risc-v IDE调试

发布版本：1.0

作者邮箱：jason.zhu@rock-chips.com

日期：2018.12

文件密级：公开资料

前言

概述

本文参考《FreedomStudio IDE使用说明》，供risc-v调试使用。

读者对象

本文档（本指南）主要适用于以下工程师：

技术支持工程师

软件开发工程师

产品版本

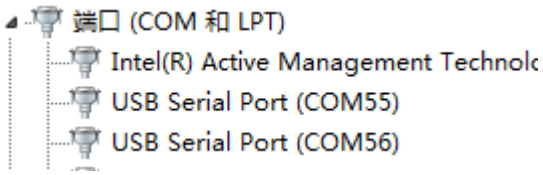
修订记录

日期	版本	作者	修改说明
2018-12-27	V1.0	Jason Zhu	初始版本

Hifive1调试

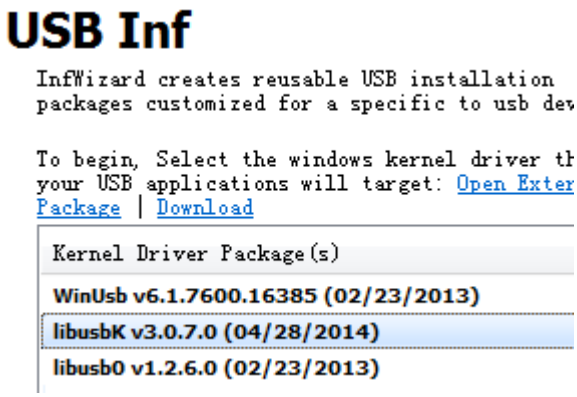
安装HIFIVE1上的FTDI驱动

HiFive插到电脑，windows默认把FTDI识别成两个UART，如下：



这会导致IDE无法连接设备进行调试，需要把其中一个Dial RS232-HS，解决方法如下：

1. 从https://sourceforge.net/projects/libusbk/下载libusbk
2. 安装libusbk
3. 在安装目录下找到libusbK-inf-wizard.exe，运行。
4. 选择安装的libusbk，下一步

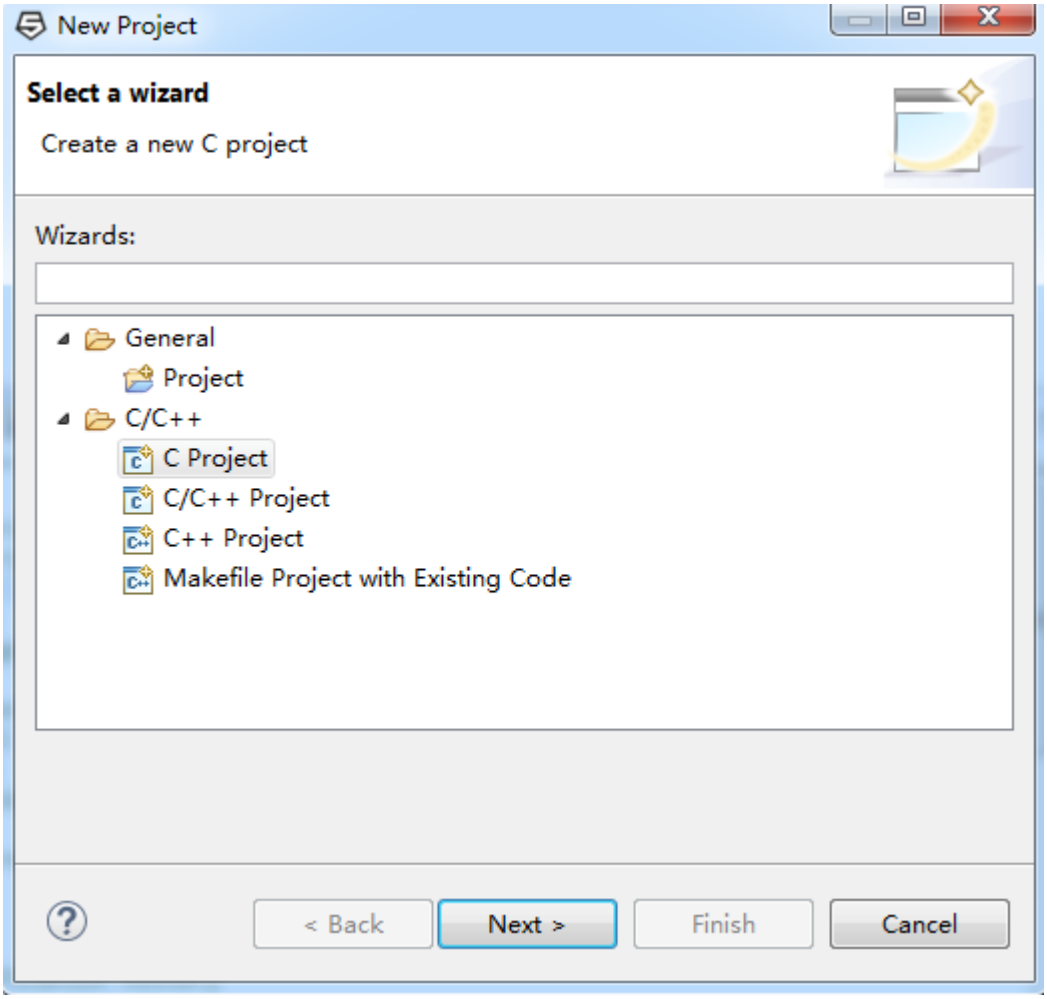


5. 选中Show All Device，可以看到三个Dual RS232-HS。 第一个是父节点， 第二和第三个是两个子节点。如果选中父节点， 则生成的驱动会应用到父节点上。 如果选中某个子节点， 则生成的驱动只应用到相应的子节点上。 HiFive1的第一个FTDI口用作JTAG， 第二个FTDI口作UART。 所以生成驱动时，选择第一个子节点就可以。
6. 运行生成目录Dual_RS232-HS_Interface_0下的InstallDriver.exe
7. 最后可以在设备管理器上查找到对应的设备，如下：

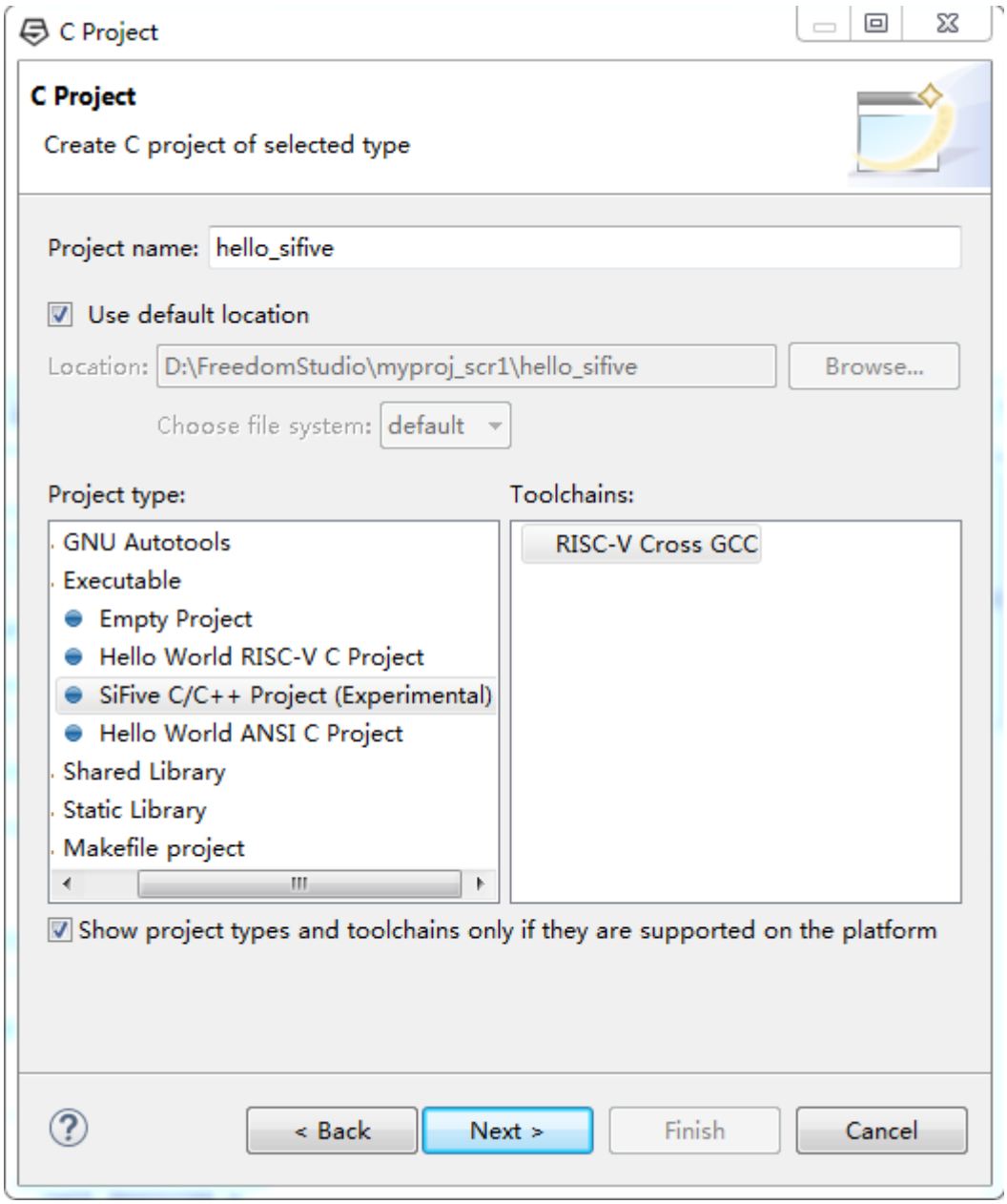
至此，驱动安装完成。

基于IDE的工程建立与调试

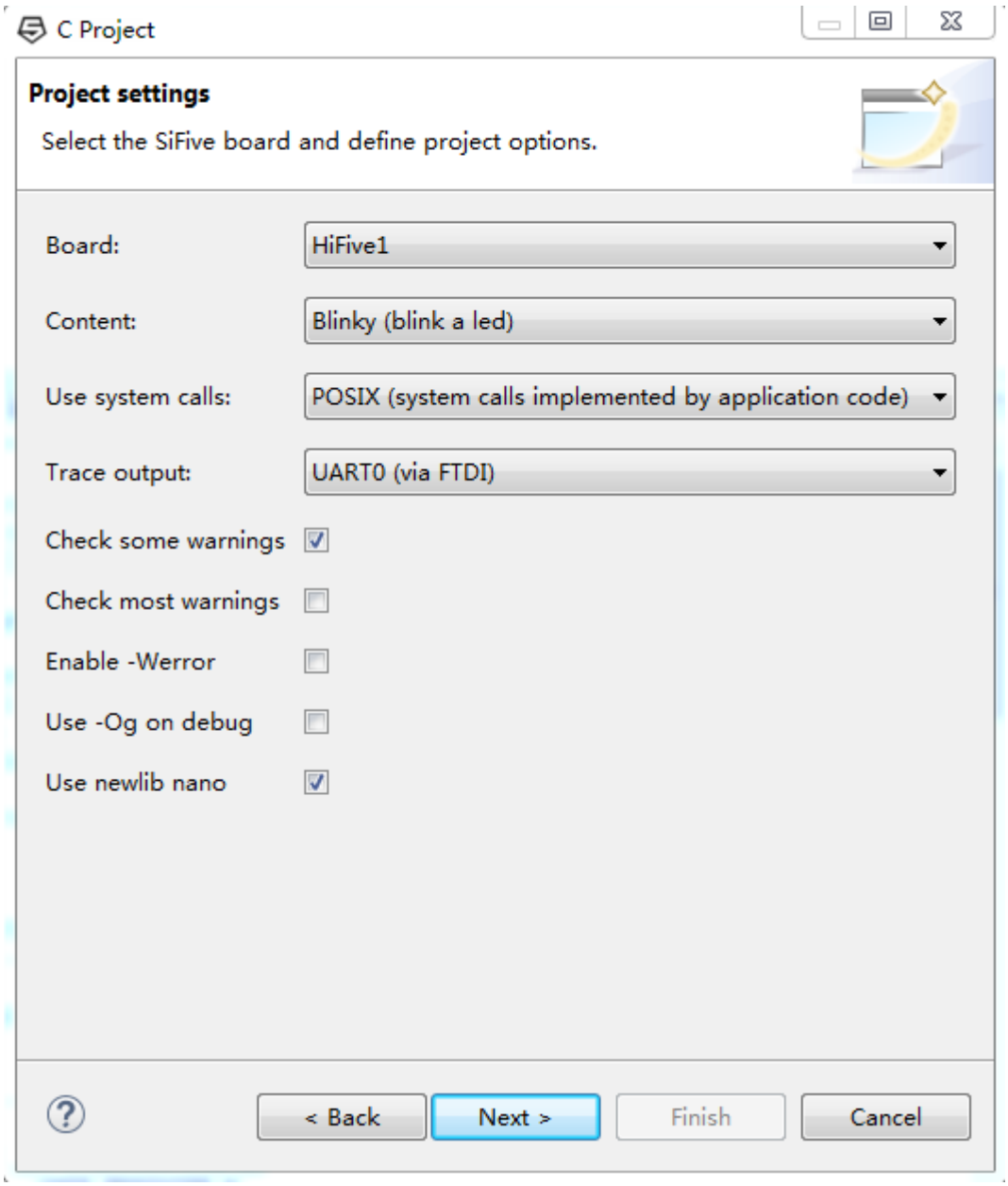
1.File->New->Project->C Project



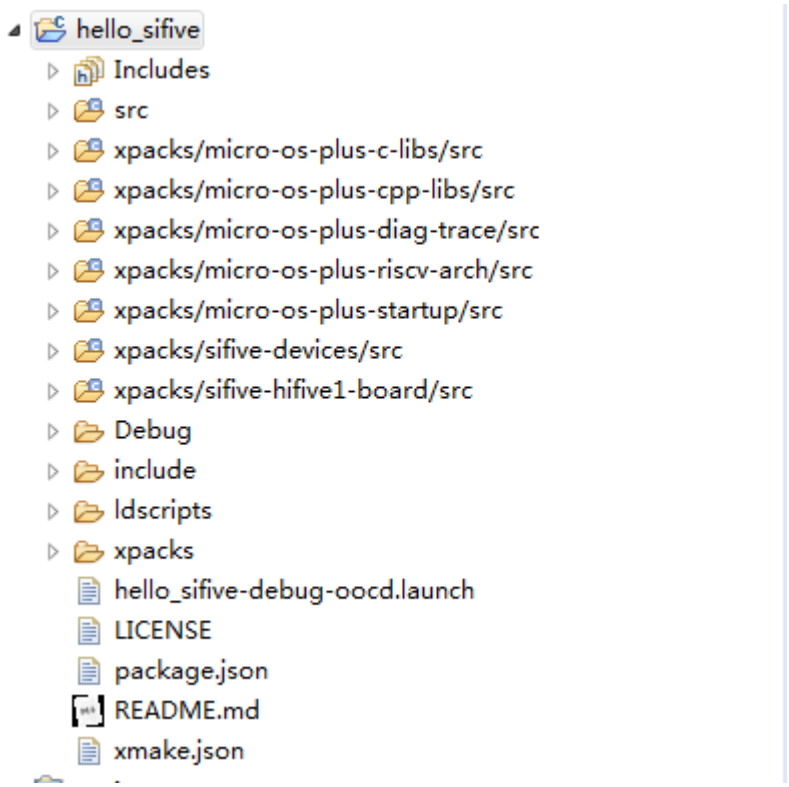
2.点开C Project，选择SiFive C/C++ Project，Project name输入工程名，如hello_fifive：


C Project
C Project
Create C project of selected type
Project name: hello_sifive
Use default location
Location: D:\FreedomStudio\myproj_scr1\hello_sifive
Browse...
Choose file system: default
Project type:
Toolchains:
GNU Autotools
Executable
Empty Project
Hello World RISC-V C Project
SiFive C/C++ Project (Experimental)
Hello World ANSI C Project
Shared Library
Static Library
Makefile project
RISC-V Cross GCC
Show project types and toolchains only if they are supported on the platform
< Back
Next >
Finish
Cancel

3.点击next

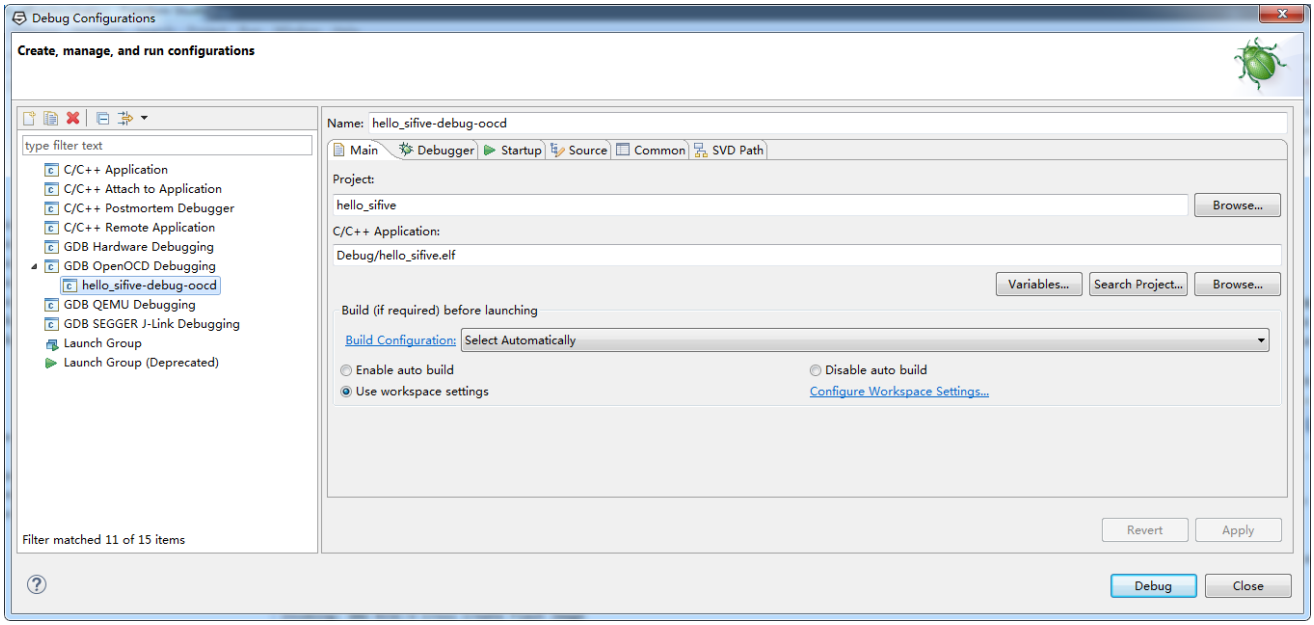


4.后续都采用默认操作，点击next，最后点击finish。

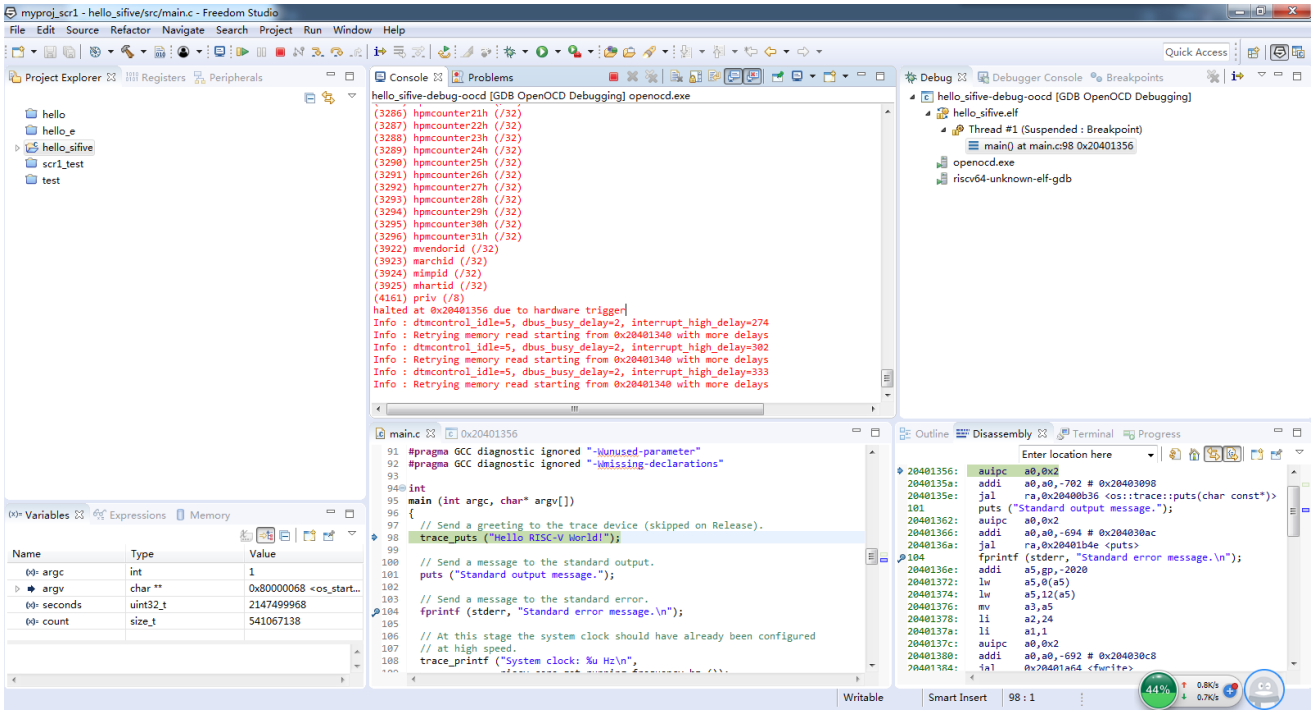


5.点击hello_sifive，右键点击build project，编译工程。

6.调试：连接板子，点击hello_sifive，右键点击Debug configurations



7.点击debug，调试工程。



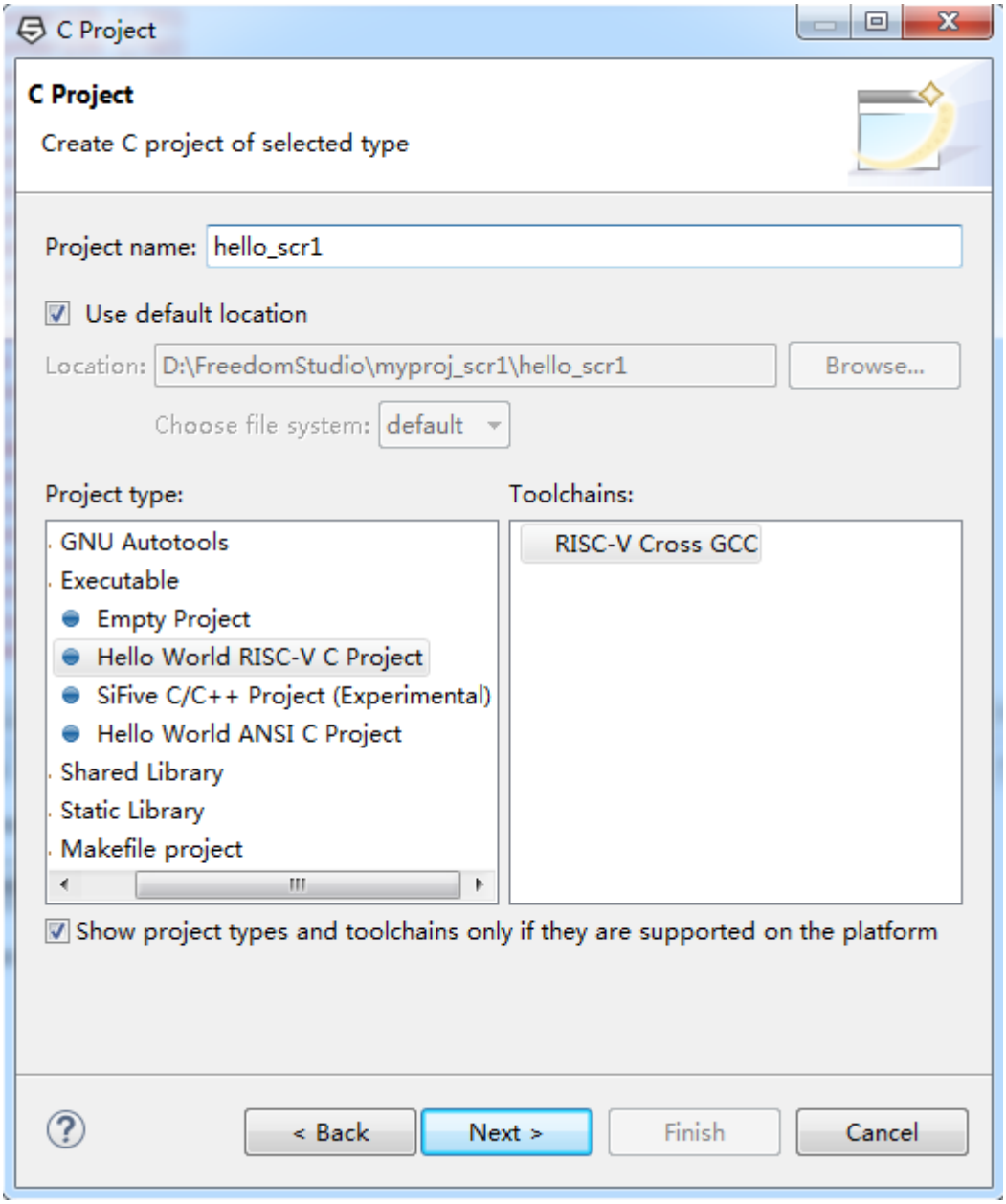
SCR1调试

安装调试器驱动

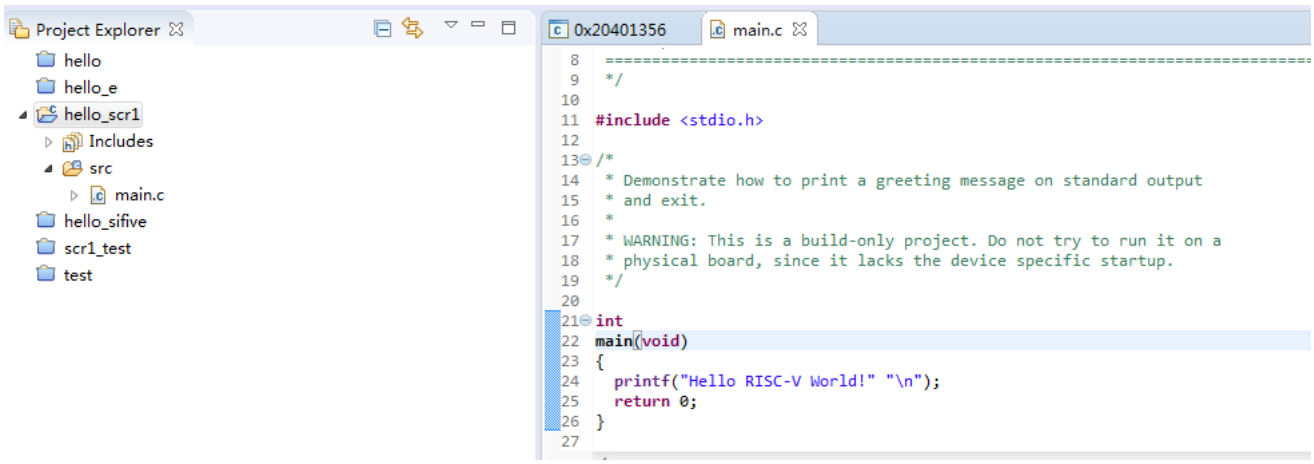
参考安装HIFIVE1上的FTDI驱动章节安装驱动。

基于IDE的工程建立与调试

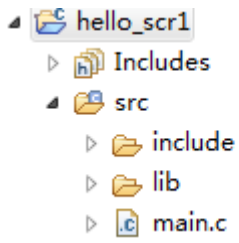
1.File->New->Project->C Project，Project name输入hello_scr1，选择Hello World RISC-V C Project



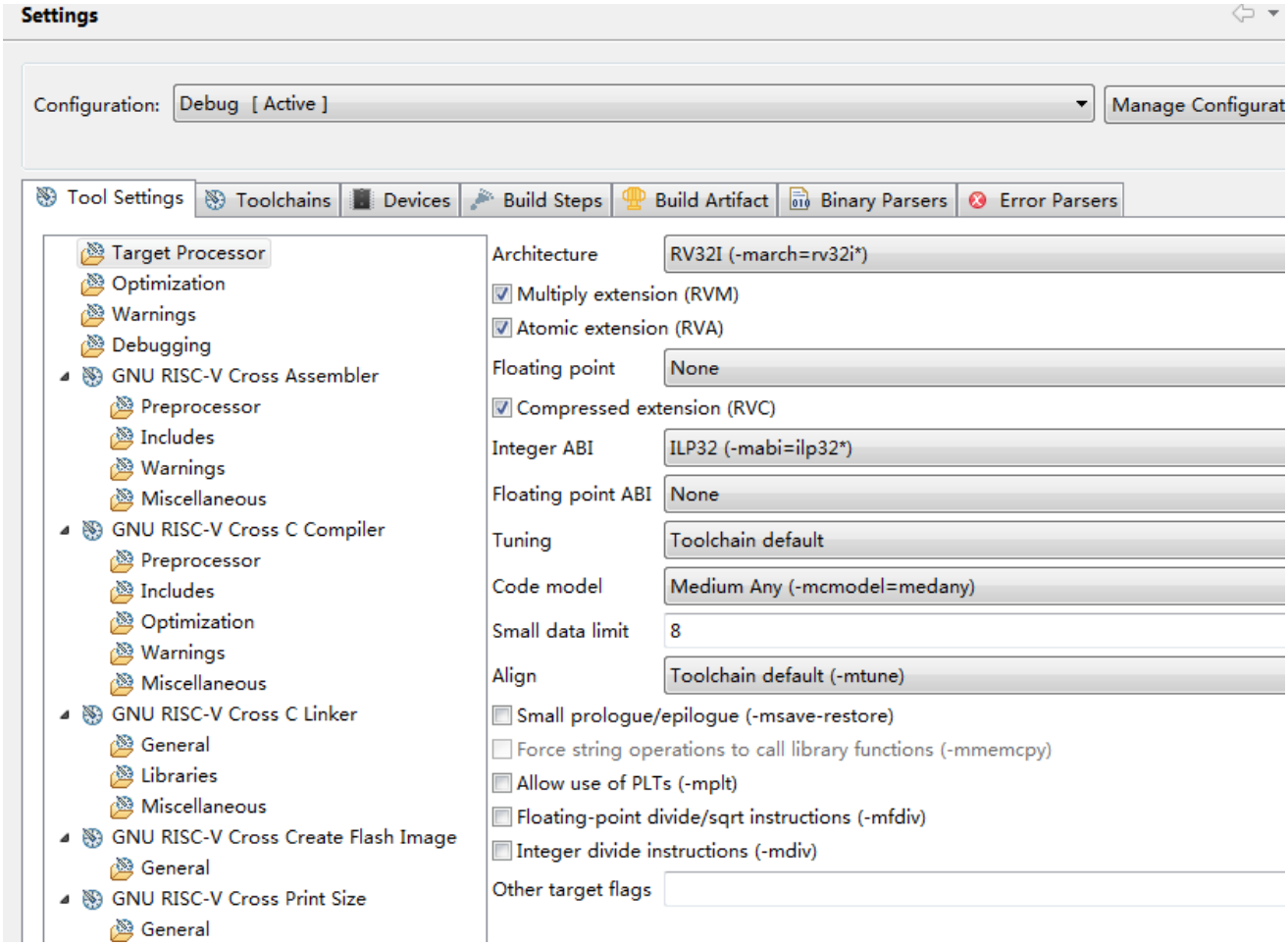
2.一直点击next，finish



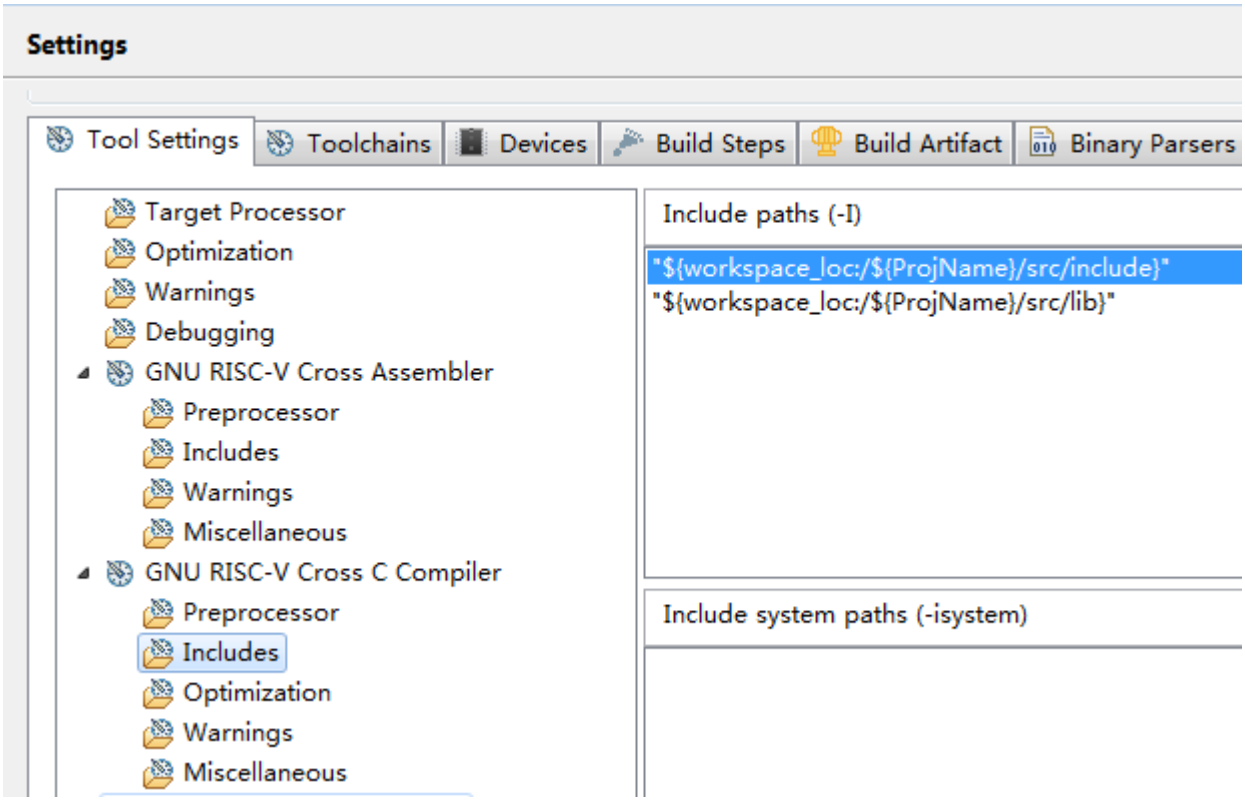
3.拷贝hello_ncore内的include与lib文件夹到工程目录src下，然后点击右键Refresh



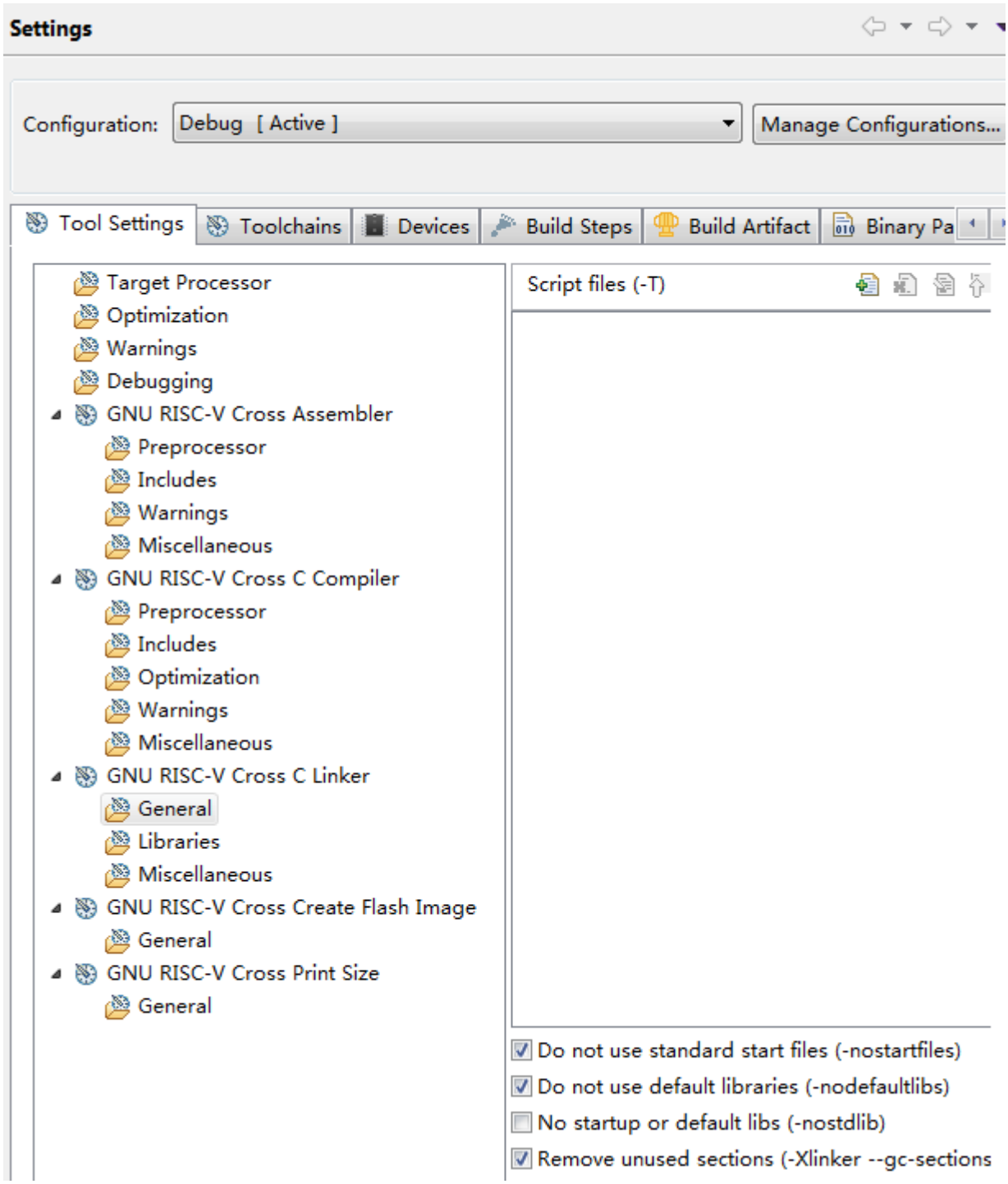
4.点击工程名右键Properties，选择C/C++ Build->Settings，如下配置Target Processor

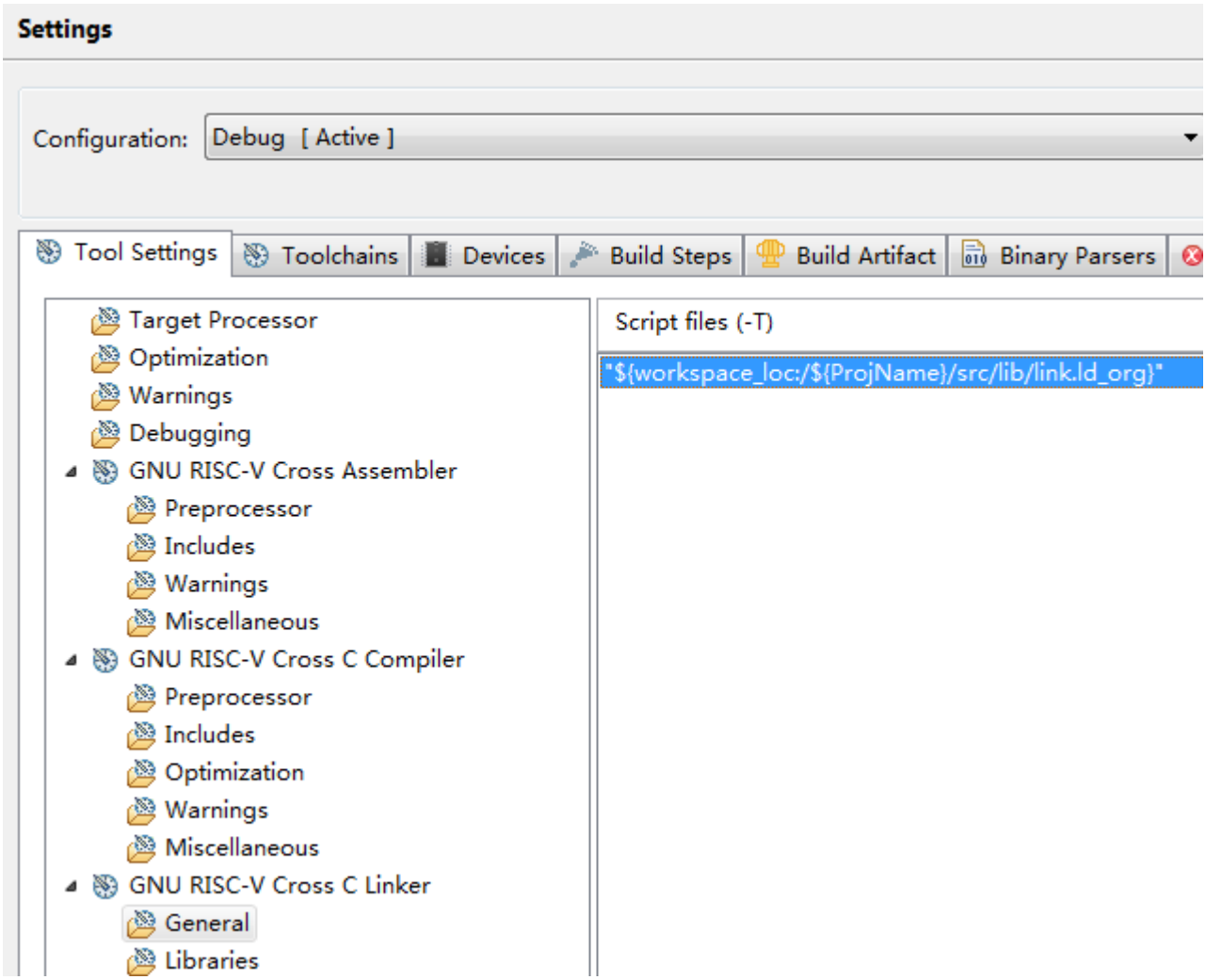


5.选择GNU RISC-V Cross C Compiler->Includes，配置如下

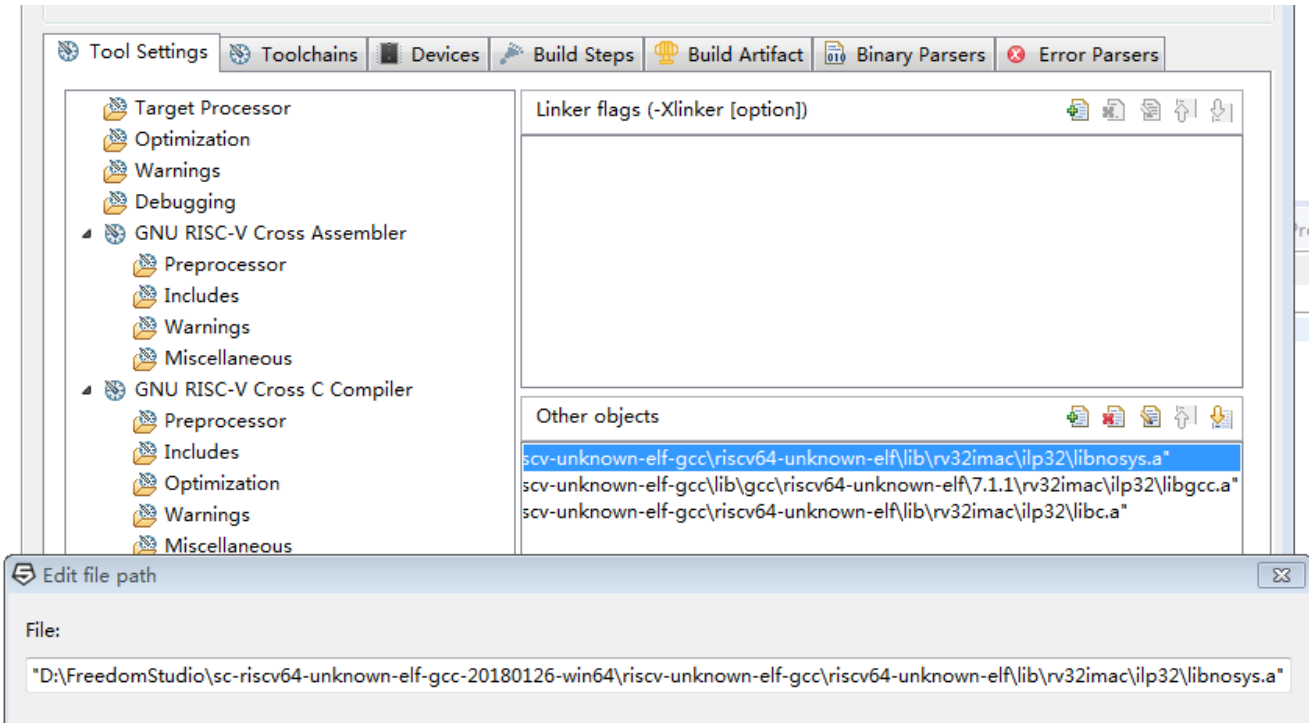


6.选择GNU RISC-V Cross C Linker->General，配置如下


Settings
Configuration: Debug [Active]
Manage Configurations...
Tool Settings
Toolchains
Devices
Build Steps
Build Artifact
Binary Pa
Target Processor
Optimization
Warnings
Debugging
GNU RISC-V Cross Assembler
Preprocessor
Includes
Warnings
Miscellaneous
GNU RISC-V Cross C Compiler
Preprocessor
Includes
Optimization
Warnings
Miscellaneous
GNU RISC-V Cross C Linker
General
Libraries
Miscellaneous
GNU RISC-V Cross Create Flash Image
General
GNU RISC-V Cross Print Size
General
Script files (-T)
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

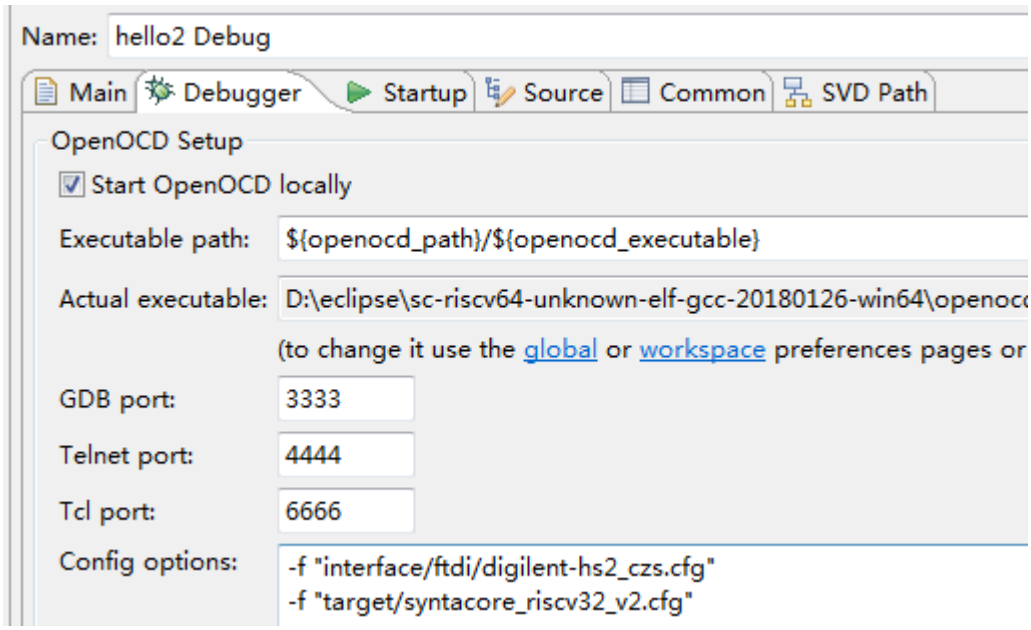


7.选择GNU RISC-V Cross C Linker->Miscellaneous

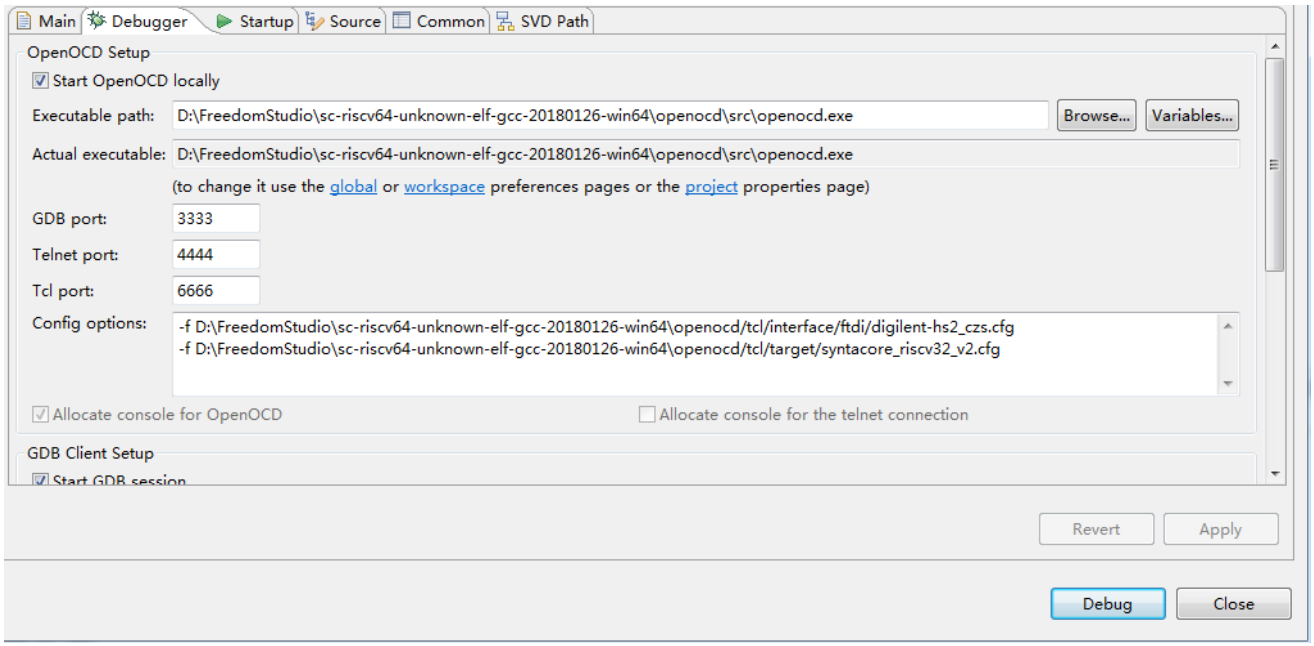


8.将main.c中的printf改为sc_printf, 同时添加**#include** "sc_print.h"，编译成功。

9.调试：连接板子，点击hello_scr1，右键点击Debug configurations



如果连接错误，可以尝试使用绝对路径，配置如下：



10.Debug