STM32CubeIDE 入门教程

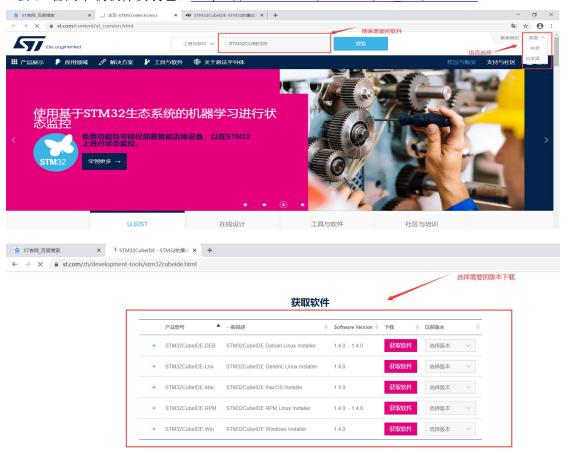
1.简介:

STM32CubeIDE 是一个高级 C/C++开发平台,具有用于 STM32 微控制器和微处理器的外设配置,代码生成,代码编译和调试功能。它基于 Eclipse®/CDT 框架和 GCC 工具链进行开发,并基于 GDB 进行调试。它允许现有几百插件是完成了 Eclipse 的功能整合® IDE。STM32CubeIDE 集成了 STM32CubeMX 的 STM32 配置和项目创建功能,以提供多合一的工具体验,并节省安装和开发时间。从选择板子或示例中选择空的 STM32 MCU 或 MPU 或预配置的微控制器或微处理器后,将创建项目并生成初始化代码。在开发过程中的任何时候,用户都可以返回外围设备或中间件的初始化和配置,并重新生成初始化代码,而不会影响用户代码。

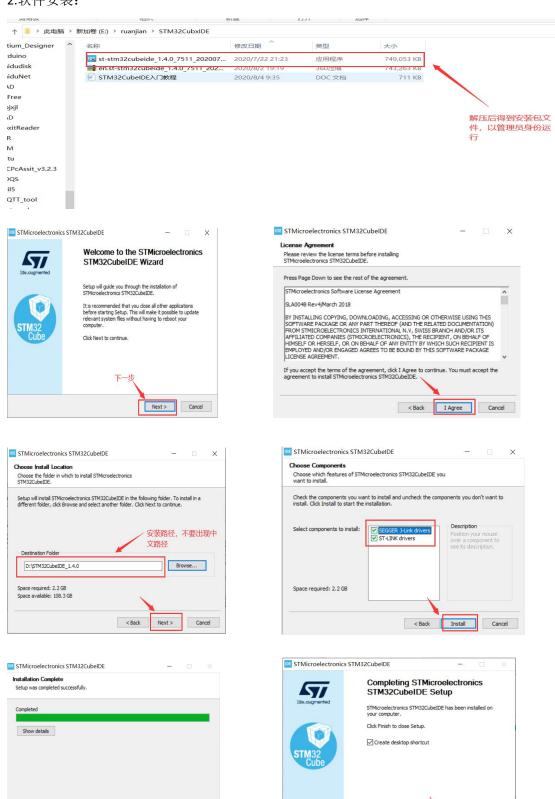
STM32CubeIDE 包括构建和堆栈分析器,可为用户提供有关项目状态和内存要求的有用信息。STM32CubeIDE 还包括标准和高级调试功能,包括 CPU 内核寄存器,存储器和外设寄存器的视图,以及实时变量监视,Serial Wire Viewer 接口或故障分析器。

2.安装教程

1.去 ST 官网下载软件安装包: https://www.st.com/content/st_com/en.html

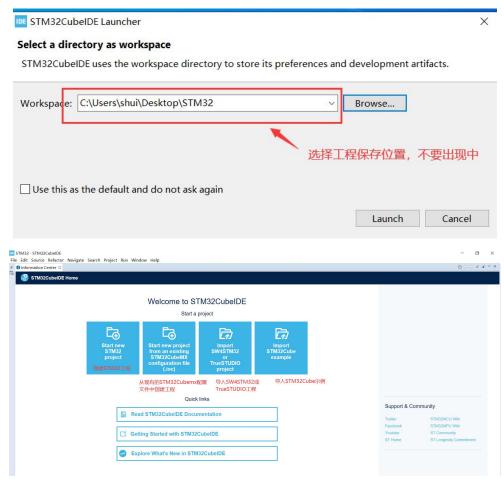


2.软件安装:



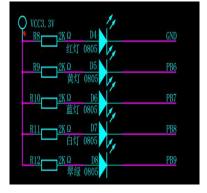
Next > Cancel

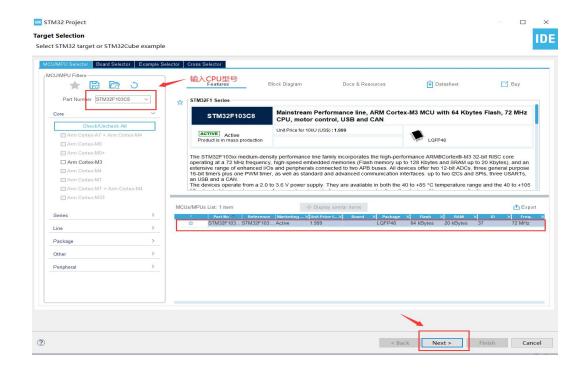
3.创建工程

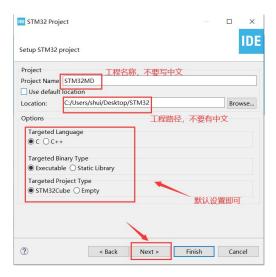


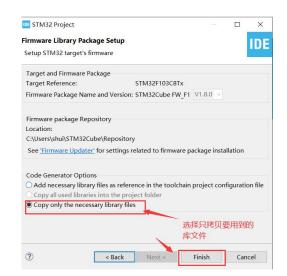
3.2 选择直接创建 STM32 工程,我们这里以 STM32F103C8 为例驱动 LED 灯。



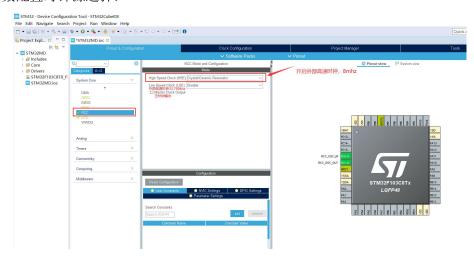




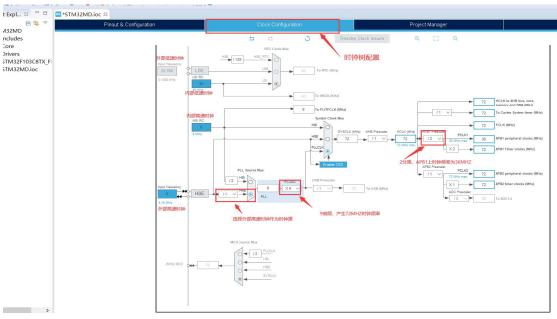




3.3 参数配置时钟源选择:

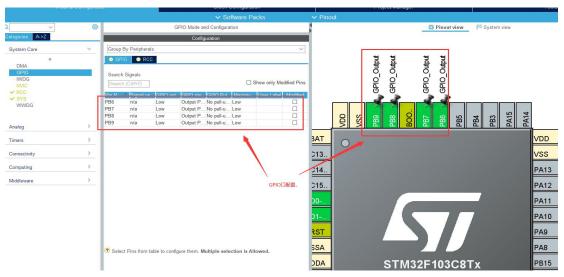


3.4 时钟树配置:

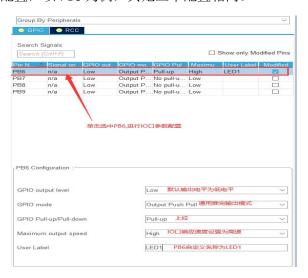


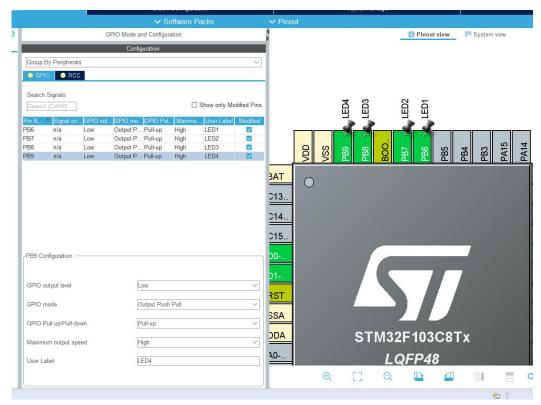
3.5 配置 GPIO 口,

LED1--PB6; LED2--PB7; LED3--PB8; LED4--PB9

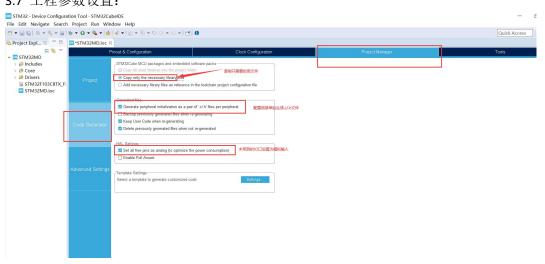


3.6 GPIO 口基本参数配置,以 PB6 为例,其她三个配置相同。

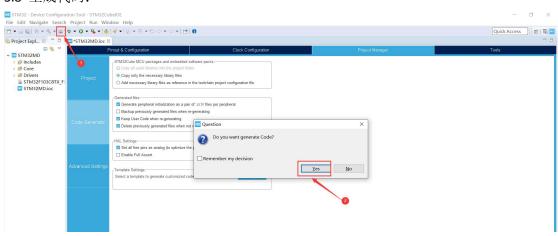




3.7 工程参数设置:



3.8 生成代码:



3.9 实现 500ms 闪烁一次:

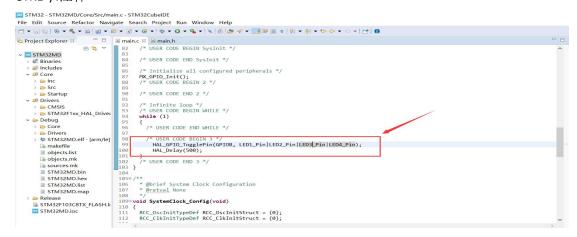
Alt+/: 补全代码

CTRL+ "-":缩小字体

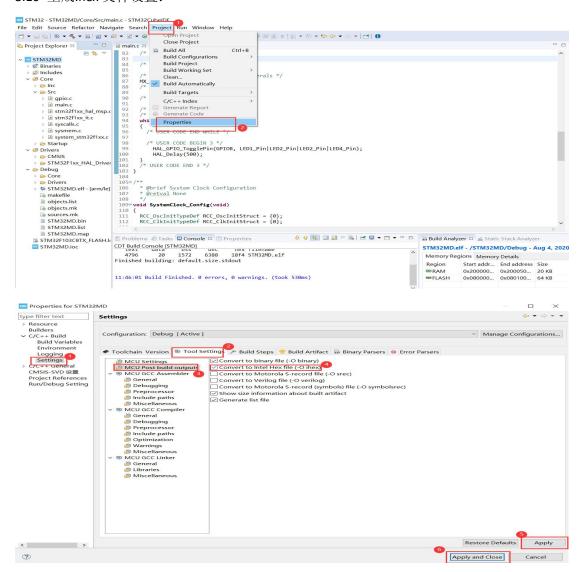
CTRL+SHIFT+"+":放大字体

CTRL+TAB: .c 和.h 文件切换

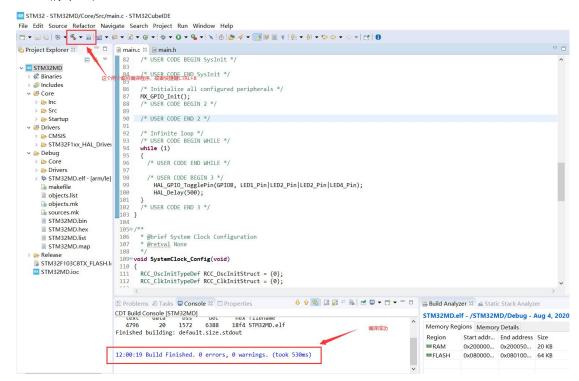
CTRL+/:注释



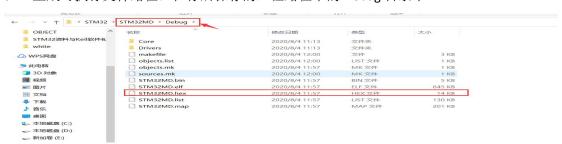
3.10 生成.hex 文件设置:



3.11 编译工程:

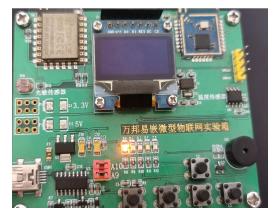


3.12 生成可执行文件路径: 在你所保存的工程路径下的 Debug 目录下



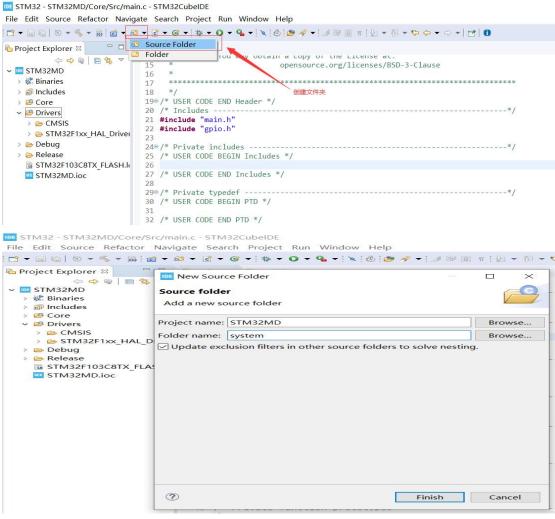
3.13 效果展示:



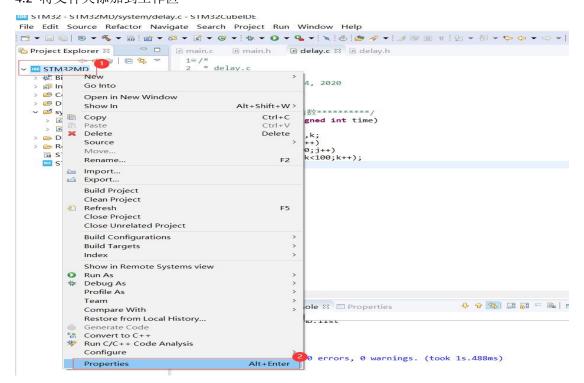


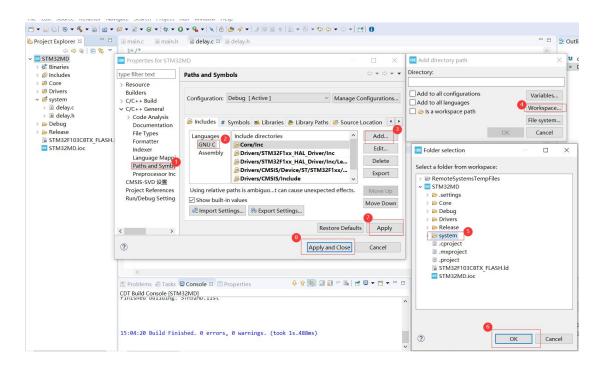
4. 自定义.c 和.h 文件

4.1 创建文件夹

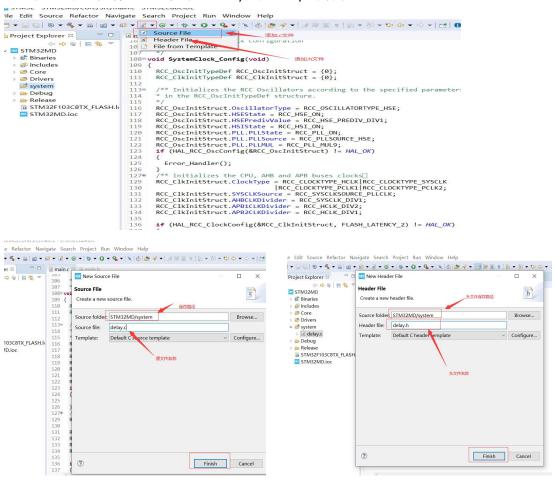


4.2 将文件夹添加到工作区





4.3 添加.c 和.h 文件: 这里以添加 delay.c 和 delay.h 为例:



```
STM32 - STM32MD/system/delay.h - STM32CubeIDE
                                                        File Edit Source Refactor Navigate Search Project Run Window Help
ile Edit Source Refactor Navigate Search Project Run Window Help
                                                        Project Explorer 🛭 📅 🗖 🙋 main.c 🕩 main.h 💪 delay.c 🕦 delay.h 🕮
b Project Explorer ⋈
             □ □ I main.c I main.h I delay.c ⊠ I delay.h
                                                                             1e/*
2 * delay.h
3 *
4 * Created on: Aug 4, 2020
5 * Author: shui
6 */

✓ I

STM32MD

✓ III STM32MD
 > & Binaries
> 1 Includes
                                                          > 🗱 Binaries
                                                          > 🔊 Includes
  Core
                                                          > 🐸 Core
  Drivers
                                                           Drivers
> system
> delay.c
> h delay.h
                                                                              8 #ifndef DELAY_H
9 #define DELAY_H
10 #include "main.h
  v 🛎 system
                                                            delay.c
                                                           > Debug
> Release
                                                          > 🗁 Debug
> 🗁 Release
                                                           STM32MD.ioc
                  16
17
```

4.4 调用用户自定义函数:

```
rile cuit source neiactor inavigate search project nun williuow meip
Project Explorer ♡ □ ☑ main.c ♡ ☑ main.h ☑ delay.c ☑ delay.h
                           11 *
12 * This software component is licensed by ST under BSD 3-Clause license,
13 * the "License"; You may not use this file except in compliance with the
14 * License. You may obtain a copy of the License at:
15 * opensource.org/licenses/BSD-3-Clause
          ♦ ♦ | □ ★ ▼
  > 🐉 Binaries
  > 🔊 Includes
  > 🐸 Core
  Drivers
                                *********************************
  v 🐸 system
                            > 🚨 delay.c
    > la delay.h
  > 🗁 Debug
  > 🗁 Release
    STM32F103C8TX_FLASH.le
                            240/* Private includes --
                                                                    包含用户自定义头文件,注意一定需要写在USER CODE BEGIN和
    STM32MD.ioc
                                /* USER CODE BEGIN Inqludes /
                                                                    USER CODE END之间,否则下次更新代码会被覆盖掉
                             26 #include "delay.h"
27 /* USER CODE END Includes */
                             28
                            290/* Private typedef -----
30 /* USER CODE BEGIN PTD */
   32 /* USER CODE END PTD */
                            340/* Private define
   □ □ ☑ main.c ≅ ☑ main.h ☑ delay.c ☑ delay.h
   STM32MD
                             /* Initialize all configured peripherals */
                            /* USER CODE BEGIN 3 */
HAL_GP10_Togg1ePin(GPIOB, LED1_Pin|LED2_Pin|LED3_Pin|LED4_Pin);
Delay_Init(500);
                        1055/**
106 * @brief System Clock Configuration
```

4.5 程序编译,下载到开发板