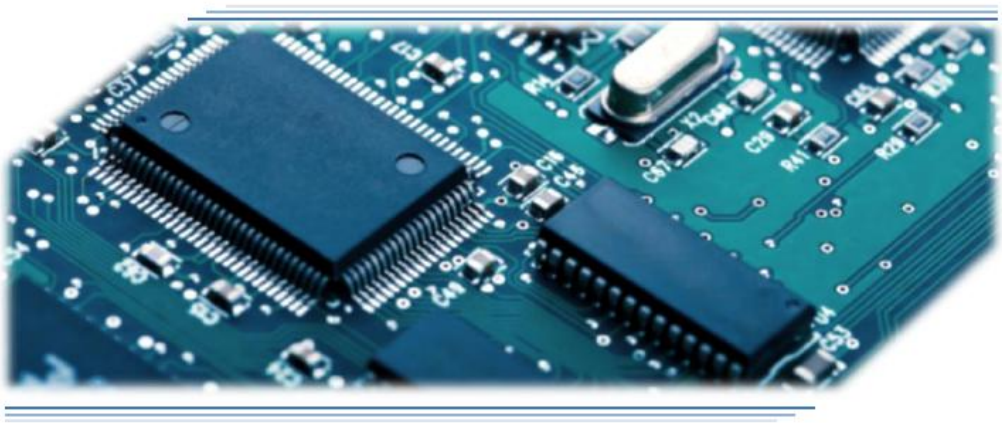
Eclipse GCC 安装与使用 V0.2



上海复旦微电子集团股份有限公司

Shanghai Fudan Microelectronics Group Company Limited

开发者论坛：http://www.fmdevelopers.com.cn

概述

Eclipse 是开源免费的集成开发环境，GCC 是编译 C/C++的开源免费编译器套件。使用 Eclipse+GCC 可以为嵌入式开发人员提供免费的 C/C++的编译和调试环境。本文主要描述在 windows7 环境下安装使用 Eclipse+GCC 开发复旦微芯片的流程。

版本

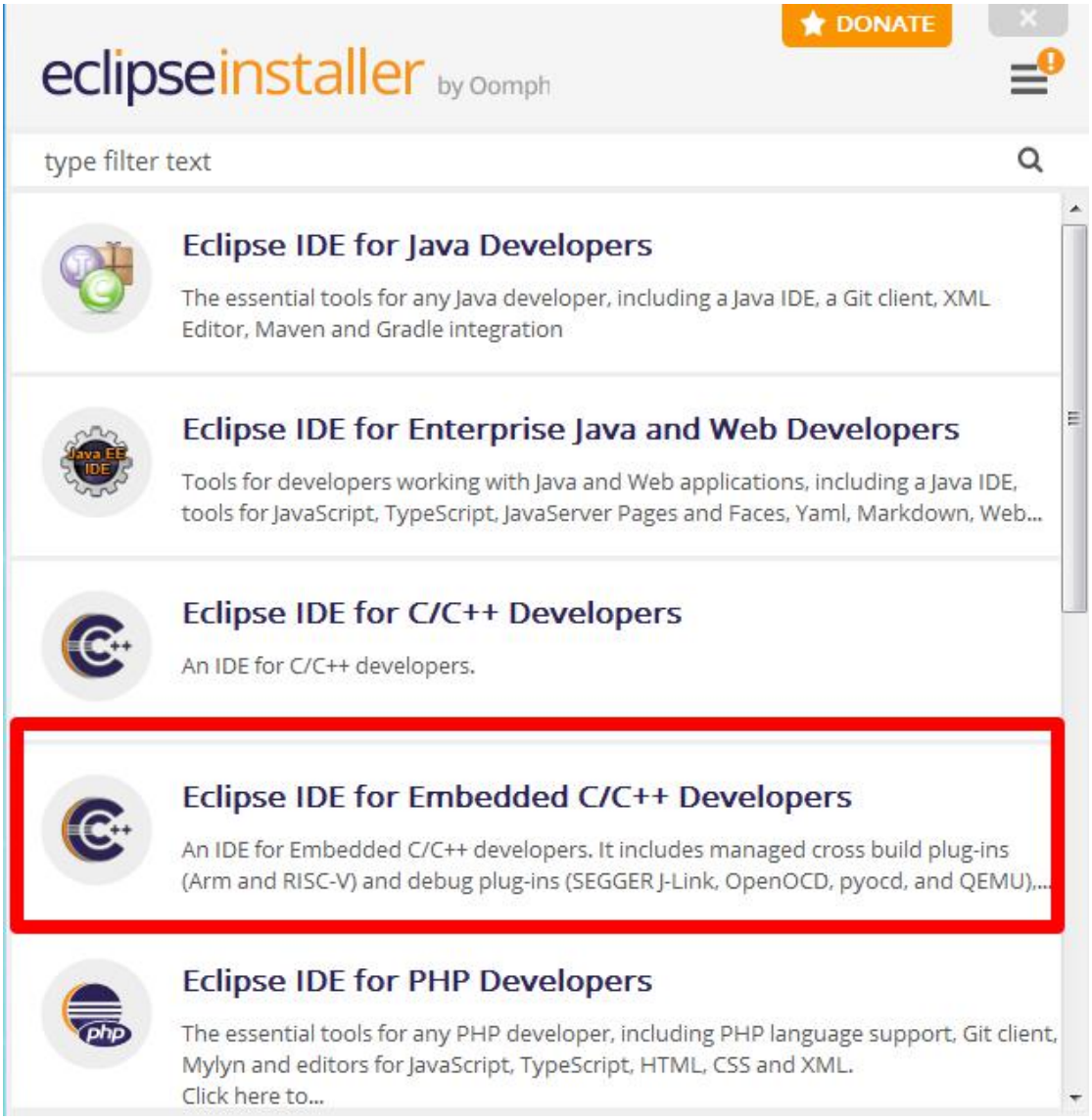
版本	时间	修改内容
初版	2021.6.11	
V0.1	2021.6.30	1 增加工程配置参数中 build steps 配置 2 增加 DEBUG 参数配置中 Startup 配置 3 增加仿真时显示外设寄存器窗口的步骤 4 修改 JLINK 工具软件版本
V0.2	22021.9.13	1 增加 DEBUG 参数配置中 FLASH 擦除命令的注释

软件安装

1 Eclipse 安装

下载地址：https://www.eclipse.org/downloads/

点击安装包，选择 Eclipse IDE for Embedded C/C++ Developers，选择默认选项进行安装。



2 gcc-arm-none-eabi 安装

下载地址：

https://developer.arm.com/tools-and-software/open-source-software/developer-tools/gnu-toolchain/gnu-rm/downloads

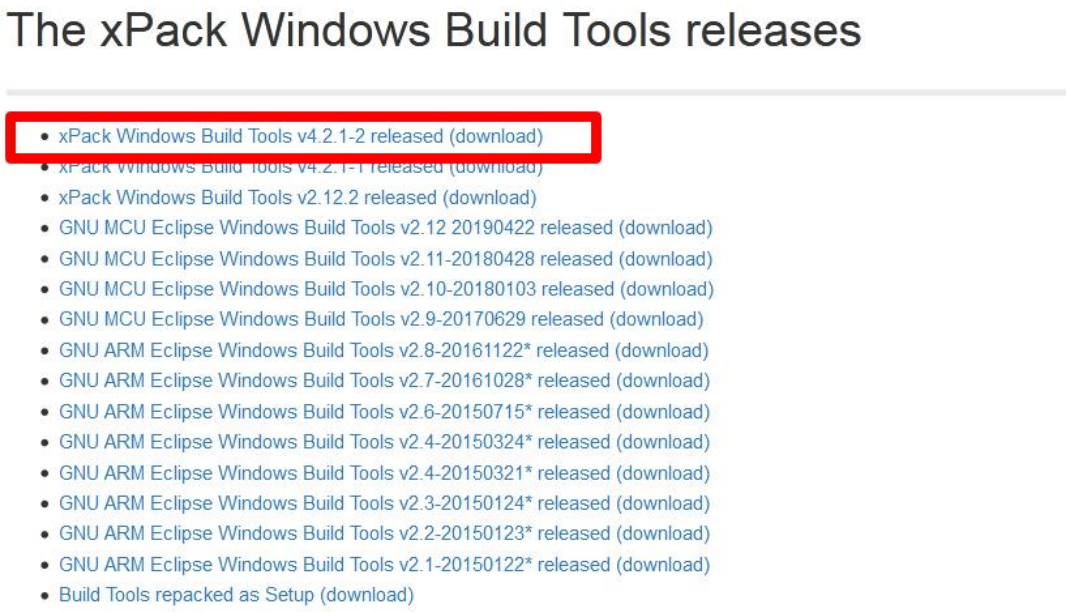
选择默认选项进行安装，在点击完成前注意在添加路径到环境变量前打勾。

3 JlinkGDBServer

建议使用 V680 以上版本，可到 SEGGER 官网下载。安装 SEGGER 后，在 jlink 软件中增加我司芯片型号，安装方法可以参考我司开发者论坛：
http://www.fmdevelopers.com.cn/forum.php?mod=viewthread&tid=2102&extra=page%3D1

4 windows build tools

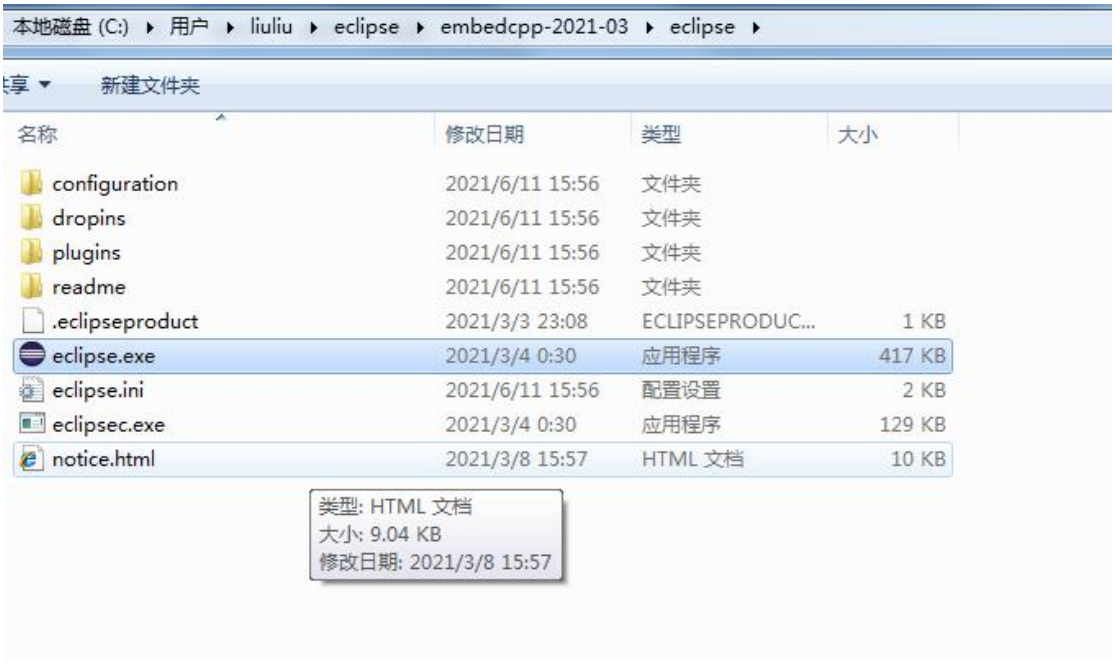
下载地址：https://xpack.github.io/windows-build-tools/releases/

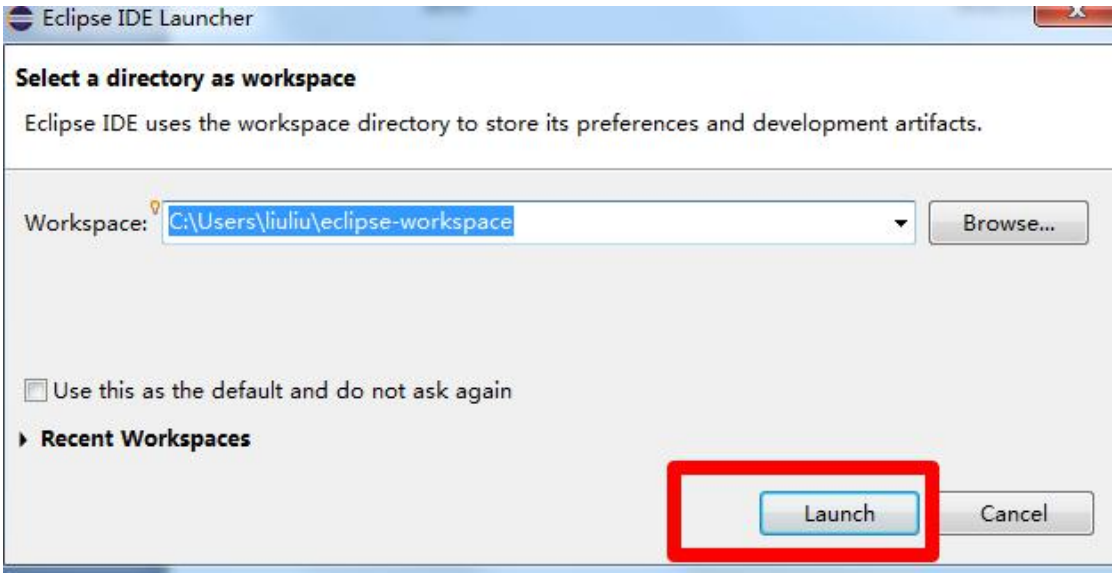


解压缩下载文件后，将文件复制到 GNU Arm Embedded Toolchain 目录下

eclipse 配置

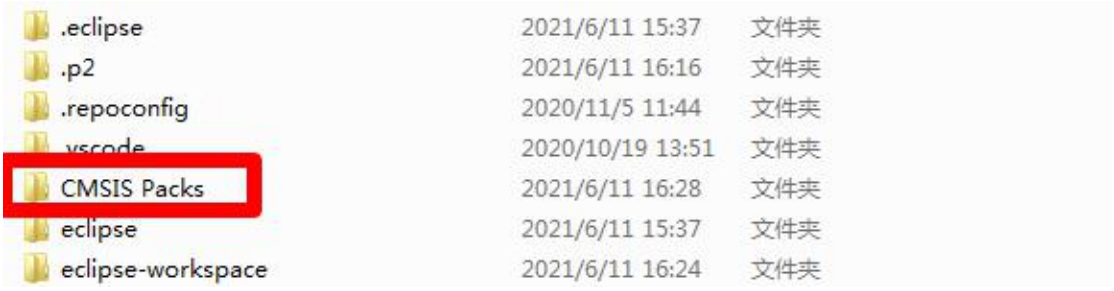
1 启动 eclipse



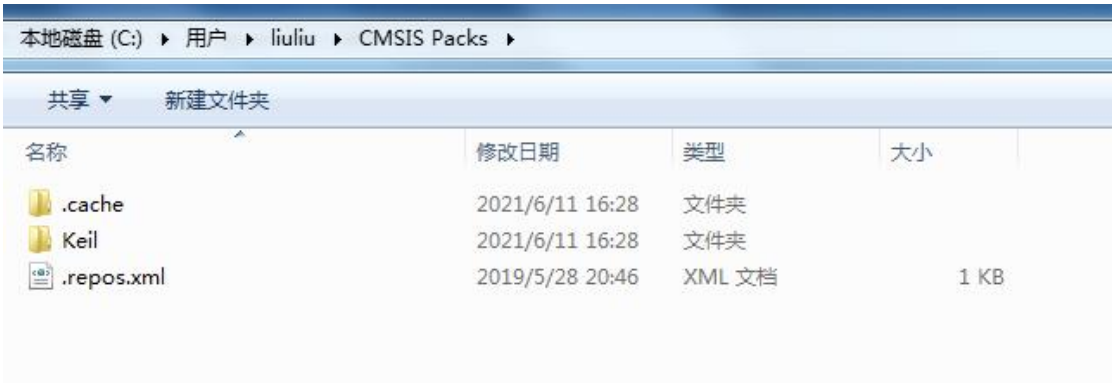


2 添加芯片 pack

Eclipse 文件夹同一目录下新建 CMSIS Packs 文件夹用于存放 pack 信息

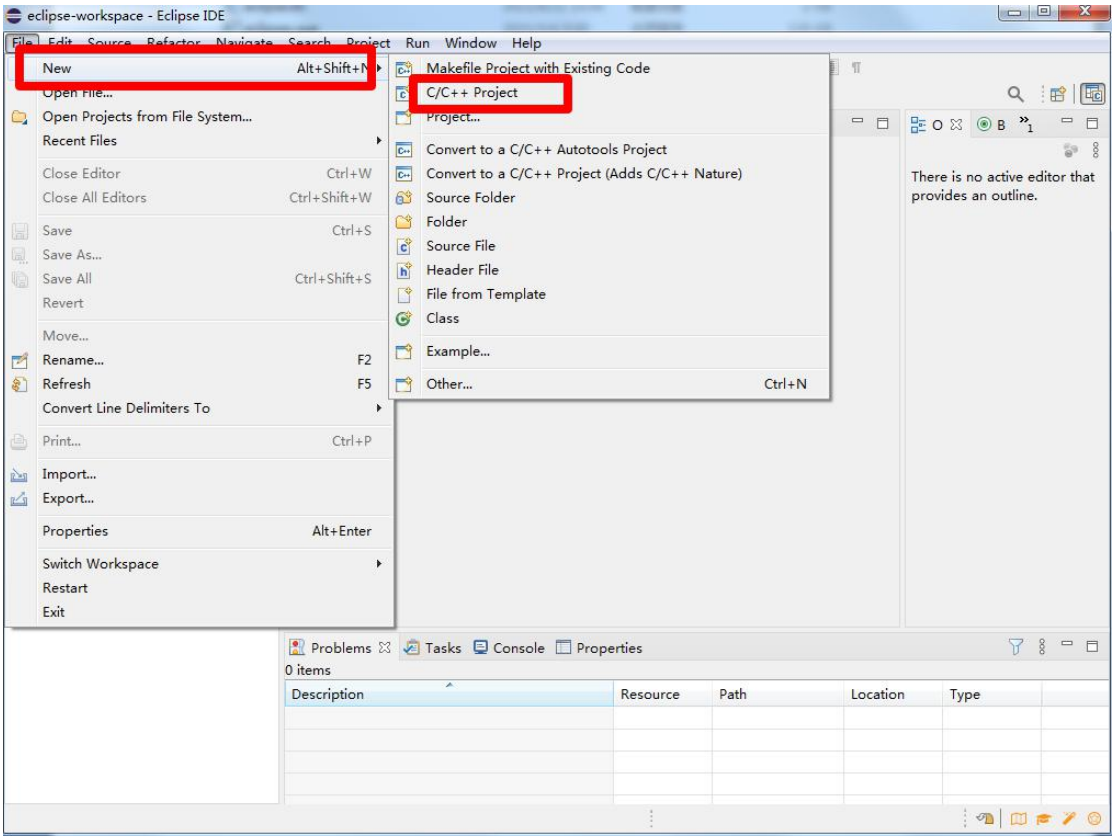


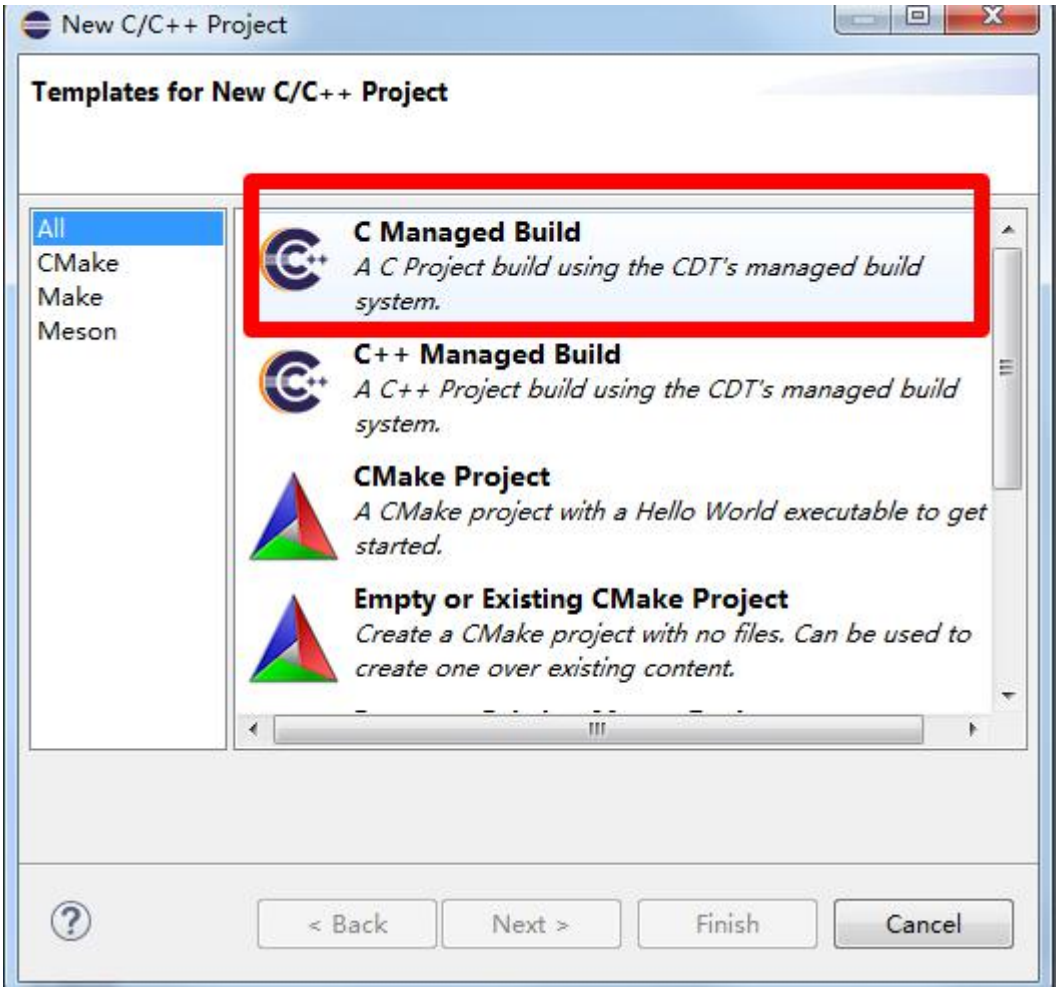
芯片 pack 文件复制到 CMSIS Packs 文件夹

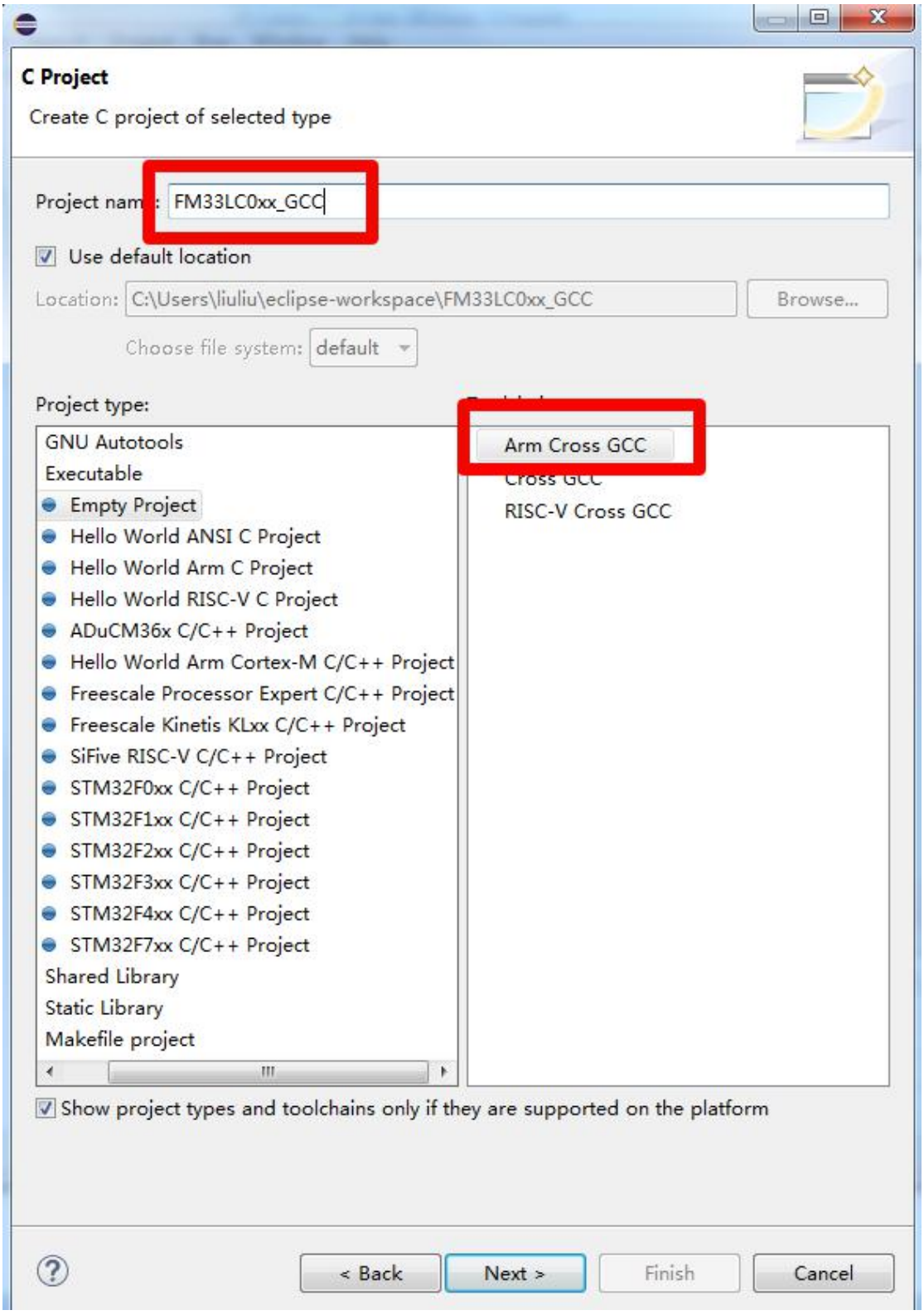


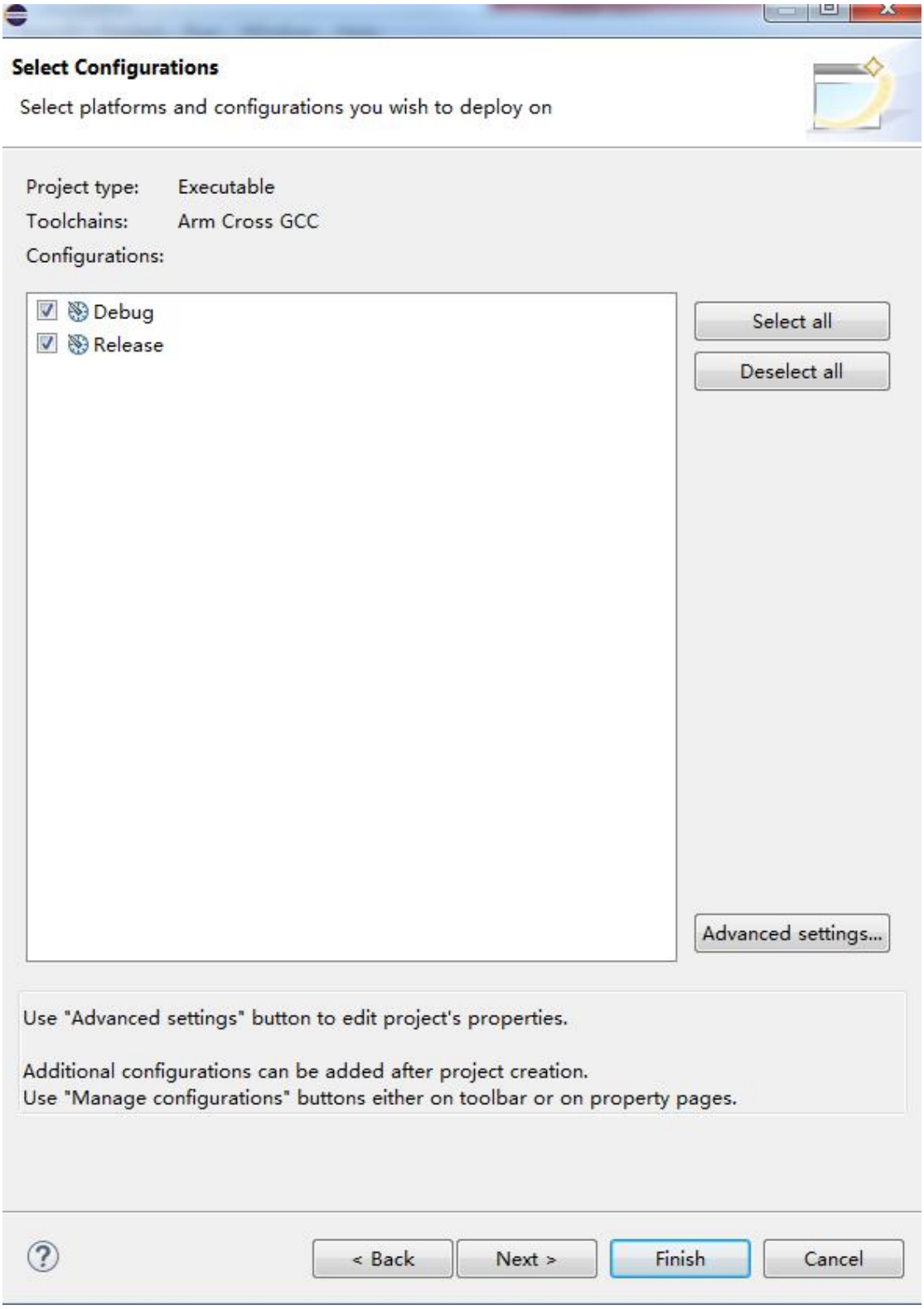
3 建立 C Project

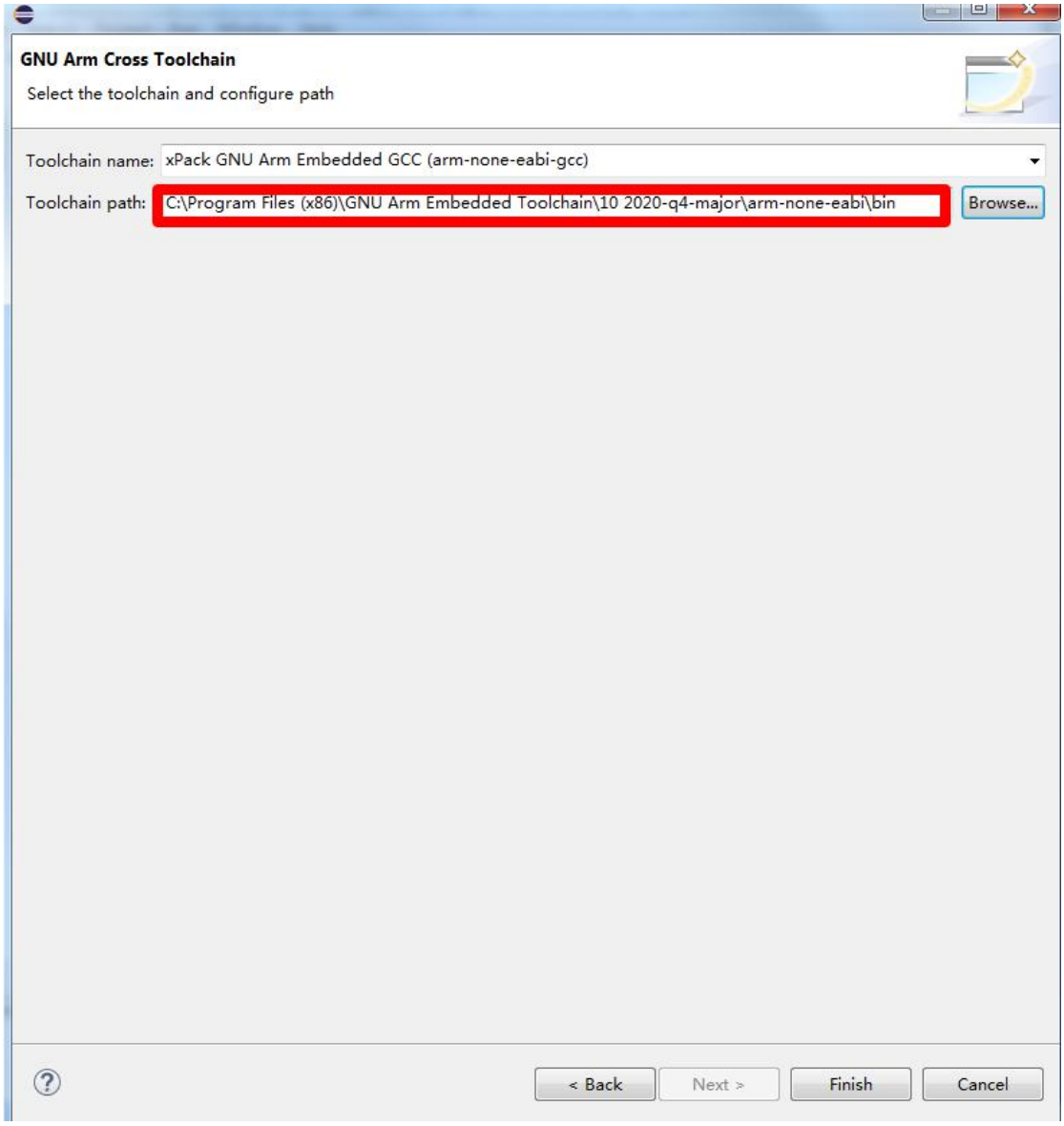
点击 File->New->C/C++ Project

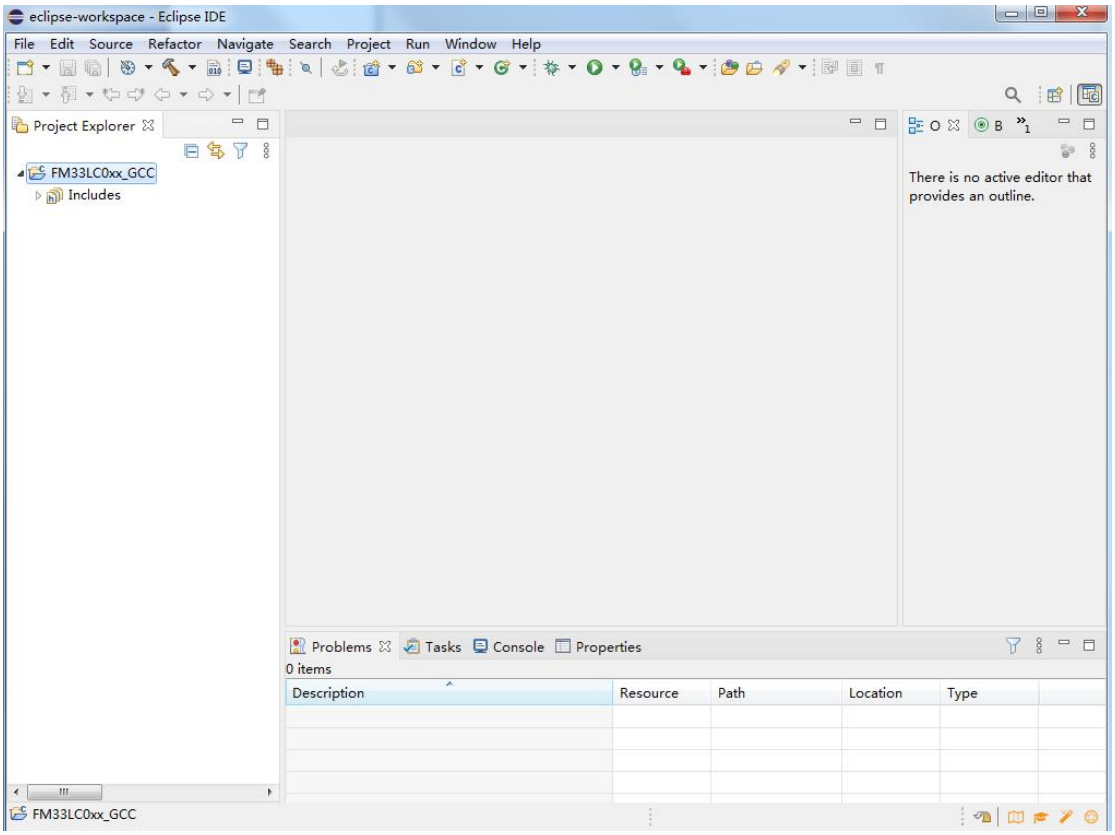

eclipse-workspace - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
New Alt+Shift+N
Open File...
Open Projects from File System...
Recent Files
Close Editor Ctrl+W
Close All Editors Ctrl+Shift+W
Save Ctrl+S
Save As...
Save All Ctrl+Shift+S
Revert
Move...
Rename... F2
Refresh F5
Convert Line Delimiters To
Print... Ctrl+P
Import...
Export...
Properties Alt+Enter
Switch Workspace
Restart
Exit
Makefile Project with Existing Code
C/C++ Project
Project...
Convert to a C/C++ Autotools Project
Convert to a C/C++ Project (Adds C/C++ Nature)
Source Folder
Folder
Source File
Header File
File from Template
Class
Example...
Other... Ctrl+N
There is no active editor that provides an outline.
Problems Tasks Console Properties
0 items
Description Resource Path Location Type


New C/C++ Project
Templates for New C/C++ Project
All
CMake
Make
Meson
C Managed Build
A C Project build using the CDT's managed build system.
C++ Managed Build
A C++ Project build using the CDT's managed build system.
CMake Project
A CMake project with a Hello World executable to get started.
Empty or Existing CMake Project
Create a CMake project with no files. Can be used to create one over existing content.
< Back
Next >
Finish
Cancel

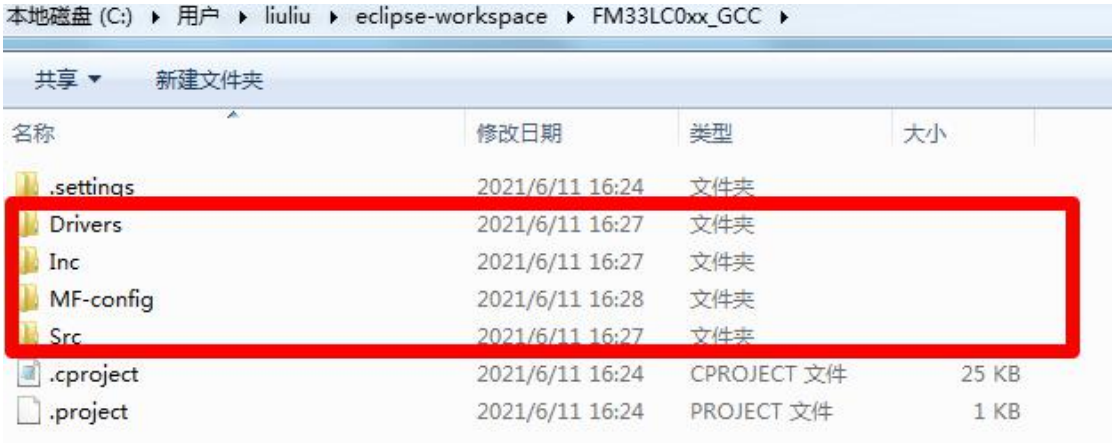

C Project
Create C project of selected type
Project name: FM33LC0xx_GCC
Use default location
Location: C:\Users\liuliu\eclipse-workspace\FM33LC0xx_GCC
Browse...
Choose file system: default
Project type:
GNU Autotools
Executable
Empty Project
Hello World ANSI C Project
Hello World Arm C Project
Hello World RISC-V C Project
ADuCM36x C/C++ Project
Hello World Arm Cortex-M C/C++ Project
Freescale Processor Expert C/C++ Project
Freescale Kinetis KLxx C/C++ Project
SiFive RISC-V C/C++ Project
STM32F0xx C/C++ Project
STM32F1xx C/C++ Project
STM32F2xx C/C++ Project
STM32F3xx C/C++ Project
STM32F4xx C/C++ Project
STM32F7xx C/C++ Project
Shared Library
Static Library
Makefile project
Arm Cross GCC
RISC-V Cross GCC
Show project types and toolchains only if they are supported on the platform
< Back
Next >
Finish
Cancel


Select Configurations
Select platforms and configurations you wish to deploy on
Project type: Executable
Toolchains: Arm Cross GCC
Configurations:
Debug
Release
Select all
Deselect all
Advanced settings...
Use "Advanced settings" button to edit project's properties.
Additional configurations can be added after project creation.
Use "Manage configurations" buttons either on toolbar or on property pages.
< Back
Next >
Finish
Cancel

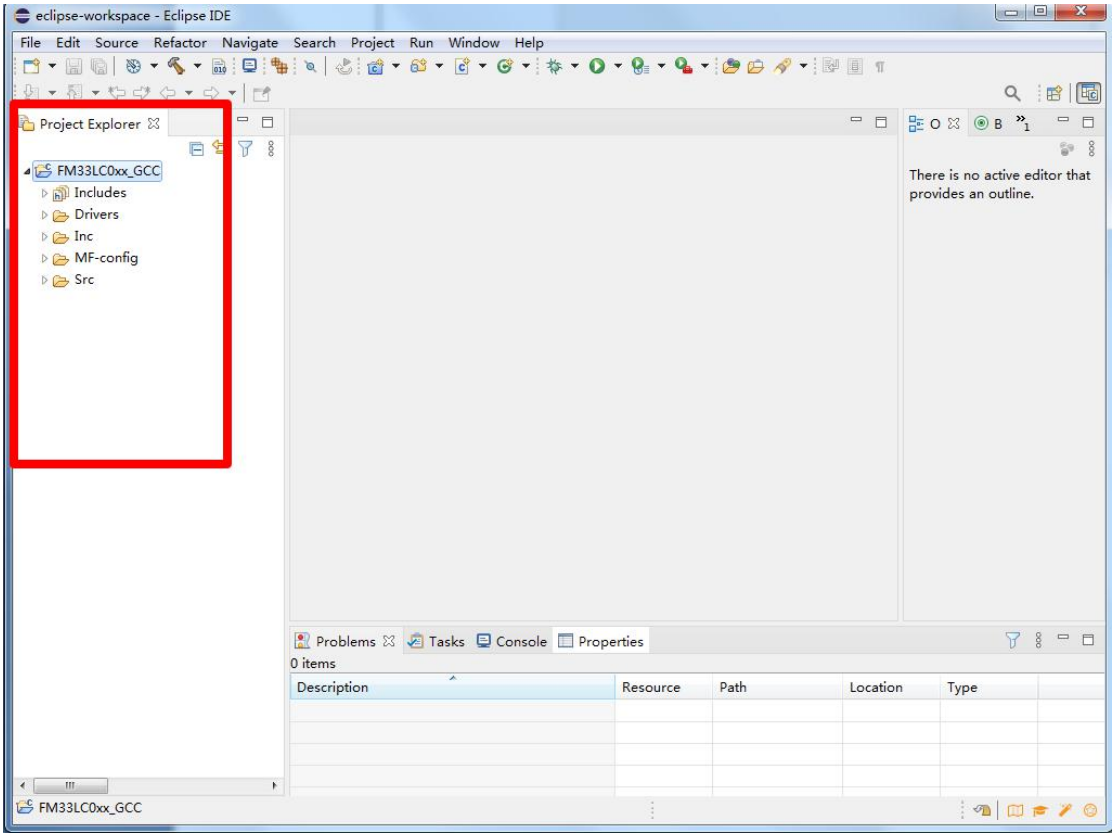

GNU Arm Cross Toolchain
Select the toolchain and configure path
Toolchain name:
xPack GNU Arm Embedded GCC (arm-none-eabi-gcc)
Toolchain path:
C:\Program Files (x86)\GNU Arm Embedded Toolchain\10 2020-q4-major\arm-none-eabi\bin
Browse...
< Back
Next >
Finish
Cancel



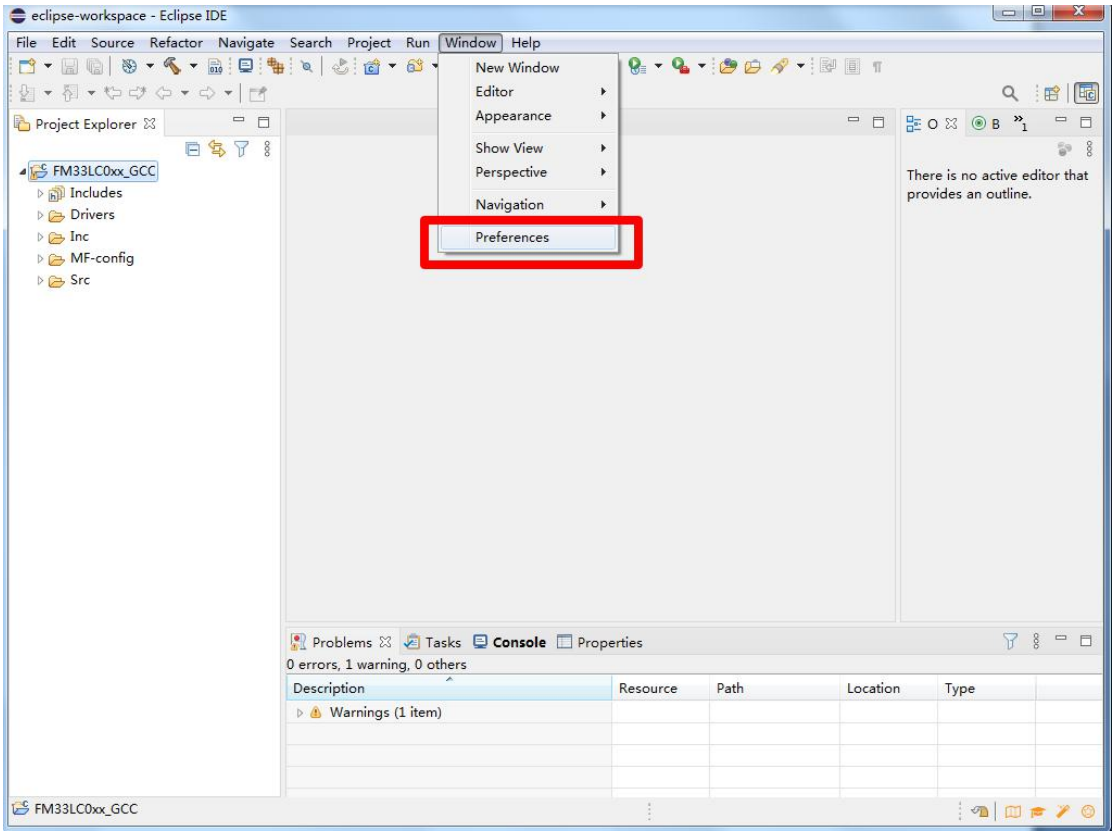
工程文件复制到 eclipse-workspace 的工程中

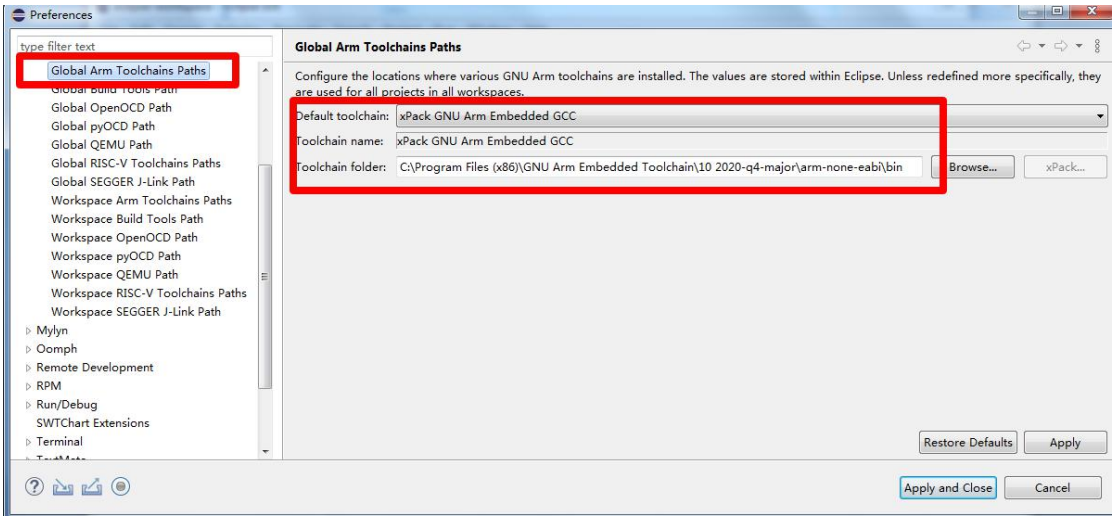


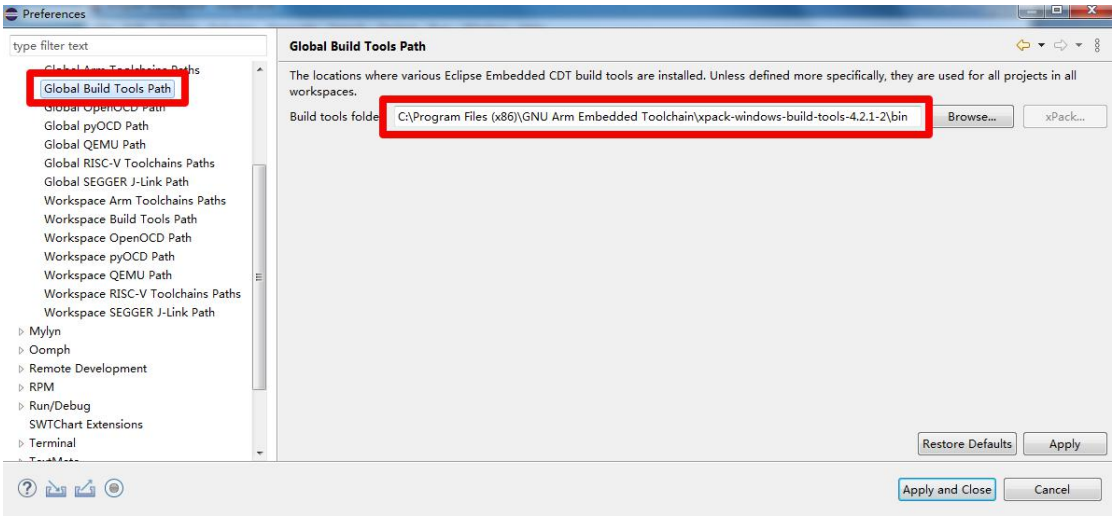
在 eclipse 软件中按 F5，程序自动更新

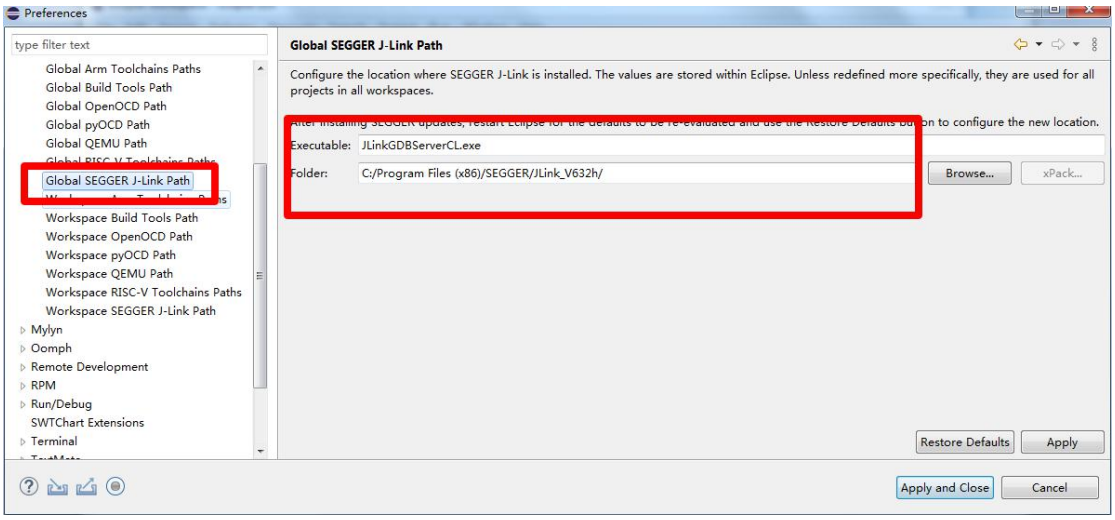

eclipse-workspace - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Project Explorer
FM33LC0xx_GCC
Includes
Drivers
Inc
MF-config
Src
There is no active editor that provides an outline.
Problems Tasks Console Properties
0 items
Description Resource Path Location Type
FM33LC0xx_GCC

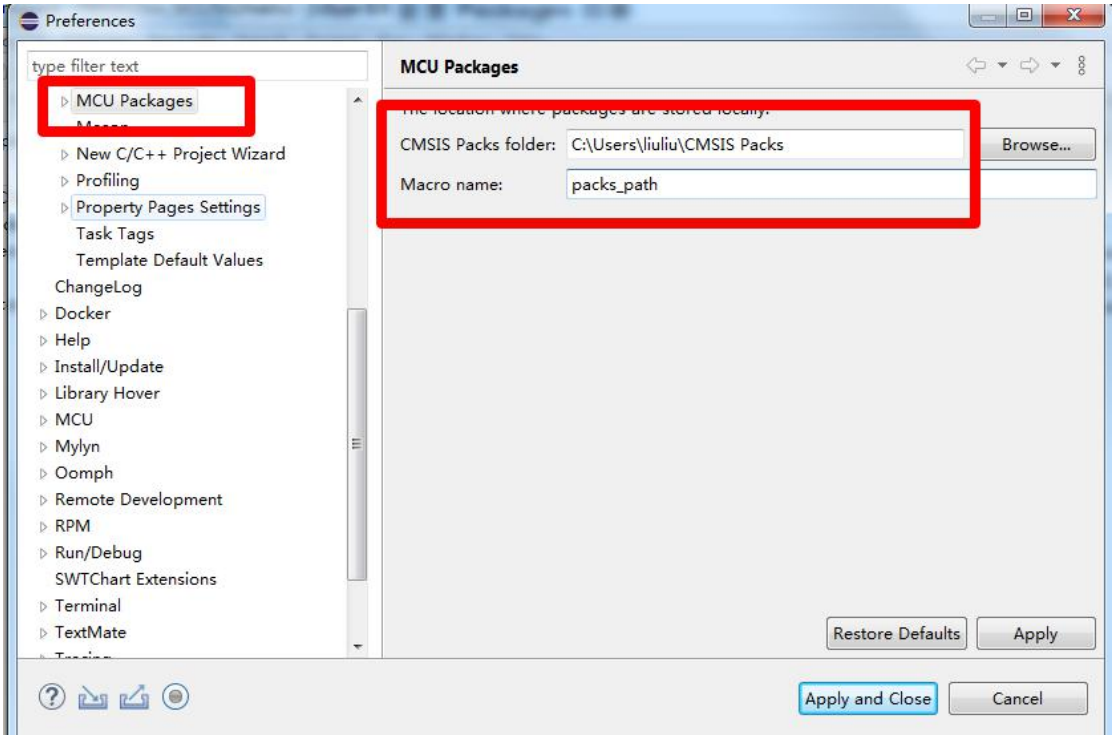
4 设置系统参数


eclipse-workspace - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
New Window
Editor
Appearance
Show View
Perspective
Navigation
Preferences
Project Explorer
FM33LC0xx_GCC
Includes
Drivers
Inc
MF-config
Src
There is no active editor that provides an outline.
Problems Tasks Console Properties
0 errors, 1 warning, 0 others
Description Resource Path Location Type
Warnings (1 item)
FM33LC0xx_GCC


Preferences
type filter text
Global Arm Toolchains Paths
Global OpenOCD Path
Global pyOCD Path
Global QEMU Path
Global RISC-V Toolchains Paths
Global SEGGER J-Link Path
Workspace Arm Toolchains Paths
Workspace Build Tools Path
Workspace OpenOCD Path
Workspace pyOCD Path
Workspace QEMU Path
Workspace RISC-V Toolchains Paths
Workspace SEGGER J-Link Path
Mylyn
Oomph
Remote Development
RPM
Run/Debug
SWTChart Extensions
Terminal
Global Arm Toolchains Paths
Configure the locations where various GNU Arm toolchains are installed. The values are stored within Eclipse. Unless redefined more specifically, they are used for all projects in all workspaces.
Default toolchain: xPack GNU Arm Embedded GCC
Toolchain name: xPack GNU Arm Embedded GCC
Toolchain folder: C:\Program Files (x86)\GNU Arm Embedded Toolchain\10 2020-q4-major\arm-none-eabi\bin
Browse...
xPack...
Restore Defaults
Apply
Apply and Close
Cancel

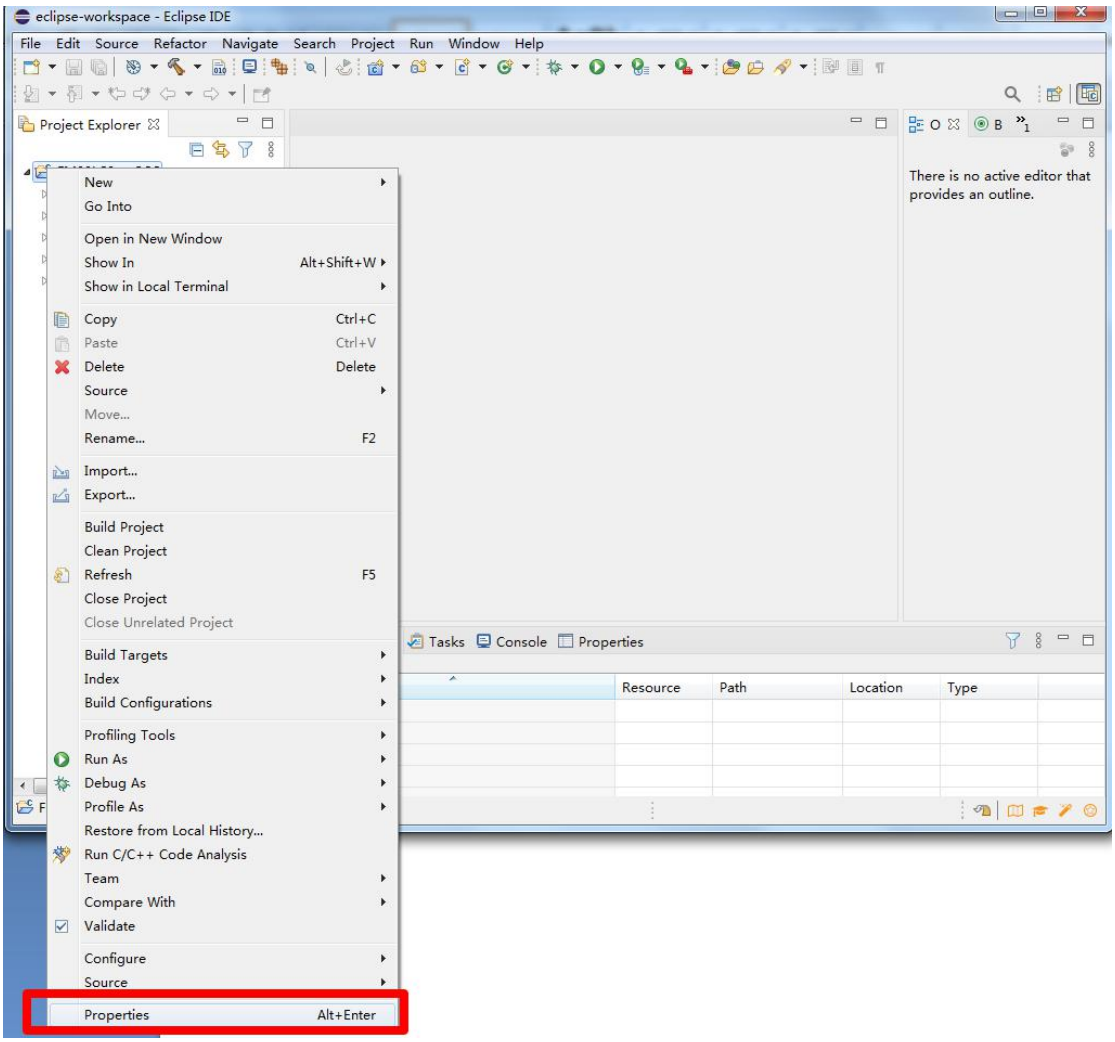

Preferences
type filter text
Global Build Tools Path
Global pyOCD Path
Global QEMU Path
Global RISC-V Toolchains Paths
Global SEGGER J-Link Path
Workspace Arm Toolchains Paths
Workspace Build Tools Path
Workspace OpenOCD Path
Workspace pyOCD Path
Workspace QEMU Path
Workspace RISC-V Toolchains Paths
Workspace SEGGER J-Link Path
Mylyn
Oomph
Remote Development
RPM
Run/Debug
SWTChart Extensions
Terminal
Global Build Tools Path
The locations where various Eclipse Embedded CDT build tools are installed. Unless defined more specifically, they are used for all projects in all workspaces.
Build tools folde
C:\Program Files (x86)\GNU Arm Embedded Toolchain\xpack-windows-build-tools-4.2.1-2\bin
Browse...
xPack...
Restore Defaults
Apply
Apply and Close
Cancel

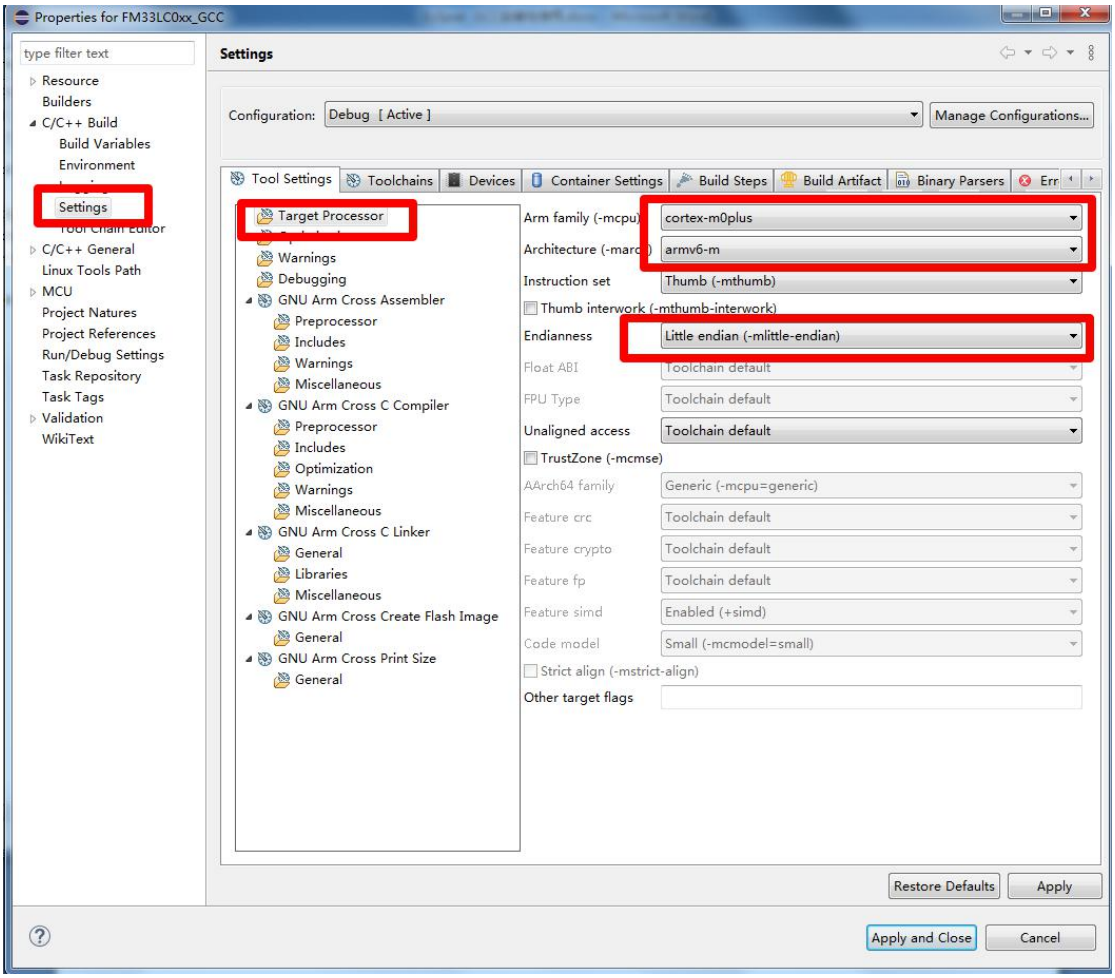

Preferences
type filter text
Global Arm Toolchains Paths
Global Build Tools Path
Global OpenOCD Path
Global pyOCD Path
Global QEMU Path
Global SEGGER J-Link Path
Workspace Build Tools Path
Workspace OpenOCD Path
Workspace pyOCD Path
Workspace QEMU Path
Workspace RISC-V Toolchains Paths
Workspace SEGGER J-Link Path
Mylyn
Oomph
Remote Development
RPM
Run/Debug
SWTChart Extensions
Terminal
Global SEGGER J-Link Path
Configure the location where SEGGER J-Link is installed. The values are stored within Eclipse. Unless redefined more specifically, they are used for all projects in all workspaces.
Executable: JLinkGDBServerCL.exe
Folder: C:/Program Files (x86)/SEGGER/JLink_V632h/
Browse...
xPack...
Restore Defaults
Apply
Apply and Close
Cancel

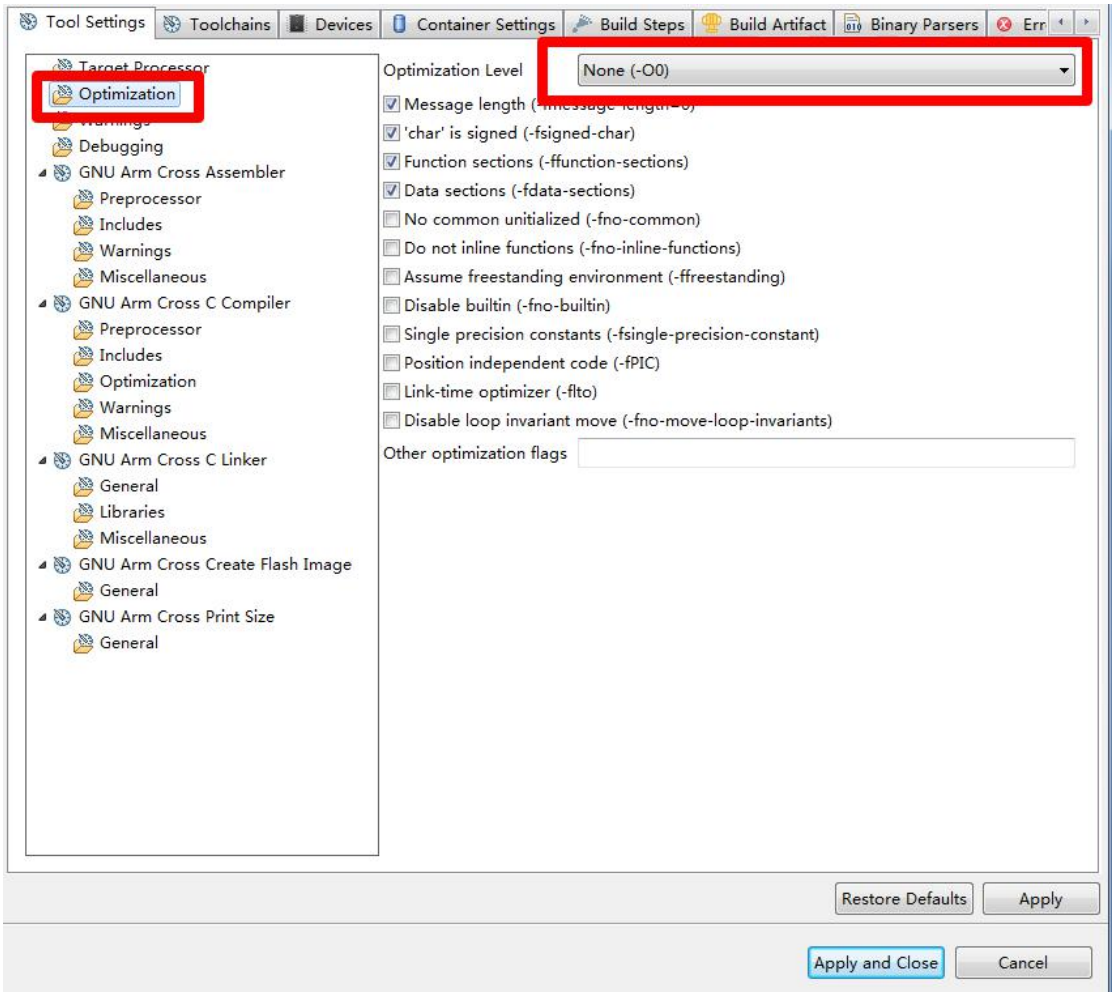


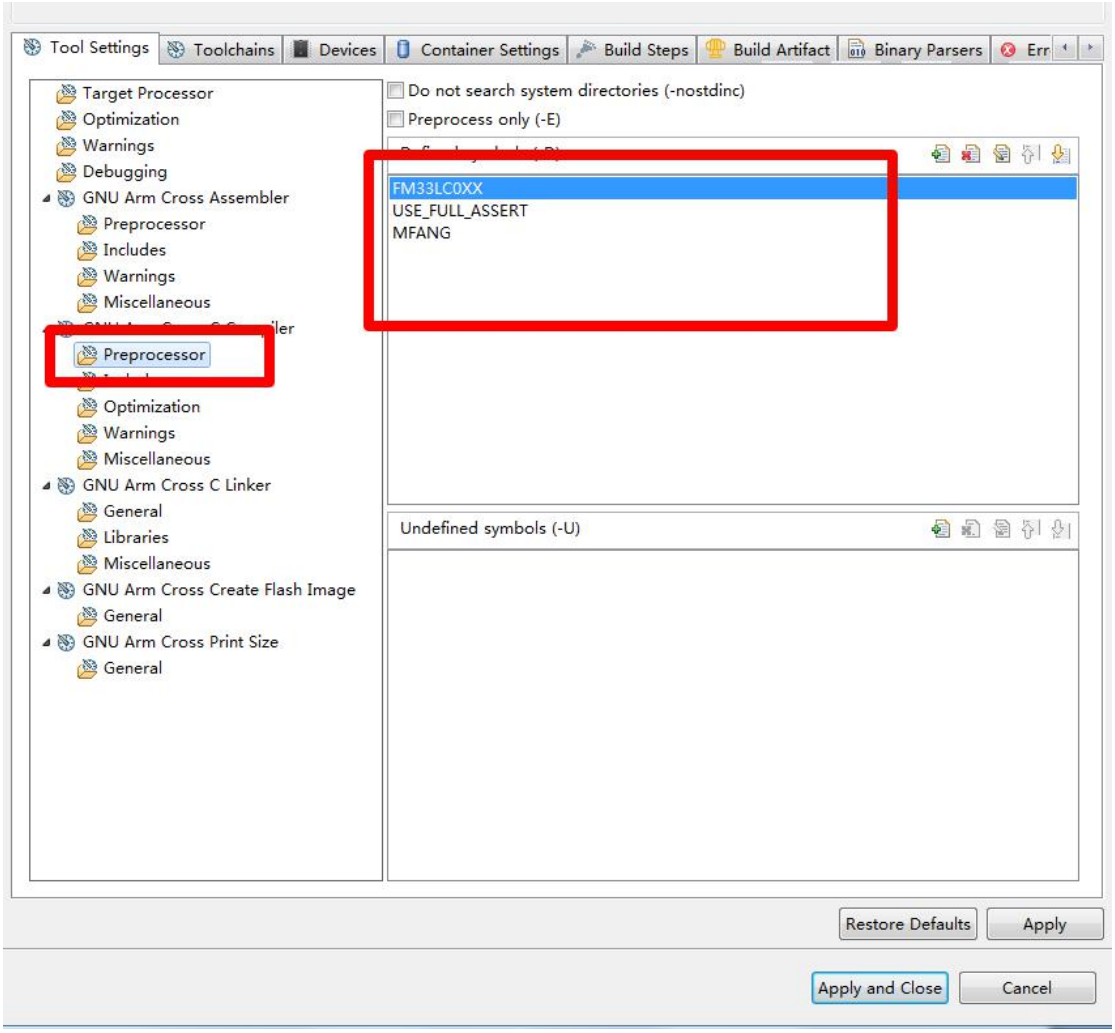
5 工程参数配置

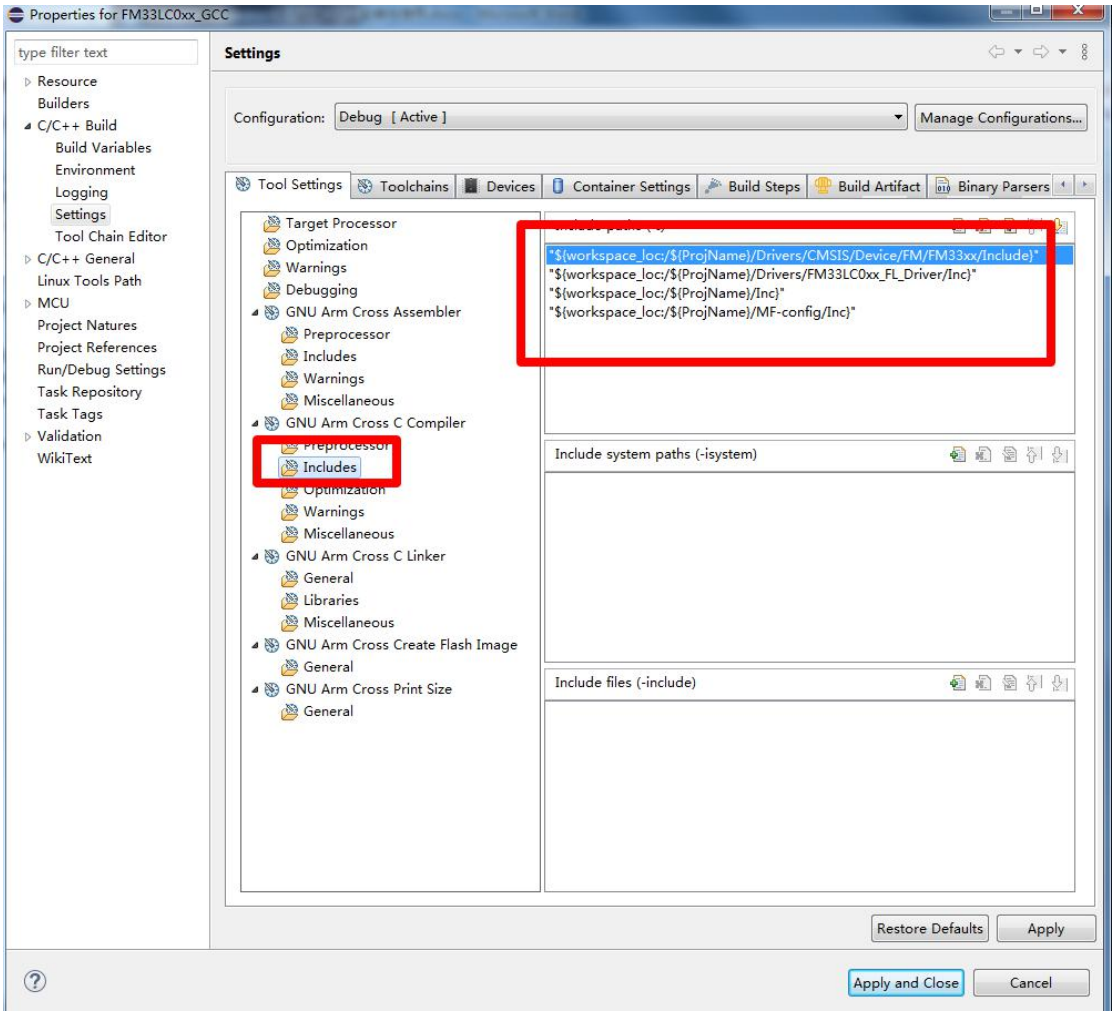
选择工程名点击右键选择 properties

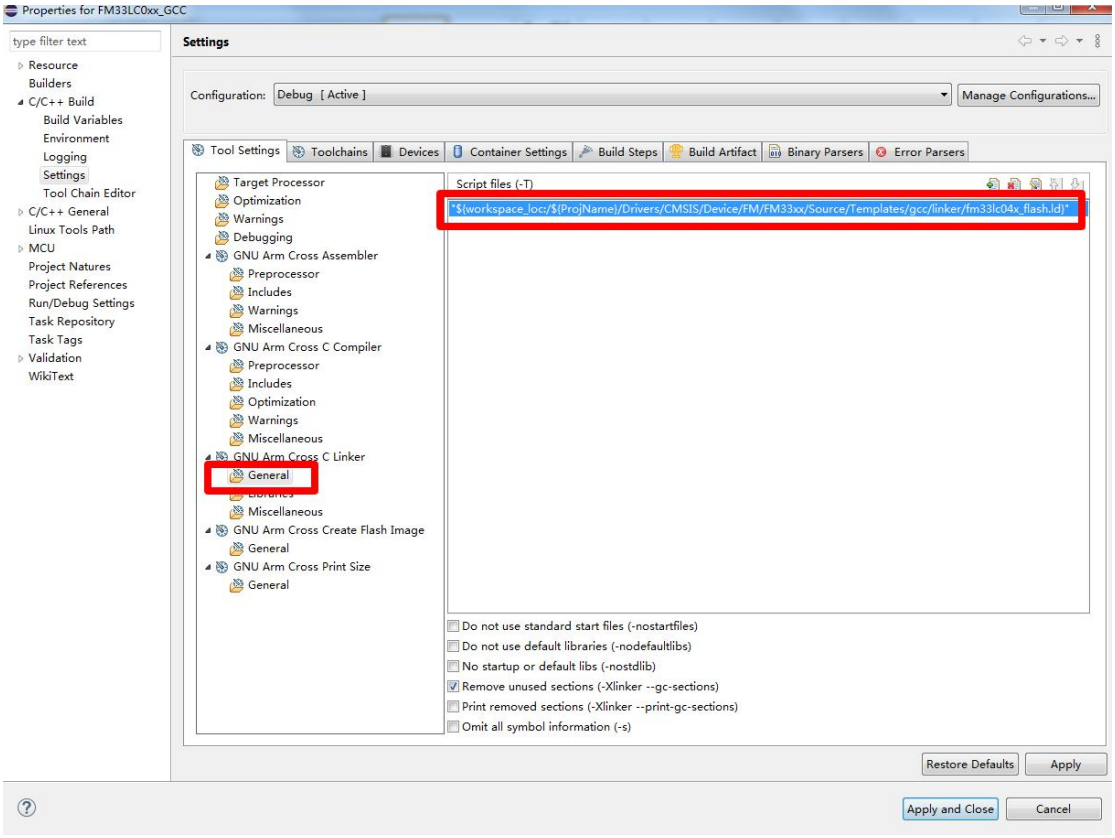

eclipse-workspace - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Project Explorer
There is no active editor that provides an outline.
New
Go Into
Open in New Window
Show In Alt+Shift+W
Show in Local Terminal
Copy Ctrl+C
Paste Ctrl+V
Delete Delete
Source
Move...
Rename... F2
Import...
Export...
Build Project
Clean Project
Refresh F5
Close Project
Close Unrelated Project
Build Targets
Index
Build Configurations
Profiling Tools
Run As
Debug As
Profile As
Restore from Local History...
Run C/C++ Code Analysis
Team
Compare With
Validate
Configure
Source
Properties Alt+Enter
Tasks Console Properties
Resource Path Location Type

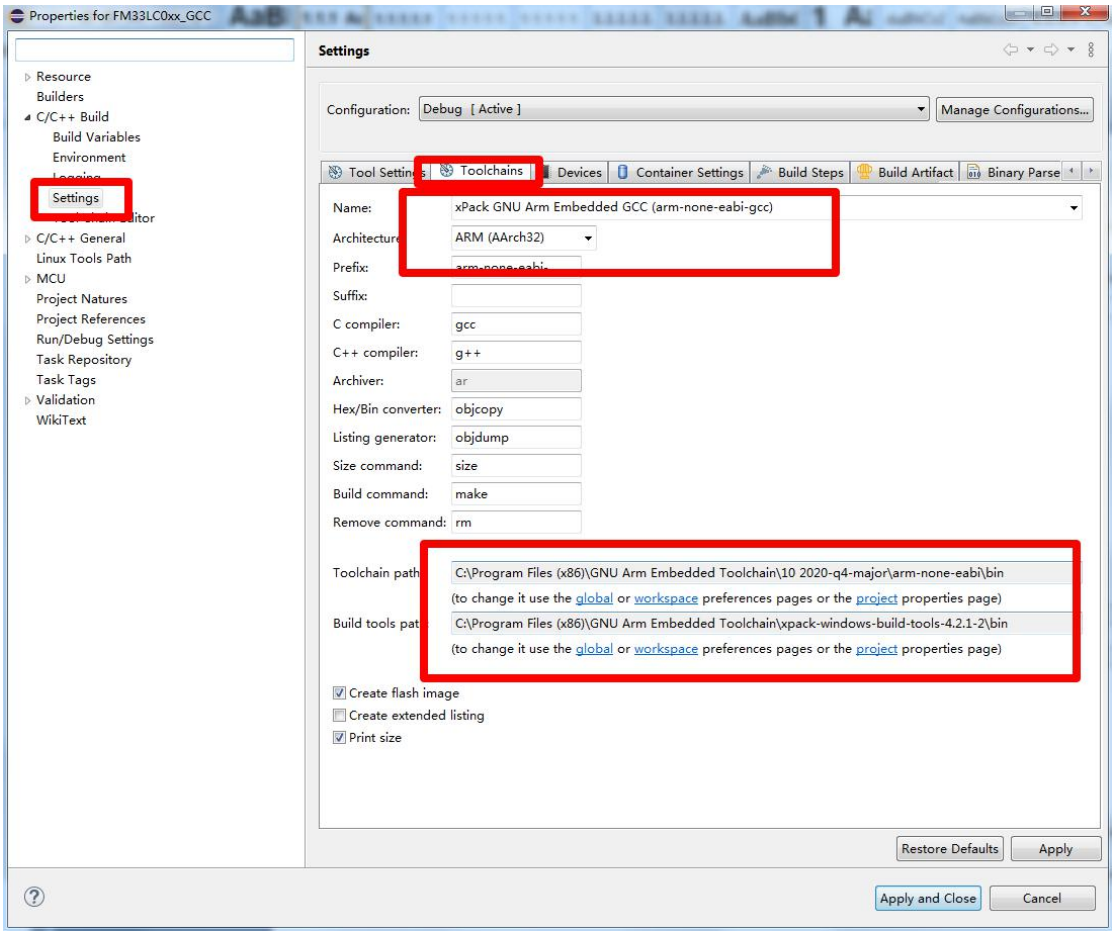

Properties for FM33LC0xx_GCC
type filter text
Resource
Builders
C/C++ Build
Build Variables
Environment
Settings
C/C++ General
Linux Tools Path
MCU
Project Natures
Project References
Run/Debug Settings
Task Repository
Task Tags
Validation
WikiText
Settings
Configuration: Debug [Active]
Manage Configurations...
Tool Settings
Toolchains
Devices
Container Settings
Build Steps
Build Artifact
Binary Parsers
Target Processor
Warnings
Debugging
GNU Arm Cross Assembler
Preprocessor
Includes
Warnings
Miscellaneous
GNU Arm Cross C Compiler
Preprocessor
Includes
Optimization
Warnings
Miscellaneous
GNU Arm Cross C Linker
General
Libraries
Miscellaneous
GNU Arm Cross Create Flash Image
General
GNU Arm Cross Print Size
General
Arm family (-mcpu)
cortex-m0plus
Architecture (-marc
armv6-m
Instruction set
Thumb (-mthumb)
Thumb interwork (-mthumb-interwork)
Endianness
Little endian (-mlittle-endian)
Float ABI
Toolchain default
FPU Type
Toolchain default
Unaligned access
Toolchain default
TrustZone (-mcmse)
AArch64 family
Generic (-mcpu=generic)
Feature crc
Toolchain default
Feature crypto
Toolchain default
Feature fp
Toolchain default
Feature simd
Enabled (+simd)
Code model
Small (-mcmodel=small)
Strict align (-mstrict-align)
Other target flags
Restore Defaults
Apply
Apply and Close
Cancel

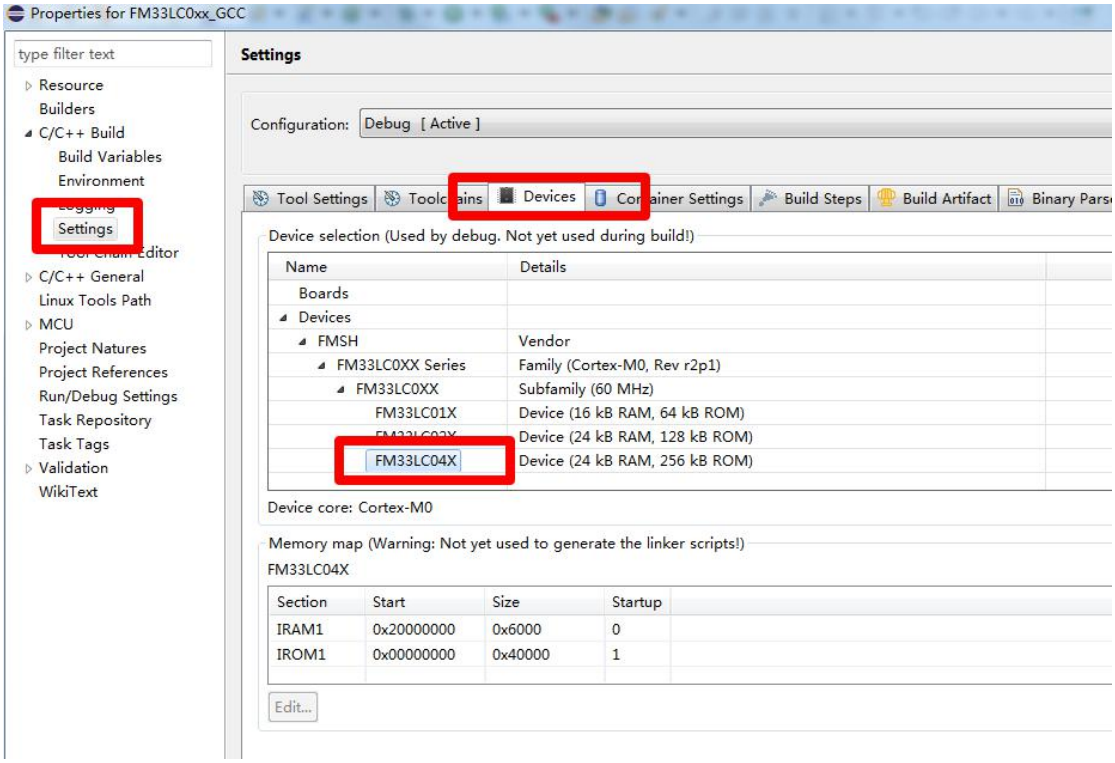

Tool Settings
Toolchains
Devices
Container Settings
Build Steps
Build Artifact
Binary Parsers
Err
Target Processor
Optimization
Debugging
GNU Arm Cross Assembler
Preprocessor
Includes
Warnings
Miscellaneous
GNU Arm Cross C Compiler
Preprocessor
Includes
Optimization
Warnings
Miscellaneous
GNU Arm Cross C Linker
General
Libraries
Miscellaneous
GNU Arm Cross Create Flash Image
General
GNU Arm Cross Print Size
General
Optimization Level
None (-O0)
'char' is signed (-fsigned-char)
Function sections (-ffunction-sections)
Data sections (-fdata-sections)
No common unitialized (-fno-common)
Do not inline functions (-fno-inline-functions)
Assume freestanding environment (-ffreestanding)
Disable builtin (-fno-builtin)
Single precision constants (-fsingle-precision-constant)
Position independent code (-fPIC)
Link-time optimizer (-flto)
Disable loop invariant move (-fno-move-loop-invariants)
Other optimization flags
Restore Defaults
Apply
Apply and Close
Cancel

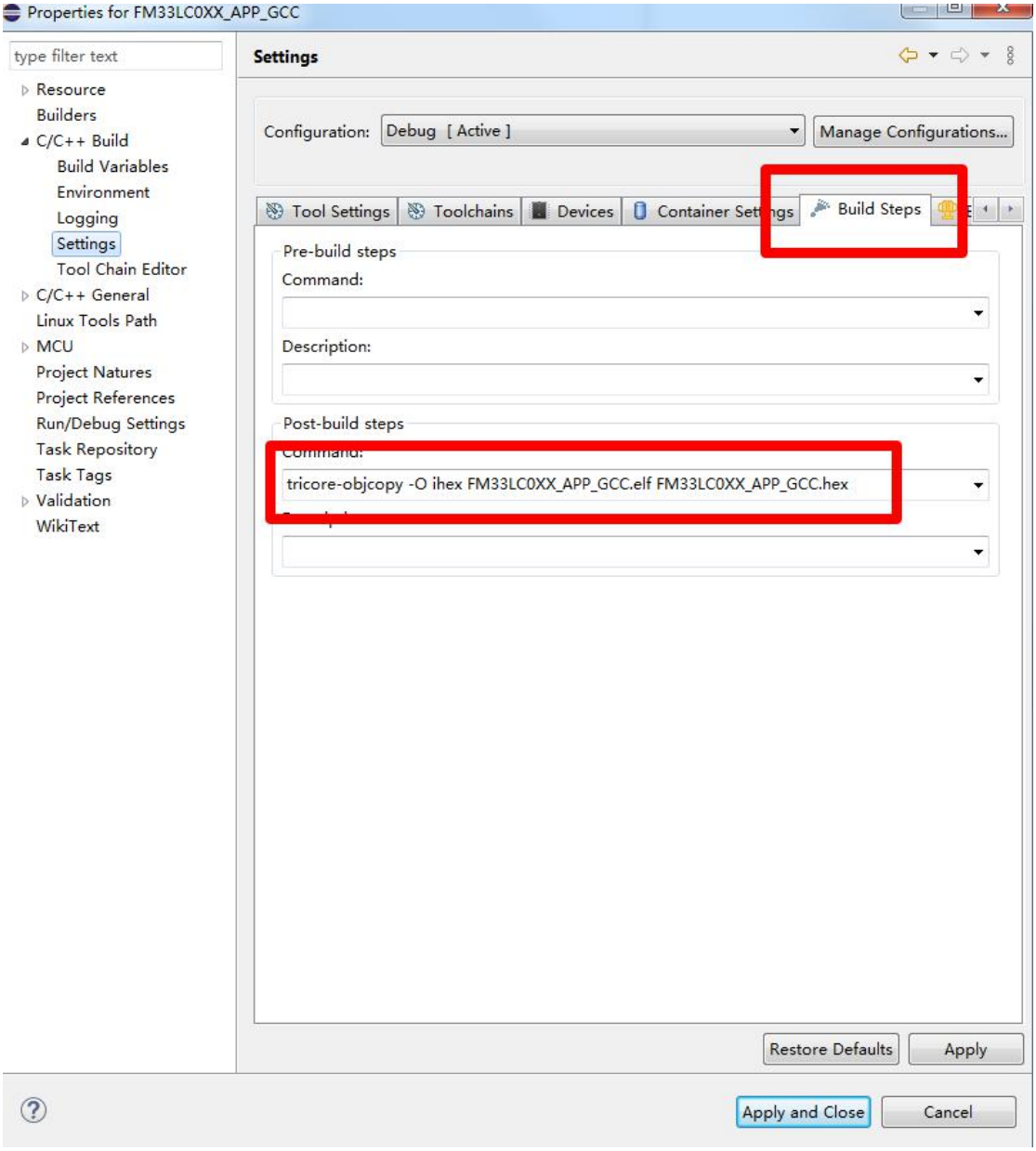

Tool Settings
Toolchains
Devices
Container Settings
Build Steps
Build Artifact
Binary Parsers
Err
Target Processor
Optimization
Warnings
Debugging
GNU Arm Cross Assembler
Preprocessor
Includes
Warnings
Miscellaneous
Preprocessor
Optimization
Warnings
Miscellaneous
GNU Arm Cross C Linker
General
Libraries
Miscellaneous
GNU Arm Cross Create Flash Image
General
GNU Arm Cross Print Size
General
Do not search system directories (-nostdinc)
Preprocess only (-E)
FM33LC0XX
USE_FULL_ASSERT
MFANG
Undefined symbols (-U)
Restore Defaults
Apply
Apply and Close
Cancel


Properties for FM33LC0xx_GCC
type filter text
Resource
Builders
C/C++ Build
Build Variables
Environment
Logging
Settings
Tool Chain Editor
C/C++ General
Linux Tools Path
MCU
Project Natures
Project References
Run/Debug Settings
Task Repository
Task Tags
Validation
WikiText
Settings
Configuration: Debug [Active]
Manage Configurations...
Tool Settings
Toolchains
Devices
Container Settings
Build Steps
Build Artifact
Binary Parsers
Target Processor
Optimization
Warnings
Debugging
GNU Arm Cross Assembler
Preprocessor
Includes
Warnings
Miscellaneous
GNU Arm Cross C Compiler
Preprocessor
Includes
Optimization
Warnings
Miscellaneous
GNU Arm Cross C Linker
General
Libraries
Miscellaneous
GNU Arm Cross Create Flash Image
General
GNU Arm Cross Print Size
General
"${workspace_loc:/${ProjName}/Drivers/CMSIS/Device/FM/FM33xx/Include}"
"${workspace_loc:/${ProjName}/Drivers/FM33LC0xx_FL_Driver/Inc}"
"${workspace_loc:/${ProjName}/Inc}"
"${workspace_loc:/${ProjName}/MF-config/Inc}"
Include system paths (-isystem)
Include files (-include)
Restore Defaults
Apply
Apply and Close
Cancel

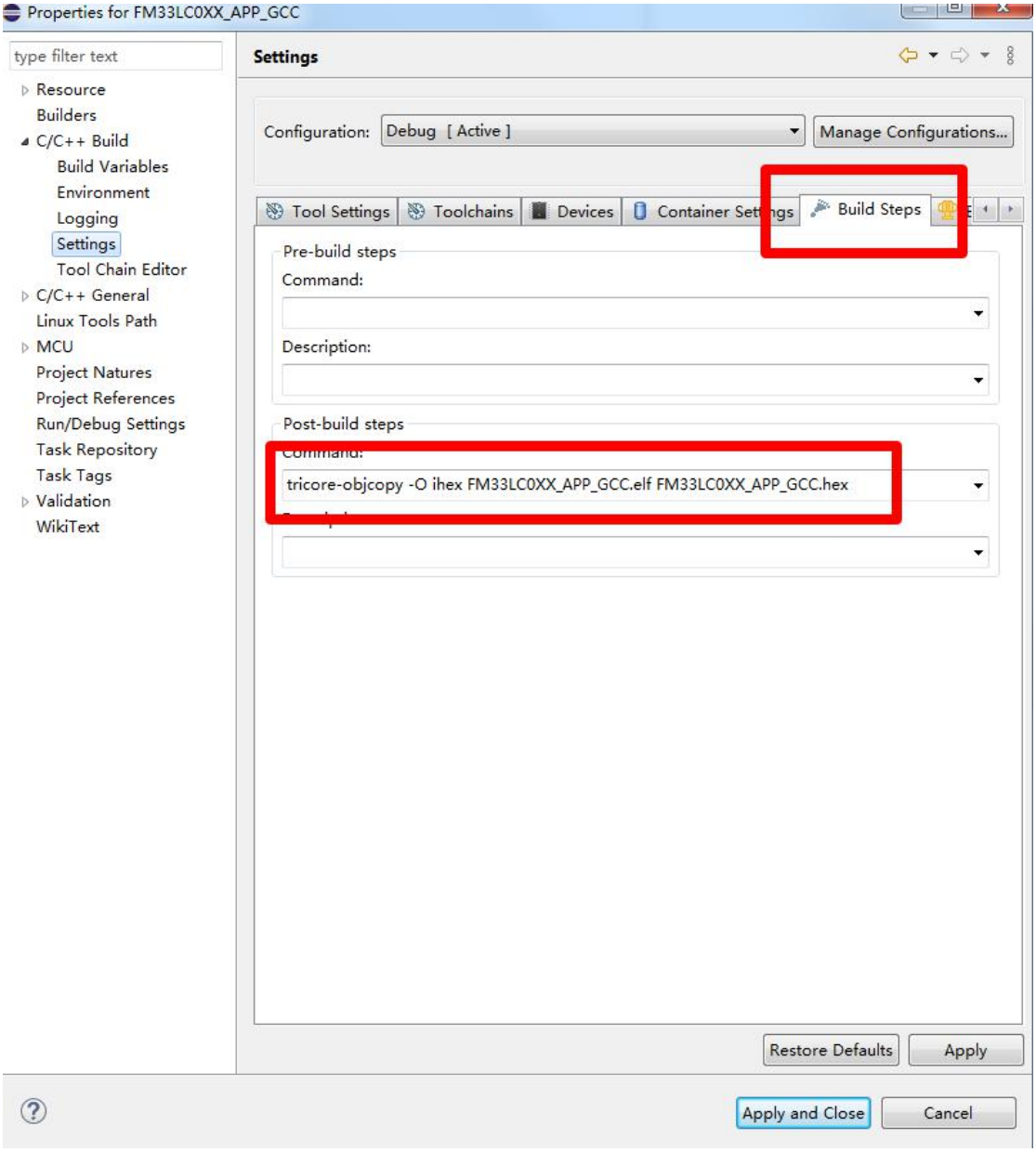

Properties for FM33LC0xx_GCC
type filter text
Resource
Builders
C/C++ Build
Build Variables
Environment
Logging
Settings
Tool Chain Editor
C/C++ General
Linux Tools Path
MCU
Project Natures
Project References
Run/Debug Settings
Task Repository
Task Tags
Validation
WikiText
Settings
Configuration: Debug [Active]
Manage Configurations...
Tool Settings
Toolchains
Devices
Container Settings
Build Steps
Build Artifact
Binary Parsers
Error Parsers
Target Processor
Optimization
Warnings
Debugging
GNU Arm Cross Assembler
Preprocessor
Includes
Warnings
Miscellaneous
GNU Arm Cross C Compiler
Preprocessor
Includes
Optimization
Warnings
Miscellaneous
GNU Arm Cross C Linker
General
Miscellaneous
GNU Arm Cross Create Flash Image
General
GNU Arm Cross Print Size
General
Script files (-T)
"${workspace_loc:/${ProjName}/Drivers/CMSIS/Device/FM/FM33xx/Source/Templates/gcc/linker/fm33lc04x_flash.ld}"
Do not use standard start files (-nostartfiles)
Do not use default libraries (-nodefaultlibs)
No startup or default libs (-nostdlib)
Remove unused sections (-Xlinker --gc-sections)
Print removed sections (-Xlinker --print-gc-sections)
Omit all symbol information (-s)
Restore Defaults
Apply
Apply and Close
Cancel


Properties for FM33LC0xx_GCC
Resource
Builders
C/C++ Build
Build Variables
Environment
Settings
C/C++ General
Linux Tools Path
MCU
Project Natures
Project References
Run/Debug Settings
Task Repository
Task Tags
Validation
WikiText
Settings
Configuration: Debug [Active]
Manage Configurations...
Toolchains
Devices
Container Settings
Build Steps
Build Artifact
Name: xPack GNU Arm Embedded GCC (arm-none-eabi-gcc)
Architecture: ARM (AArch32)
Prefix:
Suffix:
C compiler: gcc
C++ compiler: g++
Archiver: ar
Hex/Bin converter: objcopy
Listing generator: objdump
Size command: size
Build command: make
Remove command: rm
Toolchain path: C:\Program Files (x86)\GNU Arm Embedded Toolchain\10 2020-q4-major\arm-none-eabi\bin
(to change it use the global or workspace preferences pages or the project properties page)
Build tools path: C:\Program Files (x86)\GNU Arm Embedded Toolchain\xpack-windows-build-tools-4.2.1-2\bin
(to change it use the global or workspace preferences pages or the project properties page)
Create flash image
Create extended listing
Print size
Restore Defaults
Apply
Apply and Close
Cancel

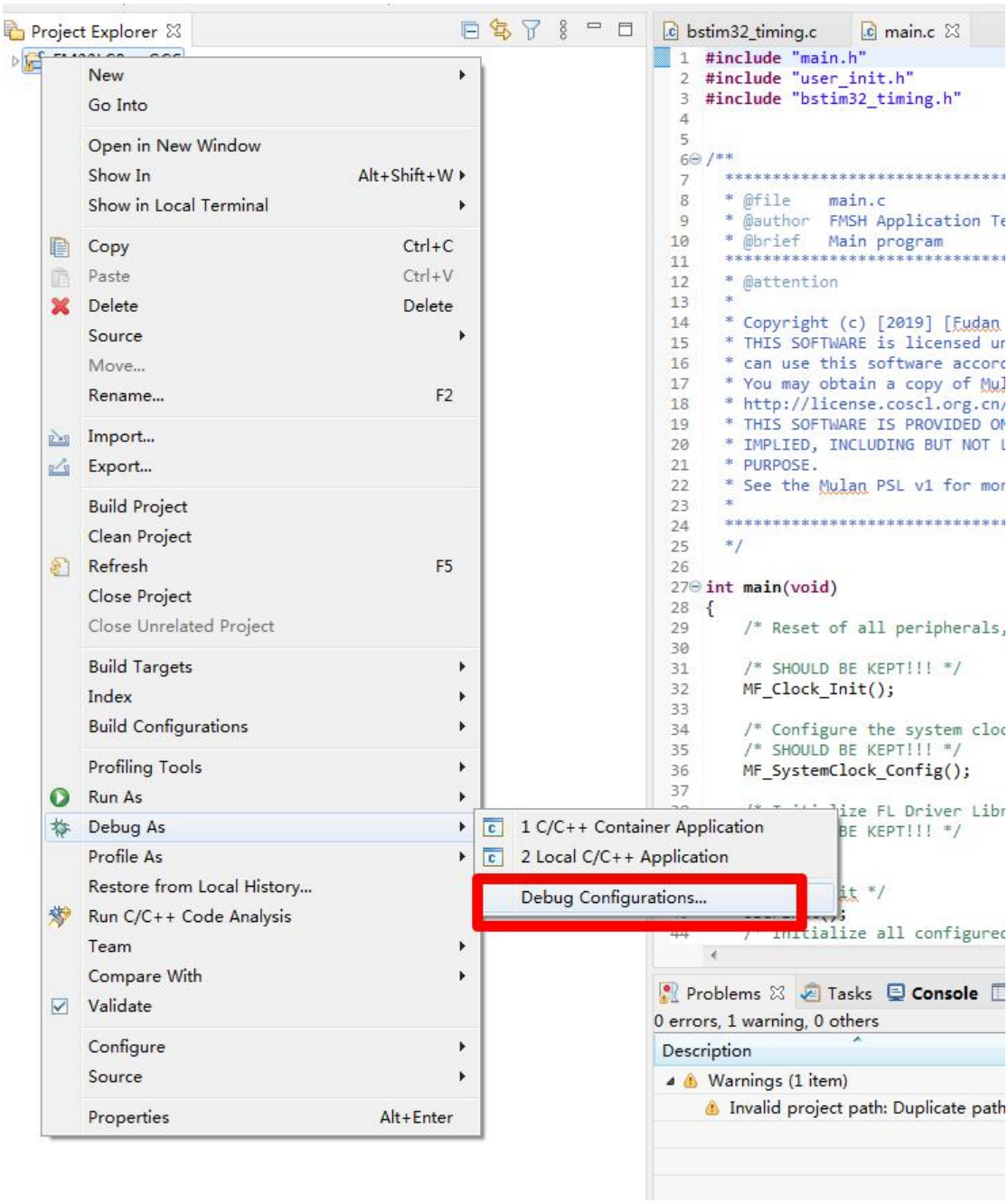

Properties for FM33LC0xx_GCC
type filter text
Resource
Builders
C/C++ Build
Build Variables
Environment
Settings
C/C++ General
Linux Tools Path
MCU
Project Natures
Project References
Run/Debug Settings
Task Repository
Task Tags
Validation
WikiText
Settings
Configuration: Debug [Active]
Tool Settings
Devices
Build Steps
Build Artifact
Device selection (Used by debug. Not yet used during build!)
Name
Details
Boards
Devices
FMSH
Vendor
FM33LC0XX Series
Family (Cortex-M0, Rev r2p1)
FM33LC0XX
Subfamily (60 MHz)
FM33LC01X
Device (16 kB RAM, 64 kB ROM)
Device (24 kB RAM, 128 kB ROM)
FM33LC04X
Device (24 kB RAM, 256 kB ROM)
Device core: Cortex-M0
Memory map (Warning: Not yet used to generate the linker scripts!)
FM33LC04X
Section
Start
Size
Startup
IRAM1
0x20000000
0x6000
0
IROM1
0x00000000
0x40000
1
Edit...


Properties for FM33LC0XX_APP_GCC
type filter text
Resource
Builders
C/C++ Build
Build Variables
Environment
Logging
Settings
Tool Chain Editor
C/C++ General
Linux Tools Path
MCU
Project Natures
Project References
Run/Debug Settings
Task Repository
Task Tags
Validation
WikiText
Settings
Configuration: Debug [Active]
Manage Configurations...
Tool Settings
Toolchains
Devices
Container Settings
Build Steps
Pre-build steps
Command:
Description:
Post-build steps
Command:
tricore-objcopy -O ihex FM33LC0XX_APP_GCC.elf FM33LC0XX_APP_GCC.hex
Restore Defaults
Apply
Apply and Close
Cancel

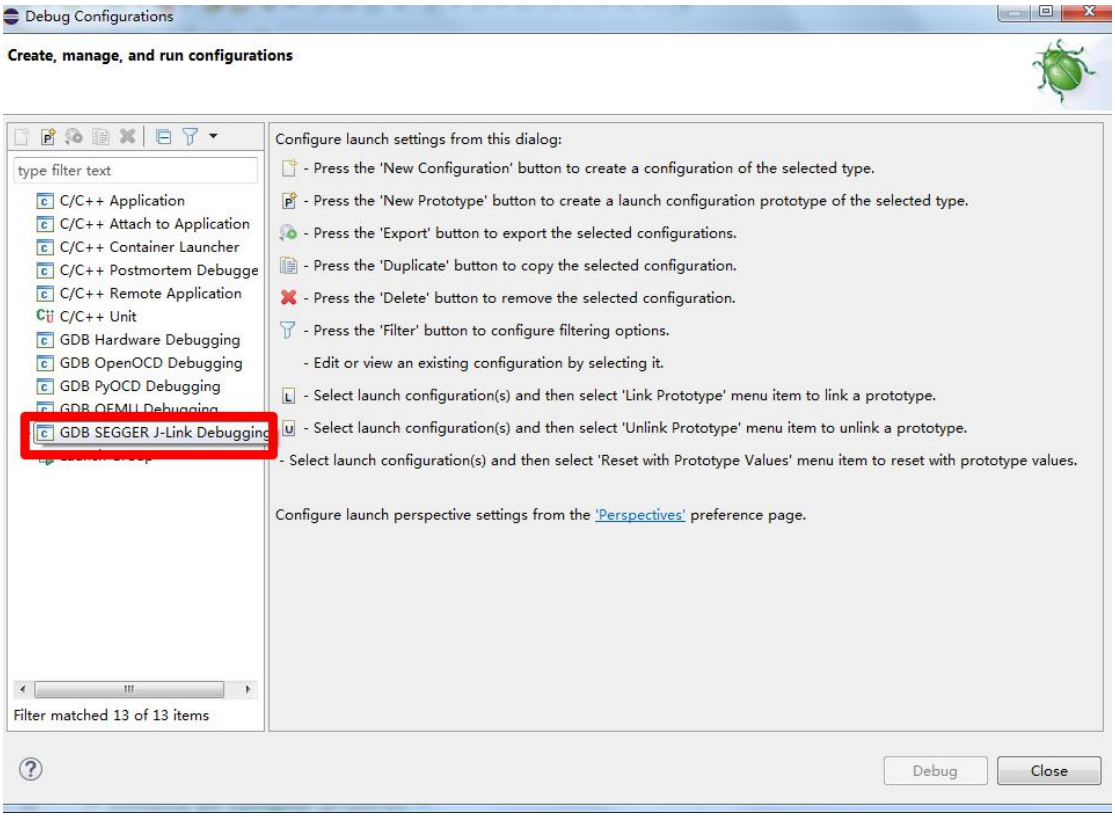
生成 HEX 文件


Properties for FM33LC0XX_APP_GCC
type filter text
Resource
Builders
C/C++ Build
Build Variables
Environment
Logging
Settings
Tool Chain Editor
C/C++ General
Linux Tools Path
MCU
Project Natures
Project References
Run/Debug Settings
Task Repository
Task Tags
Validation
WikiText
Settings
Configuration: Debug [Active]
Manage Configurations...
Tool Settings
Toolchains
Devices
Container Settings
Build Steps
Pre-build steps
Command:
Description:
Post-build steps
Command:
tricore-objcopy -O ihex FM33LC0XX_APP_GCC.elf FM33LC0XX_APP_GCC.hex
Restore Defaults
Apply
Apply and Close
Cancel

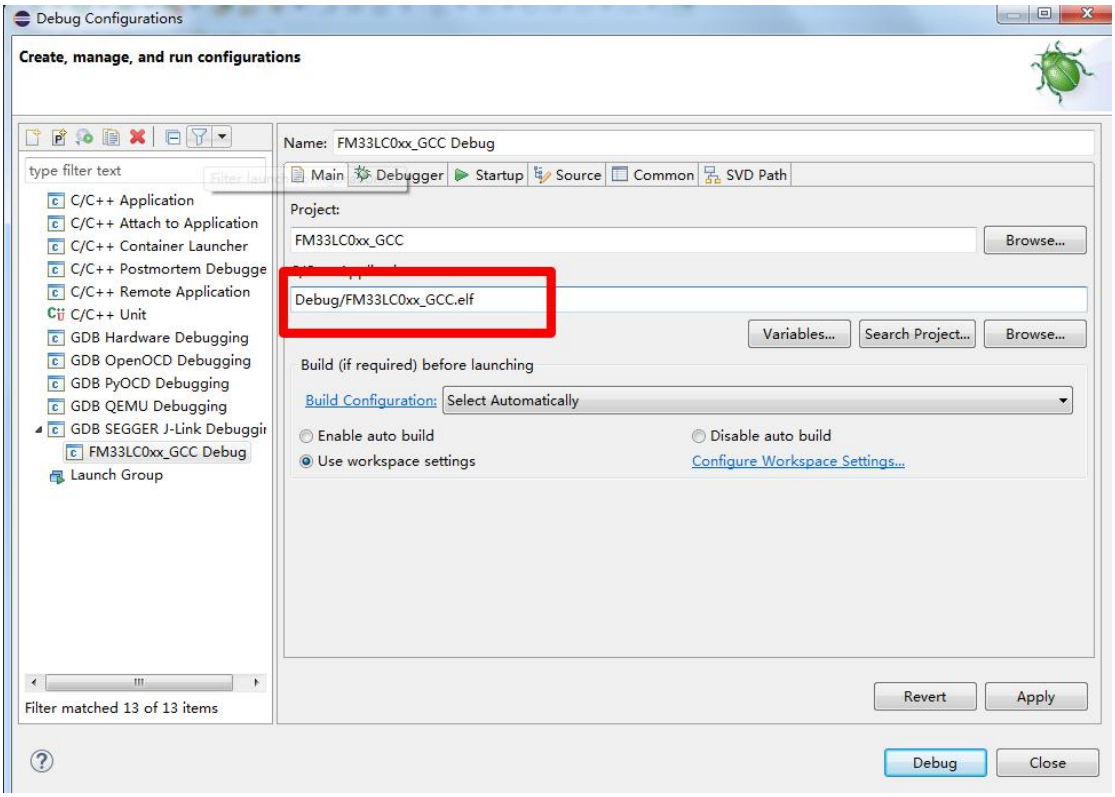
6 DEBUG 参数配置

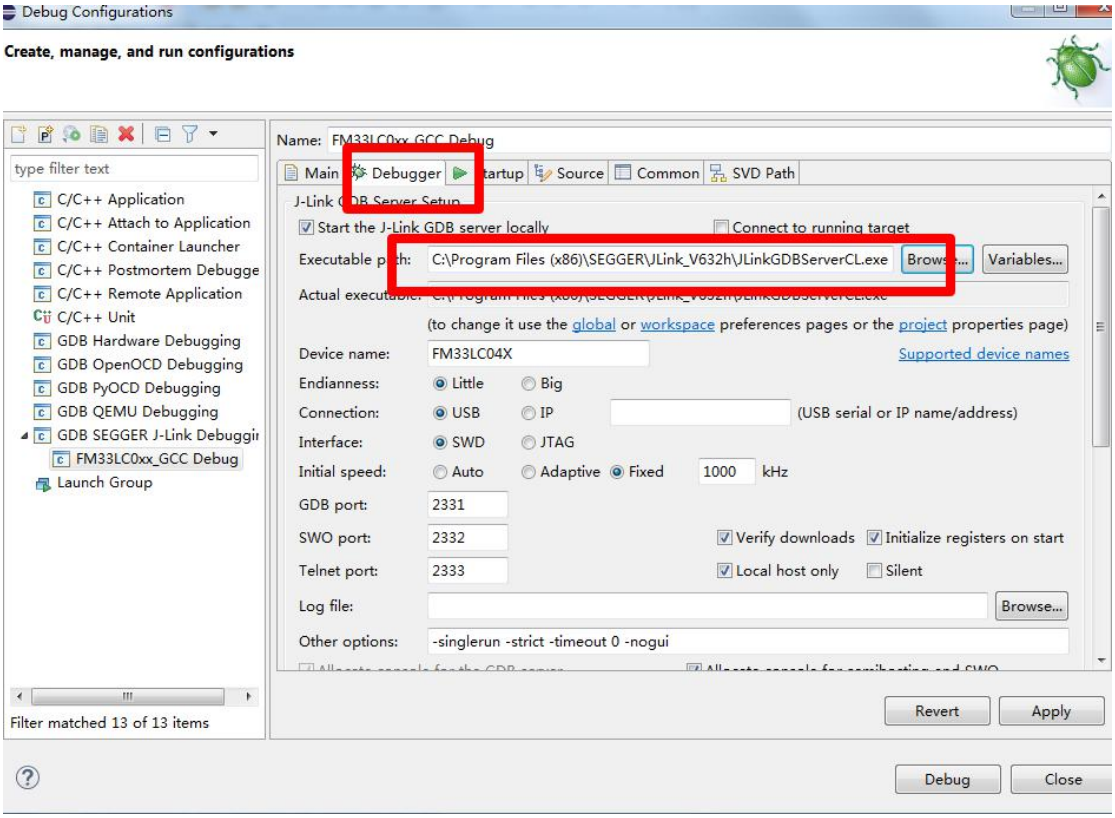


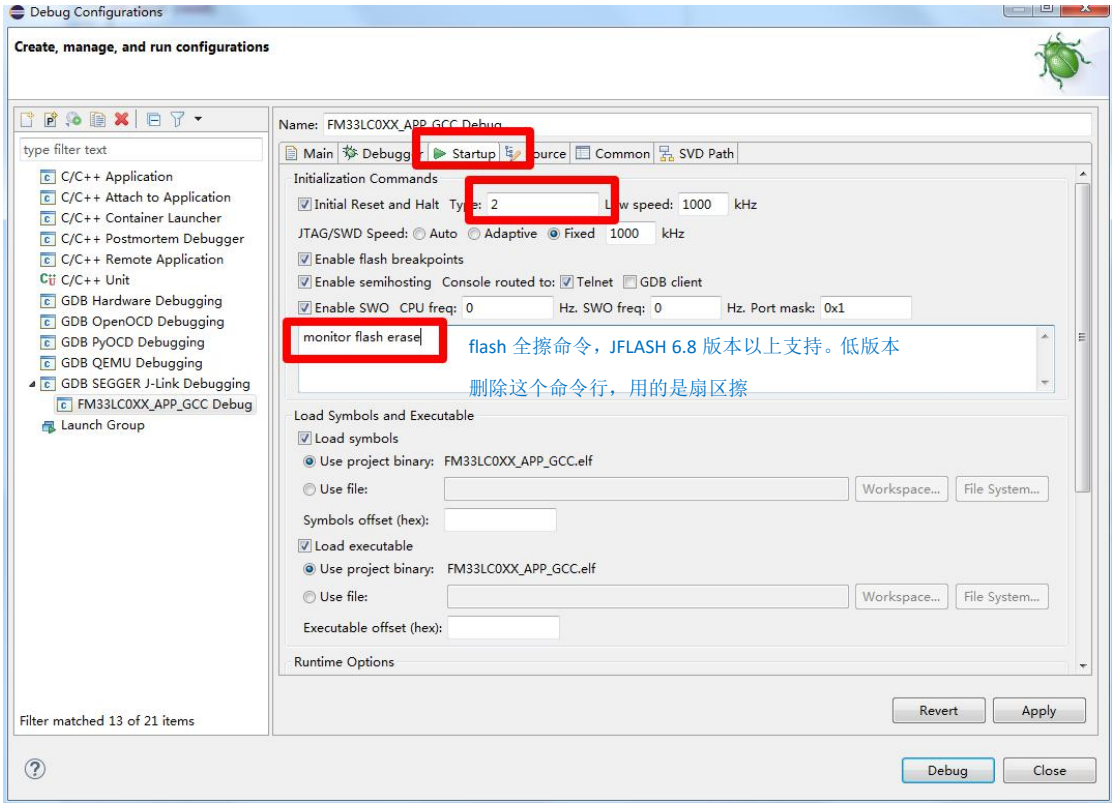
双击 GDB SEGGER JLINK DEBUGGING

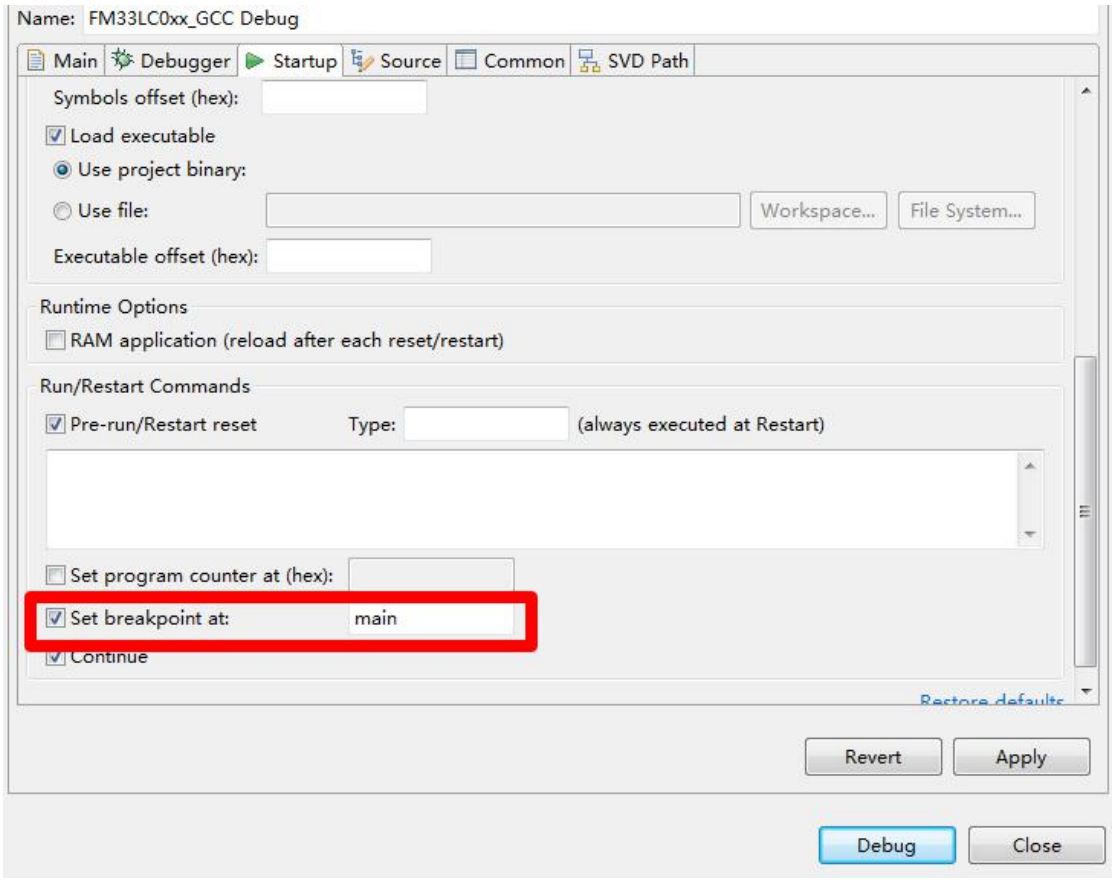


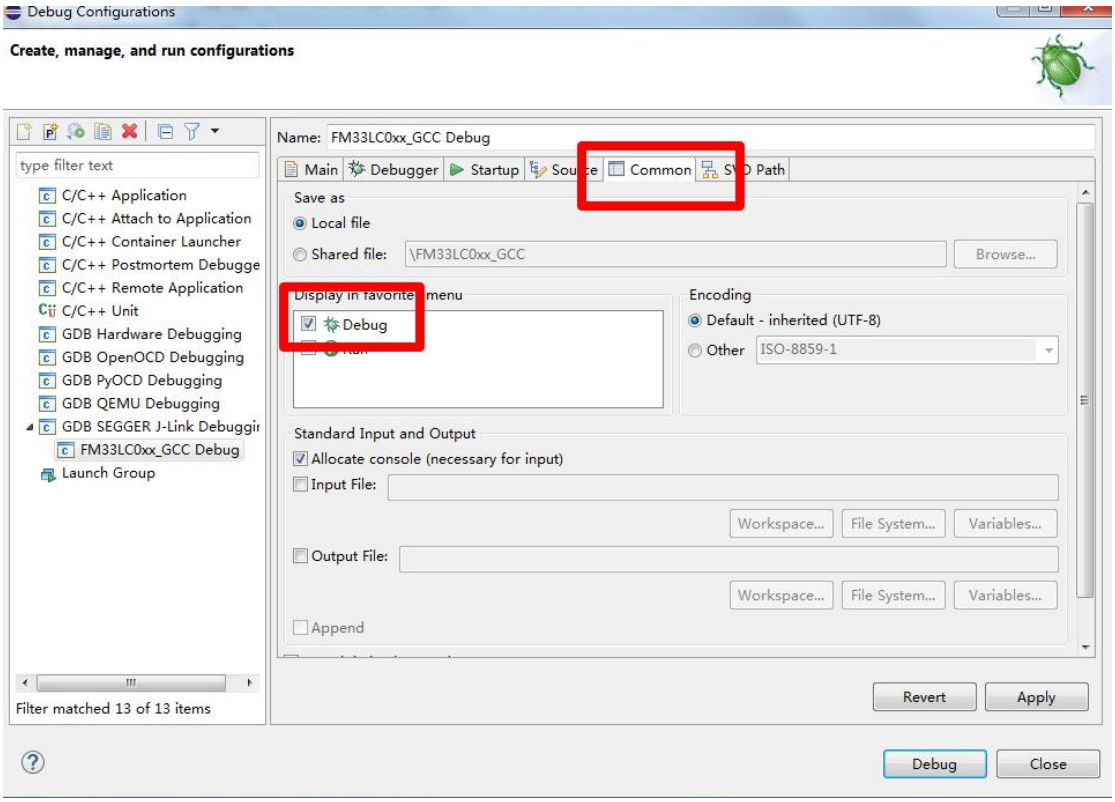
输入 Debug/FM33LC0xx_GCC.elf

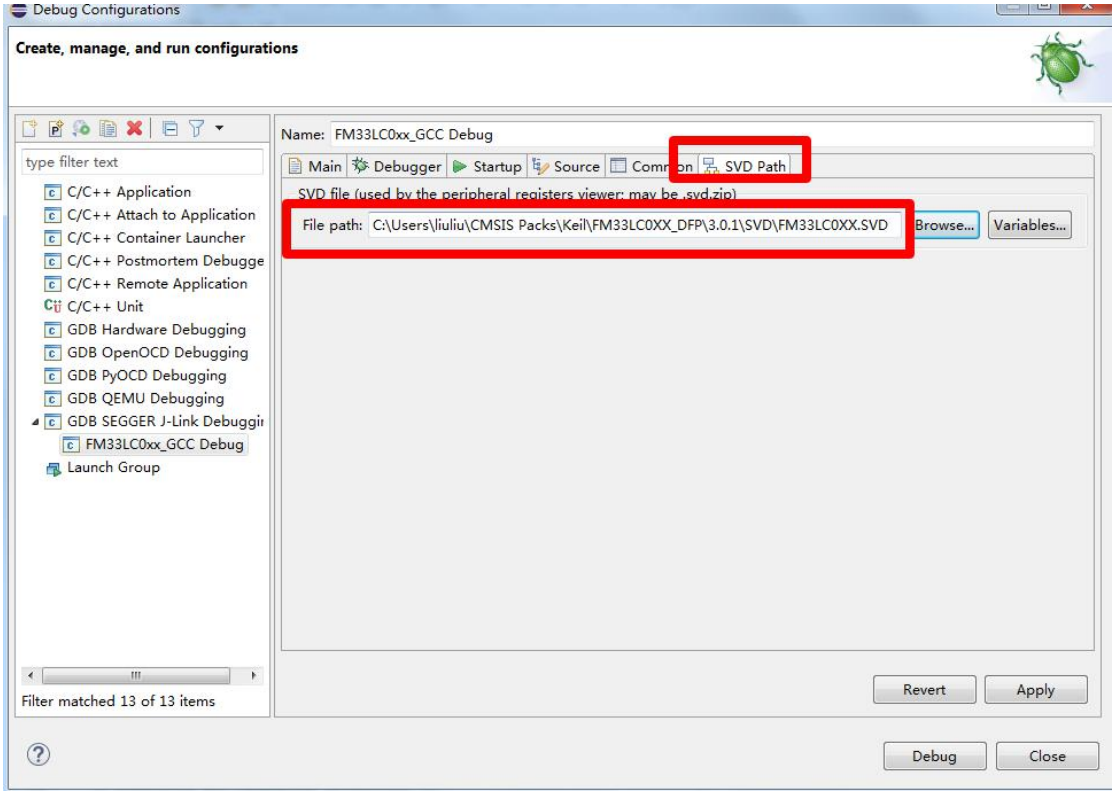



Debug Configurations
Create, manage, and run configurations
type filter text
C/C++ Application
C/C++ Attach to Application
C/C++ Container Launcher
C/C++ Postmortem Debugge
C/C++ Remote Application
C/C++ Unit
GDB Hardware Debugging
GDB OpenOCD Debugging
GDB PyOCD Debugging
GDB QEMU Debugging
GDB SEGGER J-Link Debuggi
FM33LC0xx_GCC Debug
Launch Group
Filter matched 13 of 13 items
Name: FM33LC0xx_GCC_Debug
Main
Debugger
Startup
Source
Common
SVD Path
J-Link GDB Server Setup
Start the J-Link GDB server locally
Connect to running target
Executable path:
C:\Program Files (x86)\SEGGER\JLink_V632h\JLinkGDBServerCL.exe
Browse...
Variables...
(to change it use the global or workspace preferences pages or the project properties page)
Device name:
FM33LC04X
Supported device names
Endianness:
Little
Big
Connection:
USB
IP
(USB serial or IP name/address)
Interface:
SWD
JTAG
Initial speed:
Auto
Adaptive
Fixed
1000
kHz
GDB port:
2331
SWO port:
2332
Verify downloads
Initialize registers on start
Telnet port:
2333
Local host only
Silent
Log file:
Browse...
Other options:
-singlerun -strict -timeout 0 -nogui
Revert
Apply
Debug
Close


Debug Configurations
Create, manage, and run configurations
type filter text
C/C++ Application
C/C++ Attach to Application
C/C++ Container Launcher
C/C++ Postmortem Debugger
C/C++ Remote Application
C/C++ Unit
GDB Hardware Debugging
GDB OpenOCD Debugging
GDB PyOCD Debugging
GDB QEMU Debugging
GDB SEGGER J-Link Debugging
FM33LC0XX_APP_GCC Debug
Launch Group
Filter matched 13 of 21 items
Name: FM33LC0XX_APP_GCC_Debug
Main
Debugger
Startup
Source
Common
SVD Path
Initialization Commands
Initial Reset and Halt
Type: 2
Low speed: 1000
kHz
JTAG/SWD Speed:
Auto
Adaptive
Fixed
1000
kHz
Enable flash breakpoints
Enable semihosting
Console routed to:
Telnet
GDB client
Enable SWO
CPU freq: 0
Hz. SWO freq: 0
Hz. Port mask: 0x1
monitor flash erase
flash 全擦命令，JFLASH 6.8 版本以上支持。低版本
删除这个命令行，用的是扇区擦
Load Symbols and Executable
Load symbols
Use project binary: FM33LC0XX_APP_GCC.elf
Use file:
Workspace...
File System...
Symbols offset (hex):
Load executable
Use project binary: FM33LC0XX_APP_GCC.elf
Use file:
Workspace...
File System...
Executable offset (hex):
Runtime Options
Revert
Apply
Debug
Close

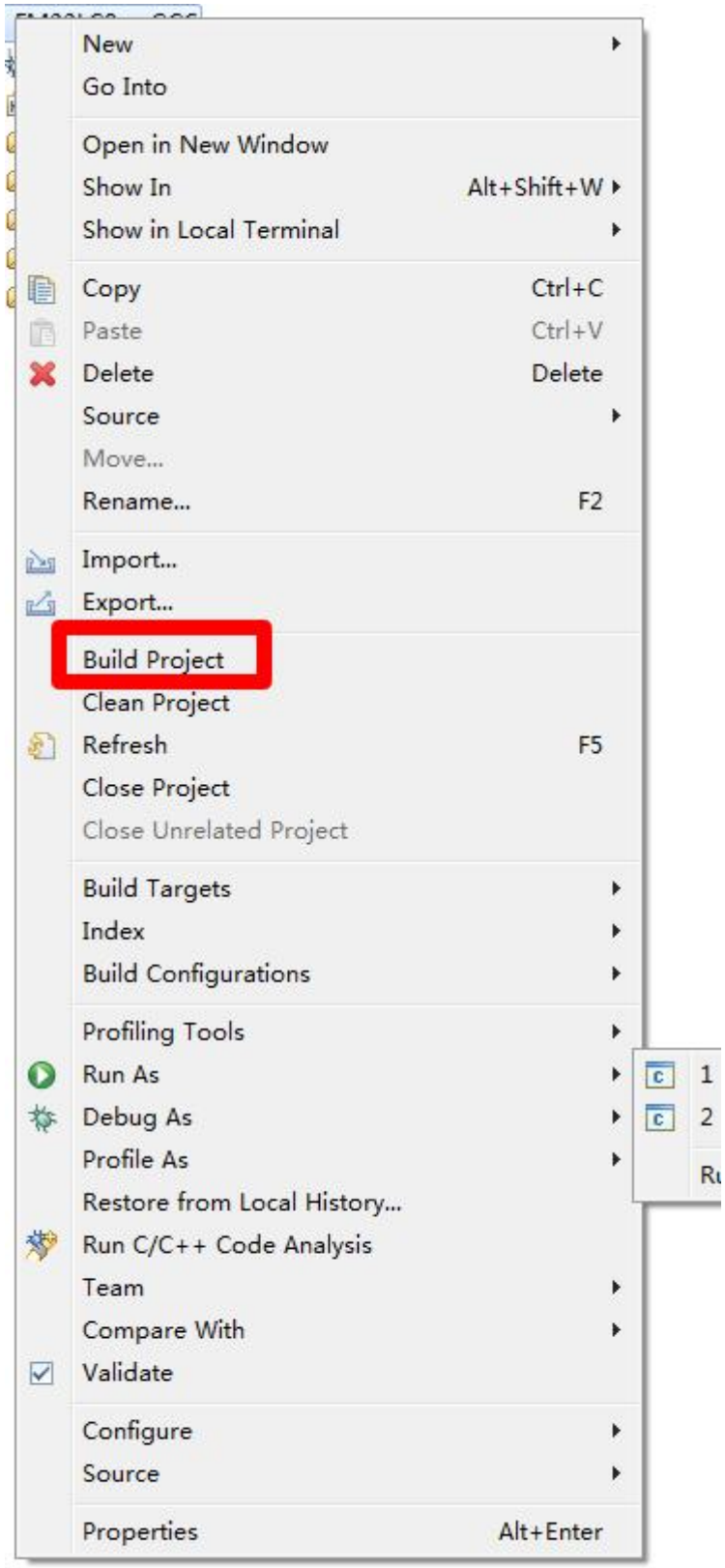

Name: FM33LC0xx_GCC Debug
Main
Debugger
Startup
Source
Common
SVD Path
Symbols offset (hex):
Load executable
Use project binary:
Use file:
Workspace...
File System...
Executable offset (hex):
Runtime Options
RAM application (reload after each reset/restart)
Run/Restart Commands
Pre-run/Restart reset
Type:
(always executed at Restart)
Set program counter at (hex):
Set breakpoint at:
main
Continue
Revert
Apply
Debug
Close


Debug Configurations
Create, manage, and run configurations
type filter text
C/C++ Application
C/C++ Attach to Application
C/C++ Container Launcher
C/C++ Postmortem Debugge
C/C++ Remote Application
C/C++ Unit
GDB Hardware Debugging
GDB OpenOCD Debugging
GDB PyOCD Debugging
GDB QEMU Debugging
GDB SEGGER J-Link Debuggi
FM33LC0xx_GCC Debug
Launch Group
Filter matched 13 of 13 items
Name: FM33LC0xx_GCC Debug
Main
Debugger
Startup
Common
Save as
Local file
Shared file:
\FM33LC0xx_GCC
Browse...
Display in favorite menu
Debug
Encoding
Default - inherited (UTF-8)
Other
ISO-8859-1
Standard Input and Output
Allocate console (necessary for input)
Input File:
Workspace...
File System...
Variables...
Output File:
Append
Revert
Apply
Debug
Close


Debug Configurations
Create, manage, and run configurations
type filter text
C/C++ Application
C/C++ Attach to Application
C/C++ Container Launcher
C/C++ Postmortem Debugge
C/C++ Remote Application
C/C++ Unit
GDB Hardware Debugging
GDB OpenOCD Debugging
GDB PyOCD Debugging
GDB QEMU Debugging
GDB SEGGER J-Link Debuggi
FM33LC0xx_GCC Debug
Launch Group
Filter matched 13 of 13 items
Name: FM33LC0xx_GCC Debug
Main
Debugger
Startup
Source
SVD Path
SVD file (used by the peripheral registers viewer; may be .svd.zip)
File path: C:\Users\liuliu\CMSIS Packs\Keil\FM33LC0XX_DFP\3.0.1\SVD\FM33LC0XX.SVD
Browse...
Variables...
Revert
Apply
Debug
Close

编译和仿真

工程右键单击 Build Project 执行编译



点击 DEBUG 符号进入仿真界面