setup MDK	-ARM V5.15
Welcome to Keil MDK-ARM Release 5/2015	ARM °KEIL Microcontroller Tools
This SETUP program installs:	
MDK-ARM V5.15	
This SETUP program may be used to update a previ However, you should make a backup copy before p	ious product installation. roceeding.
It is recommended that you exit all Windows program	s before continuing with SETUP.
Follow the instructions to complete the product instal	lation.
Keil MDK-ARM Setup	
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打勾,然后点击 Next

icense Agreement	ARM [®] KEIL [®]
Please read the following license agreement carefully.	Microcontroller Tools
To continue with SETUP, you must accept the terms of the Lin agreement, click the check box below.	ense Agreement. To accept the
END USER LICENCE AGREEMENT FOR MDK-ARM	^
THIS END USER LICENCE AGREEMENT ('LICEN	CE") IS A LEGAL AGREEMENT
BETWEEN YOU (EITHER A SINGLE INDIVIDUAL, O	R SINGLE LEGAL ENTITY) AND
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LICENCE. ARM IS ONLY WILLING TO LICENSE	THE SOFTWARE TO YOU ON
CONDITION THAT YOU ACCEPT ALL OF THE T	TERMS IN THIS LICENCE. BY
CLICKING "I AGREE" OR BY INSTALLING OR OTH	IERWISE USING OR COPYING V

选择安装路径,建议默认即可,点击 Next

Setup MDK-ARM	V5.15
Folder Selection Select the folder where SETUP will install files.	ARM [®] KEIL Microcontroller Tools
Press 'Next' to install MDK-ARM to these folders. Press 'Brows Destination Folders Core: CoXe3 - 5	rse' to select different folders for installation.
Pack: [C:\KeiLv5\ARM\PACK	BIowse
Update Installation: Create backup tool folder	
Keil MDK-ARM Setup	

填写自身信息,点击 Next

Customer Information Please enter your information.		ARM [®] KEIL Microcontroller Tools
Please enter your i	name, the name of the company f	or whom you work and your E-mail address.
and the second s		
First Name:	fda	
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等待安装结束即可安装完毕

Setup N	IDK-ARM V5.15
Setup Status	ARM [®] KEIL [®] Microcontroller Tools
MDK-ARM Setup is performing the requested o	perations.
Install Files	
Installing c_4eu.b.	
– Keil MDK-ARM Setup –	Kext Stancel

点击 Finsh 完成安装

Keil MDK-ARM Setup completed MDK-ARM V5.15	ARM [®] KEIL [®] Microcontroller Tools
MDK-ARM Core Setup has performed all requested op	erations successfully.
Show Release Notes.	
\	
N	N N
Keil MDK-ARM Setup	

安装完成后,软件会自动启动,然后会弹出 PACK 安装向导,先将 它关闭。点击 OK,点击是。

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然后在桌面会得到 keil5 的图标,右键选择以管理员身份运行。打

开后点击 File->LicenseManagement

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打开资料包内的破解文件 keygen.exe



将复制的代码填入,并且选择 ARM



点击 Generate,将生成的序列号复制。

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Keil Embedded Workbench
-Keygen License Details CID: CCBEE-DNPJJ Target ARM MDK Professional
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返回 MDK,粘贴到 new license ID code,点击 Add LIC。出现如 图所示表示破解完成。

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双击安装 PACK 包, 支持 F103 单片机

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mdk525.exe	2022-02-08 16:16	exe文件	837.42MB				

以上操作完成后, MDK 即安装完成

三、打开代码工程与编译代码

双击打开代码工程文件在程序目录/MDK-ARM 文件夹内

组织	新建	打开	选择		
D:) > work_code_project > RTLS1_	ULM1 > HR-RTLS1_ULM	1_20220324_V7.5	> HR-RTLS1 > MI	DK-ARM	
名称	修改日	期	类型	大小	
📜 DebugConfig	2022,	/3/24 8:39	文件夹		
📕 HR-RTLS1	2022,	6/10 13:36	文件夹		
📕 RTE	2022,	/3/24 8:39	文件夹		
EventRecorderStub.scvd	2022,	2/22 14:05	SCVD 文件		1 KB
HR-RTLS1.uvguix.sunhao	2022,	6/10 13:38	SUNHAO 文件	ŧ	174 KB
HR-RTLS1.uvoptx	2022,	/3/13 16:22	UVOPTX 文件		28 KB
🔣 HR-RTLS1.uvprojx	2022,	/3/7 13:57	礦ision5 Proje	ct	25 KB
startup_stm32f103xb.ist	2022,	/3/7 13:57	MASM Listing	l	38 KB
轖 startup_stm32f103xb.s	2022,	/3/7 10:08	Assembler So	urce	13 KB

打开工程后,首先点击如图按钮确认编译相关配置

lash Debug Peripherals Tools SVCS Window Help ▲ ッ ペ ← → 作 た た た た 様 準 準 /// //// 20 location 🖂 🗟 🌾 🍭 - 🕚 🔿 🚷 💼 - 🔦 s 🔨 📥 🖶 🔶 🐡 🌚 HR-RTLS1 д 🛛 //#define ULM3 //#define LD150 18 **CARM** 19 2f103xb.s //#define 10600 20 21 /********* ***** 22 ∃#if defined(ULM3) 23 #include "shared d #include "shared_defines.h"
#include "shared_functions.h" 24 25 26 #endif 27 //#define DEBUG //#define ANC_SYNC 28 //基站时间同步模式,占用1个sLor 29 30 #define SOFTWARE_VER
#define MAX_AHCHOR_NUMBER "V75" 4 //系统内最大基站数量,取4或者8,比\$ c 31 4 al_msp.c 32

编译器版本 V6.9 或以上

Option	ns for Tar Target (get 'HR-RTL Dutput List	S1' ing User	C/C++ (AC	6) Asm	Lin	ker Debug	Vtilities	×
STMicroelectronics STM32F103CB Xtal (MHz): 72.0			-Code C ARM	Generation Compiler:	V6.9				
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	IROM2:			0		IRAM2:		I	

Language C 选择 gnu99

Language C++ 选择 c++11

evice Target O	utput Listing User C/C++ (AC6) Asm Linker Debug Utilities	
Preprocessor Sym Define: USE_ Undefine:	bols HAL_DRIVER,STM32F103xB,NDEBUG	
Language / Code Execute-only C Optimization: -02 Link-Time Optim Split Load and One ELF Section	Generation Mamings: AC5-like Wamings Language C: gnu99 Image: Tum Wamings into Errors Language C++: c++11 Image: C++11 Image: Tum Wamings into Errors Language C++: c++11 Image: C++11 Image: Tum Wamings into Errors Image: C++: c++11 Image: C++: C++11 Image: Tum Wamings into Errors Image: C++: C++11 Image: C++: C++11 Image: C++: Image: Tum Wamings into Errors Image: C++: C++11 Image: C++: C++:	
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	OK Cancel Defaults Help	

点击编译按钮进行编译,显示0错误0警告即编译成功



四、连接 STLINK 模块和 UWB 模块

ULM1 和 ULM3 模块没有外壳, SWD 接口在板子上直接连接 STLINK 模块, 注意 4 条杜邦线——对应



LD150 和 LD600 模块有外壳,先用一字螺丝刀将顶盖撬开,再连接电路板上的 SWD 烧录接口





五、烧录固件

在 KEIL MDK 中点击 download 按钮,进行烧录,进度条显示 Application running ...烧录完成,并新程序运行。



如提示无法连接目标单片机,请检查接线是否正确,如确认接线正确,请尝试升级 STLINK 后再次连接。<u>(如果能烧录正常就不需要</u> <u>执行这个步骤! !!!)</u>

打开桌面 STM32 ST-LINK Utility 软件



点击 Device Connect, 提示升级固件版本后, 点击 Yes, 等待升级完成。

stm32 st-link Utility	×
File Edit View Target ST-LINK External Loader Help	
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Memory display	Device
Address: 0x08000000 V Size: 0x17300 Data Width: 32 bits V	Device ID Revision ID
Device Memory File : DE00 how	Flash size
Device Memory ST-Link Upgrade	×
Device Connect Current Firmware: Version: V2.J34.57 Type: STM32+STM8 Debugger	
Upgrade to Firmware: STM32+STM8	Debugger V2.J34.S7

升级时候,断开 STLINK 连接的任何设备,拔掉杜邦线,只 STLINK 连接电脑,关闭 KEIL MDK 等其他占用 STLINK 的软件!

升级方法视频:

https://www.bilibili.com/video/BV1fs4y1U7dZ/?share_source

=copy_web&vd_source=326b8753440a1de66b445316a1c032

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