

Build Linux Application in DS-5

1. Overview

This document introduced how to create and compile Linux applications using ARM DS-5 software development tool. It can be operated on Linux or Windows Host.

2. Equipment Preparations

No.	Item	Number (pc)	Purpose
1	PC	1	Establish the whole development platform including Installing DS-5 Software and creating and compiling Linux applications through DS-5
2	DS-5 Development Tool	1	ARM development tool, use the Gcc to compile Linux Applications under Linux or Windows Host This article is applied to the 30 days evaluation version or professional version. DS-5 30-days evaluation version is refer to the links in below introduction.
3	MYD-SAMA5D3X Development Board	1	The MYD-SAMA5D3X development board is based on Atmel SAMA5D3 ARM Cortex-A5 processors. It can run Linux and Android operating systems on board and develop using the ARM DS-5. We will use the 5V power adapter and serial cable during the operation introduced in this article.
4	U Disk	1	Use the U disk to copy the compiled applications to the development board.

3. Equipment Introduction

Except PC, please find below links for introduction of other equipment:

(1) ARM DS-5 Introduction:

<http://www.arm.com/products/tools/software-tools/ds-5/index.php>

(2) Get ARM DS-5 30-days evaluation version:

<http://ds.arm.com/downloads/>

(3) Introduction of the MYD-SAMA5D3X development board:

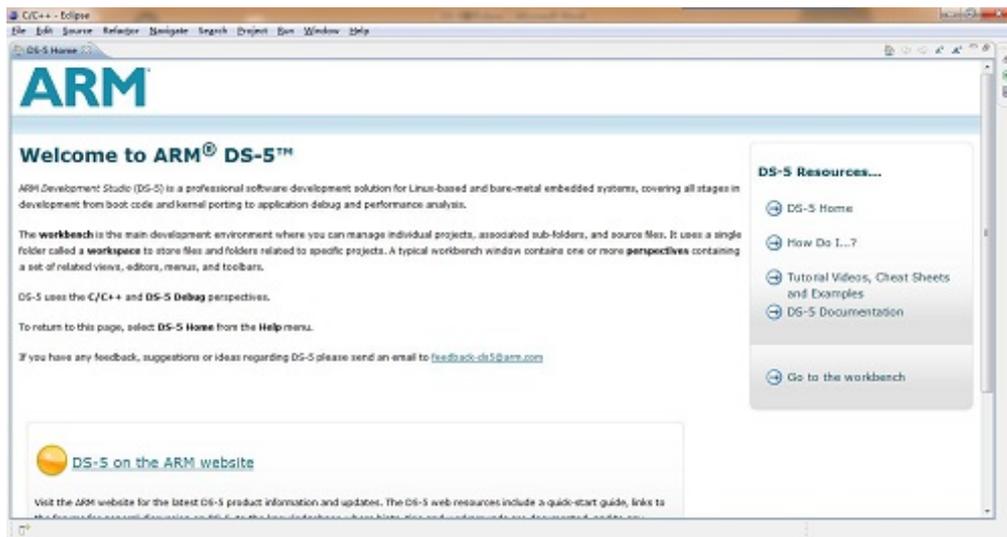
<http://www.myirtech.com/list.asp?id=432>

(4) Introduction of the MYC-SAMA5D3X CPU Module:

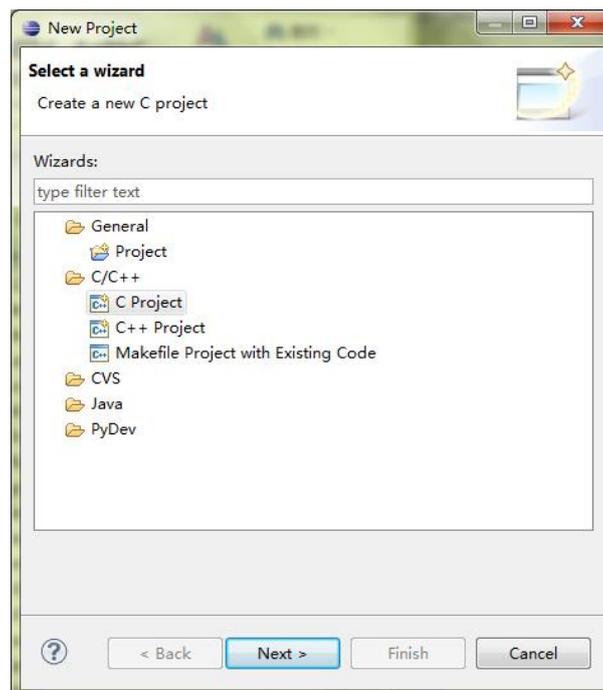
<http://www.myirtech.com/list.asp?id=456>

4. Development Steps

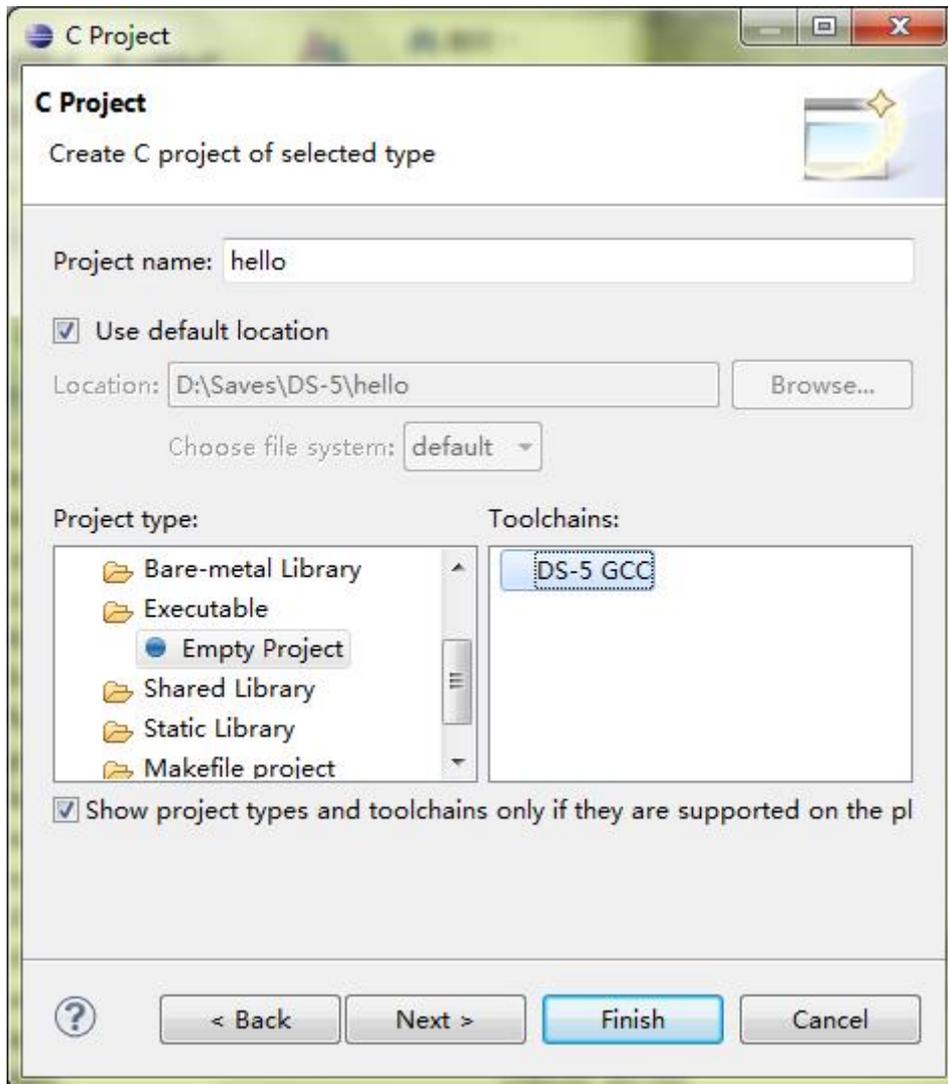
1) To start the DS-5 from the Start Menu, you will see the welcome interface of the DS-5. Click close button or “Go to the workbench” to get into workbench.



2) Select “File > New > Project” and then select “C Project” under “C/C++” in popup dialog, click “Next”

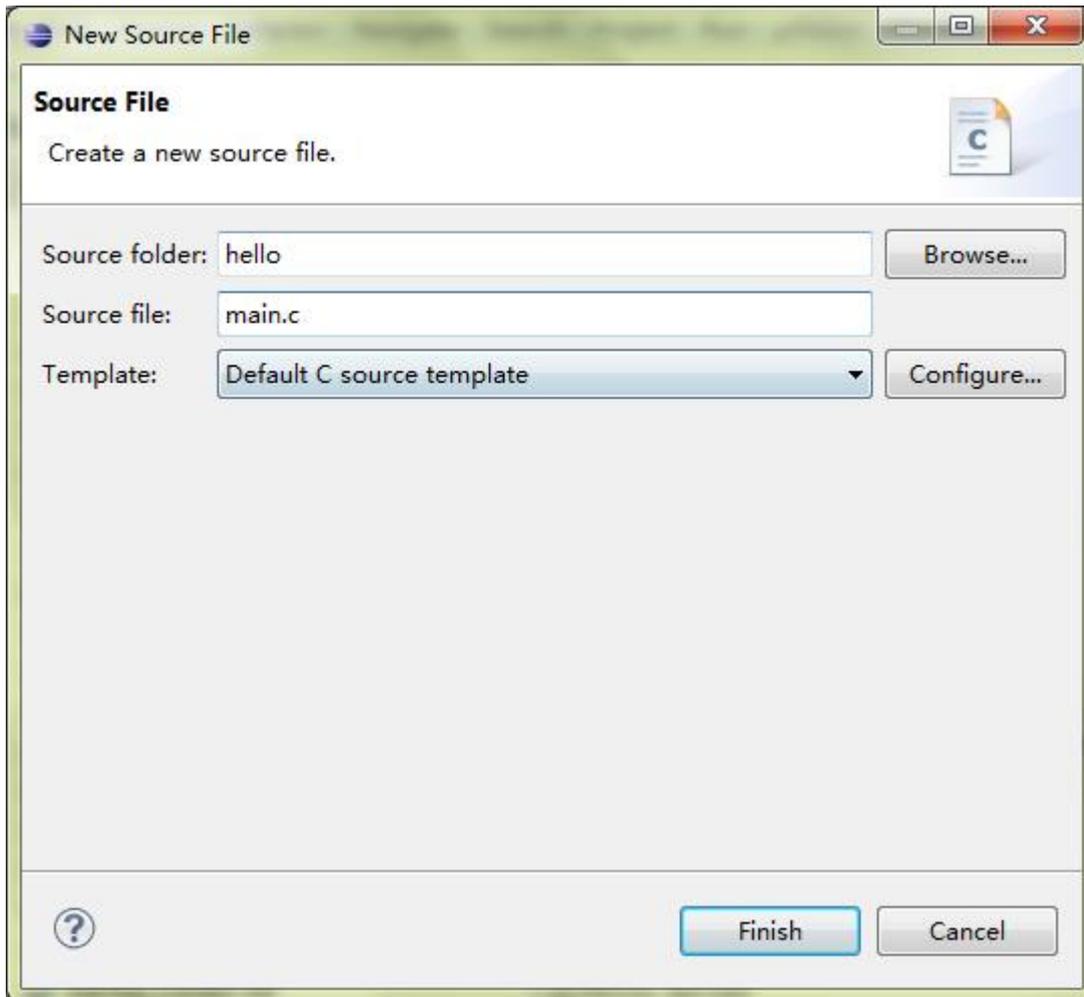


3) Please input “Project name” in “C Project” dialog, here we use “hello” as the project name, click “empty project” under “executable” and then click “Next”.



4) After getting into next step, click “Finish” to complete creation and get into the workbench. You will see the newly created “hello” project in the project explorer on the left side of DS-5. Spread it and you will see the “Includes” contains some folders automatically which we will need for compiling and have been added automatically in DS-5.

5) Select “File > New > source file” and input the file “main.c” in popup dialog “source file”, and then click ”Finish”.



6) After the file “main.c” open automatically (or double-click to open it), please add below codes after the automatically generated annotations and save it.

```
/*  
  
* main.c  
  
*  
* Created on: 2013-8-27  
  
* Author: GARY  
  
*  
* Copyright: Shenzhen MYIR Tech Limited  
  
* Support: www.myir-tech.com/bbs/  
  
*  
*/
```

```

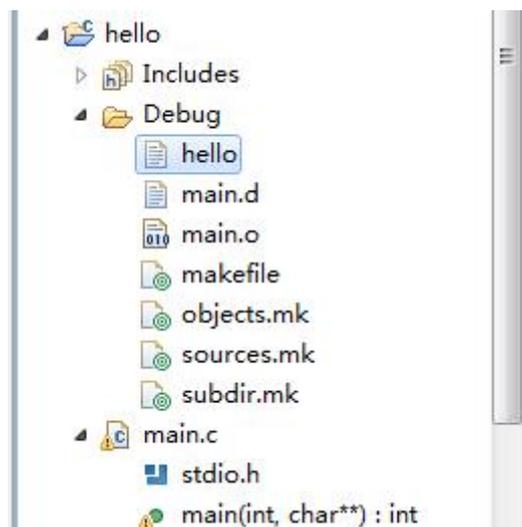
*/

#include

int main(int argc, char** argv)
{
    while(1){
        printf("Welcome to ARM DS-5!\n"); //print contents
        sleep(1); //sleep 1s, also wait 1s
    }
    return 0;
}

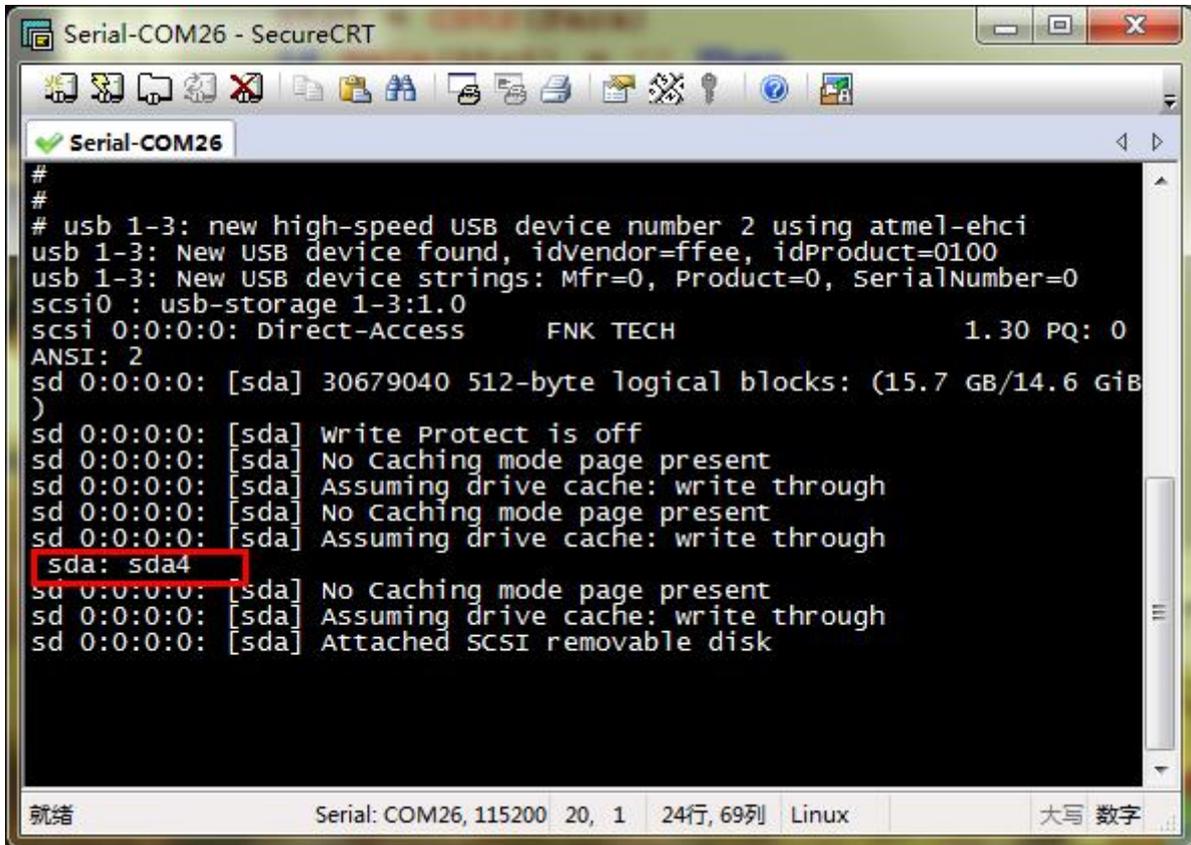
```

7) Select the “hello” project under the Project Explorer. And then select “Project > Build Project” to compile the project, if there is no error in problems column, it means the compiling is successful. Meanwhile, an executable file “hello” will be created under the “Debug” folder in hello project.



Now we will use U disk to copy the “hello” application to the development board and run it. Of course, we can also use the DS-5 RSE (Remote System Explorer) to copy it.

8) Copy the “hello” application to the U disk and then insert the U disk to the USB_HOST (J24) port of the MYD-SAMA5D3X development board.



```
Serial-COM26 - SecureCRT
Serial-COM26
#
#
# usb 1-3: new high-speed USB device number 2 using atmel-ehci
usb 1-3: New USB device found, idVendor=ffee, idProduct=0100
usb 1-3: New USB device strings: Mfr=0, Product=0, SerialNumber=0
scsi0 : usb-storage 1-3:1.0
scsi 0:0:0:0: Direct-Access      FNK TECH                1.30 PQ: 0
ANSI: 2
sd 0:0:0:0: [sda] 30679040 512-byte logical blocks: (15.7 GB/14.6 GiB)
sd 0:0:0:0: [sda] write Protect is off
sd 0:0:0:0: [sda] No Caching mode page present
sd 0:0:0:0: [sda] Assuming drive cache: write through
sd 0:0:0:0: [sda] No Caching mode page present
sd 0:0:0:0: [sda] Assuming drive cache: write through
sda: sda4
sd 0:0:0:0: [sda] No Caching mode page present
sd 0:0:0:0: [sda] Assuming drive cache: write through
sd 0:0:0:0: [sda] Attached SCSI removable disk
```

9) Create a new directory “/mnt/usb” and mount the U disk to this directly using below commands:

```
#mkdir /mnt/usb
#mount -t vfat /dev/sda4 /mnt/usb/
```

The “sda4” is according to the actual mounted serial number as shown in above image.

10) Create a new work folder under the “/home” directory of the development board using below commands:

```
#mkdir /home/works
```

11) Copy the data in U disk to the work directory of the development board using below commands:

```
#cp /mnt/usb/* /home/works/
```

If the “hello” program is in other directory of the U disk, please use the command according to actual conditions. The above command is using the U disk root directory by default.

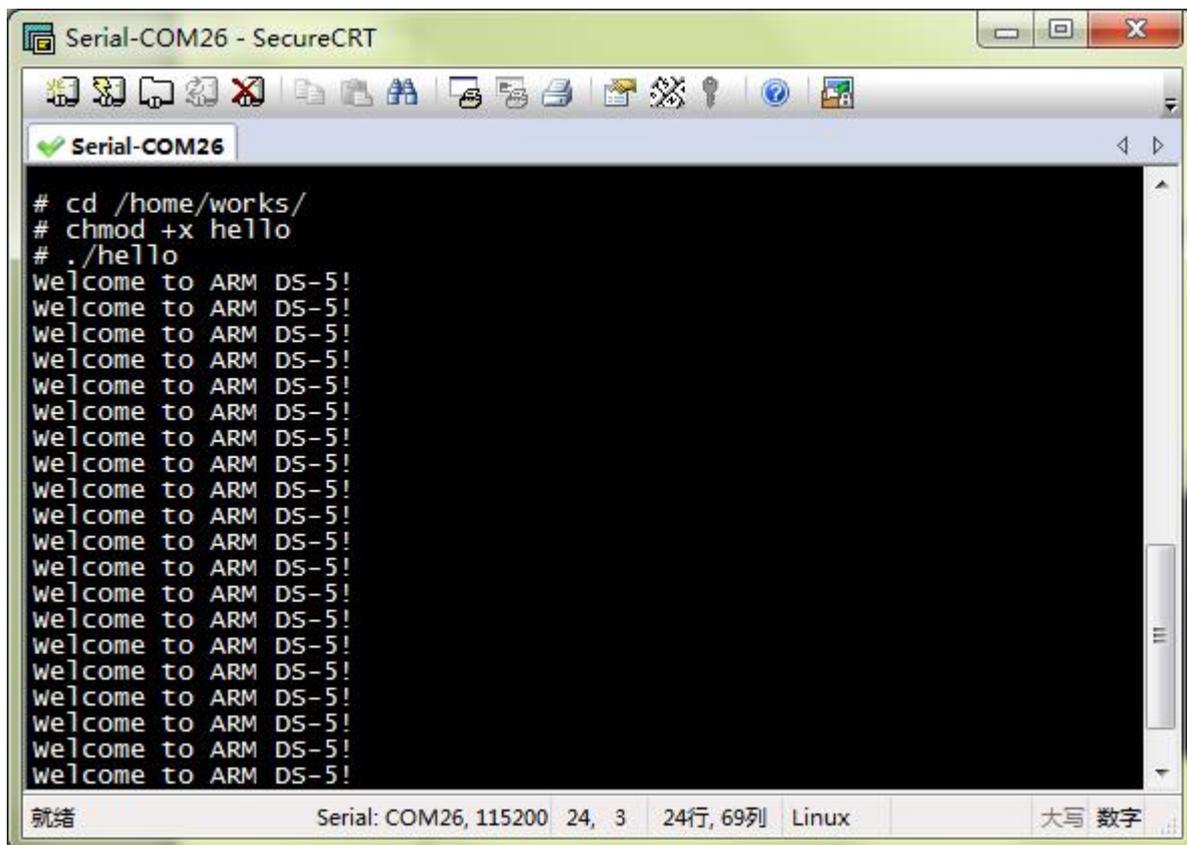
12) Switch to the work directory and execute the application:

```
# cd /home/works/
```

```
# chmod +x hello
```

```
# ./hello
```

The result will be as below:



```
Serial-COM26 - SecureCRT  
Serial-COM26  
# cd /home/works/  
# chmod +x hello  
# ./hello  
welcome to ARM DS-5!  
就绪 Serial: COM26, 115200 24, 3 24行, 69列 Linux 大写 数字
```