SEED International Ltd.

SEED-XDS560v2 JTAG Emulator User's Guide

2011-05

DSP Development Systems

SEED-XDS560v2 JTAG Emulator
Installation User's Guide

Version: A

2011.7

http://www.seeddsp.com

IMPORTANT NOTICE

SEED Electronic Technology Ltd reserves the right to make changes to its products or to discontinue any product or service without notice. Customers are advised to obtain the latest version of relevant information to verify that the data being relied on is current before placing orders.

Preface

Read This First

About This Manual

This document describes the installation and operations of the SEED-XDS560v2 Emulator.

The SEED-XDS560v2 Emulator is used for the development platform of Texas Instruments DSP processor. The SEED-XDS560v2 Emulator is a high speed emulator and adapts to all series of Texas Instruments DSP processor.

Warranty

The warranty period for all hardware and software products manufactured by SEED International is one year after shipment. SEED International guarantees free of charge repair or replacement for the manufacturer caused damaged products during warranty period. Software updates will be sent free of charge to the customer during warranty period.

Trademarks

SEED is trademark of SEED International.

TI, XDS510, XDS560 are trademarks of Texas Instruments.

If You Need Assistance …

- ☐ Web： http://www.seeddsp.com/eng

- ☐ Beijing Headquarter

Address: Unit 1201, Pan-Pacific Plaza, No. 12A,
South Street Zhongguancun, Haidian District, Beijing, P.R.China
Zip: 100081
Tel: +86-010-62109765
Fax: +86-010-62109678
E-mail: info@seeddsp.com

To help us Improve Our Documentation …

If you would like to make suggestions or report errors in documentation, please email us. Be sure to include the following information that is on the title page: the full title of the book, the publication data, and the literature number.

Email: tech-support@seeddsp.com

Caution

- **Minimizing Personal Injury:**

To minimize the risk of personal injury, always turn off the power to your PC and unplug the power cord before connect the SEED-XDS560v2 JTAG Emulator

- **Minimizing Electrical Shock and Fire Hazard:**

To minimize the risk of electric shock and fire hazard, be sure that all major components that you interface with SEED devices are limited in energy and certified by one or more of the following agencies: UL, CSA, VDE, or TUV.

Contents

Read This First **3**
About This Manual 3
Warranty 3
Trademarks 3
If You Need Assistance … 4
To help us Improve Our Documentation … 4

Caution **5**

Contents **6**

Chapter 1 ..... **8**

SEED-XDS560v2 Instruction **8**
1.1 Product Outline 8
1.1.1 SEED-XDS560v2 Hardware Features 8
1.1.2 SEED-XDS560v2 Software Features 8
1.2 Product Support 12

Chapter 2 ..... **13**

SEED-XDS560v2 Driver Installation **13**
2.1 CCS4 Installation 13
2.2 XDS560v2 Driver Installation 13
2.2.1 SEED-XDS560v2 Driver Installation 13
2.2.2 Install emulator hardware devices 17

Chapter 3 ..... **20**

SEED-XDS560v2 Usage **20**
3.1 XDS560v2 USB debug 20
3.1.1 Hardware connection 20
3.1.2 Software Debugging 20
3.2 Network Debug 24
3.3.1 Hardware connection 24
3.3.2 Software debugging 24

Chapter 4 ..... **28**

Cautions when using SEED-XDS560v2 28

Appendix A 29

JTAG Adaptor Introduction 29

A.1 SEED-XDS560v2_6014_v0.3 29

A.2 SEED-XDS560v2_6020_v0.3 30

Chapter 1

SEED-XDS560v2 Instruction

1.1 Product Outline

SEED-XDS560v2 fully supports XDS560v2 from Texas Instruments, support real-time emulation, debugging and system trace function. SEED-XDS560v2 have two kinds of communication interface: USB2.0 High speed (480MB/S) and Ethernet RJ45 (10/100M). It supports CCS4.1.3 and versions above, suitable for all the platform classes of TI including DM816x and C66xx.

1.1.1 SEED-XDS560v2 Hardware Features

- Support traditional JTAG protocol IEEE 1149.1 and IEEE 1149.7
- Support high speed USB2.0 and 10/100Mbit Ethernet host interface
- Support System Trace
- Support TI C2000/C5000/C6000/ARM/ARM Cortex/Sitara/OMAP/DaVinci classes
- Support multi-CPU debugging
- Unique MAC address
- Configurable IP addresses
- Programmable TCLK: up to 64MHZ
- MIPI standard 60-pin HSPT
- Support JTAG from +1.2 to +4.1 V
- High-speed anti-interference emulation cables

1.1.2 SEED-XDS560v2 Software Features

- Support CCS4.1.3 and versions above
- Support Windows XP/Vista/Win7

1.1.3 SEED-XDS560v2 Accessories introduces

- ☐ XDS560v2 Emulator

Figure1 XDS560v2 Emulator

☐ Ethernet port, USB interface and power interface on one side of the Emulator

☐ Six LED indicators on SEED-XDS560v2 : COM-LED1, COM-LED2, COM-LED3, EMU-LED1, EMU-LED2, EMU-LED3 (from left to right)

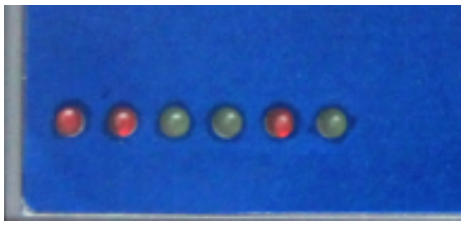


Table1 LED Information

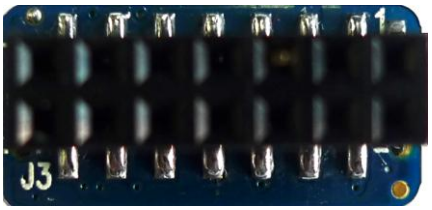
LED	Color	Description
COM-LED1	Red	XDS560v2 Ready
COM-LED2	Red	Shows XDS560v2 FPGA programmed state
COM-LED3	Green	Shows XDS560v2 system Boot Activity
EMU-LED1	Green	Shows target to XDS560v2 Trace Activity
EMU-LED2	Red	Shows XDS560v2 to host Activity
EMU-LED3	Green	Show connectivity via CCS when at on a state

☐ JTAG Adaptor (Do not plug or unplug the adaptor then it is at work)

➢ SEED-XDS560v2_6014_v0.3

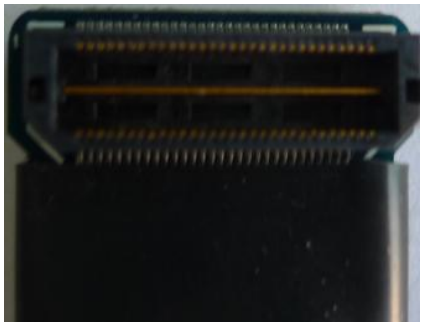
This adaptor is provided for customers' 14pin JTAG target board:

Front



Back

When customer's JTAG is 14pin, please use the front of the Adaptor to plug in the following JTAG at the end of emulator cable, then plug the back of the Adaptor into your target board.



➢ SEED-XDS560v2_6020_v0.3

This kind of Adaptor is designed for 20pin JTAG target boards:

Front

Back

When your target board is 20-pin JTAG, after plugging the front of the Adaptor into the JTAG at the end of the emulator cable, then plug the back of the Adaptor into your target board.

☐ USB A/B Cable

There exists an USB interface on SEED-XDS560v2, when you are debugging by USB or you are configuring emulator IP, please connect the A-end of the USB Cable with the USB port on the PC, B-end is used to connect USB port on the emulator

☐ Ethernet Cable

There exists an Ethernet port on SEED-XDS560v2, when you are debugging by network, please connect the net port on 560v2 and PC (or Router) with this Ethernet cable.

☐ 5V Power

When powering the emulator, please connect the power port on the emulator with the right side 5V Power

☐ CD ROM

This CD ROM includes:

SEED-XDS560v2 Driver.exe

SEED-XDS560v2 JTAG Emulator Installation User's Guide

SEED-XDS560v2 Configuration Tools Users' Guide

Note: SEED is updating the software time to time, please pay attention to the news on www.seeddsp.com/eng to upgrade your driver.

1.2 Product Support

- Please contact your local distributor to get directly product support
- You can also send email to SEED International directly: tech-support@seeddsp.com

Chapter 2

SEED-XDS560v2 Driver Installation

The minimum system requirement for installing XDS560v2:

- Windows XP Professional edition
- Code Composer Studio™V4.1.3.00038

Note

SEED-XDS560v2 only supports Code Composer Studio with CCS 4.1.3.00038 and version above

Before installing driver, please make sure you have installed CCS already.

The manual take CCS4.2.3.00004 as an example.

Caution

To minimize the risk of personal injury, always turn off the power to your PC and unplug the power cord before connecting the SEED-XDS560v2 JTAG Emulator

To minimize the risk of electric shock and fire hazard, be sure that all major components that you interface with SEED devices are limited in energy and certified by one or more of the following agencies: UL, CSA, VDE, or TUV.

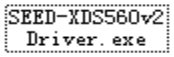
2.1 CCS4 Installation

2.2 XDS560v2 Driver Installation

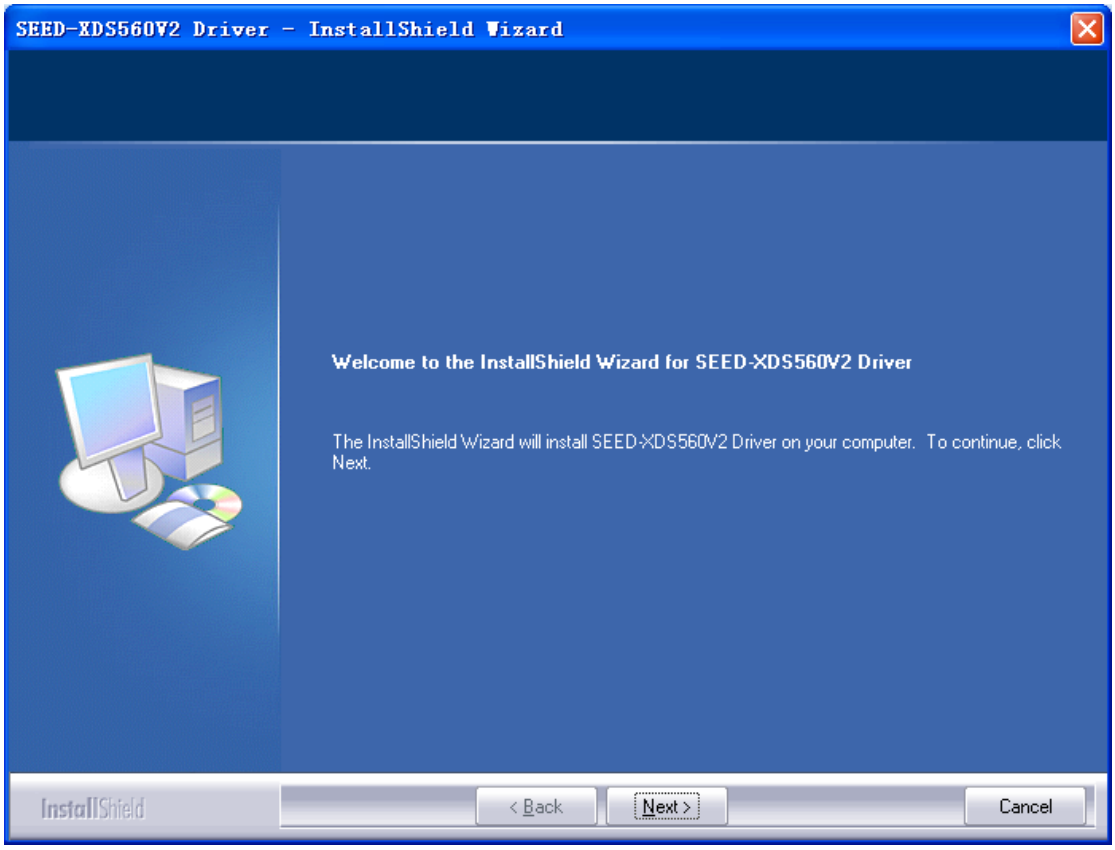
Please install the driver in strict accordance with the following step.

2.2.1 SEED-XDS560v2 Driver Installation

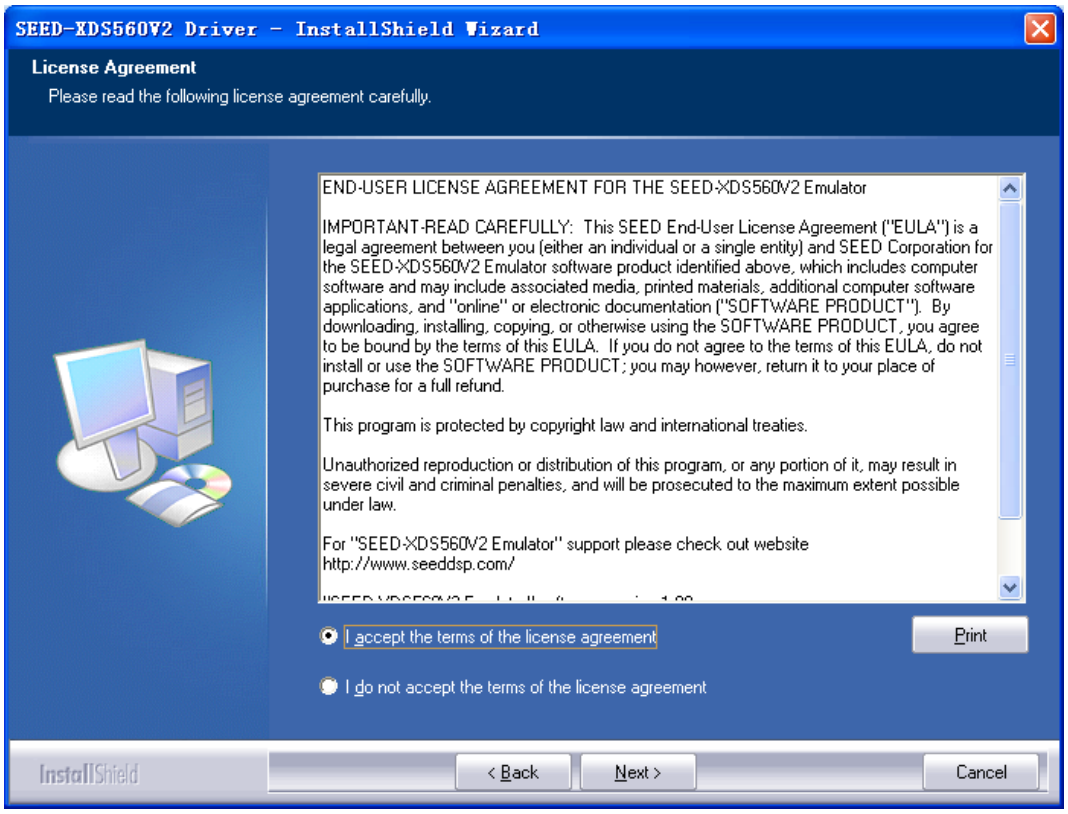
1. Click "SEED-XDS560v2 Driver.exe ", start installation.



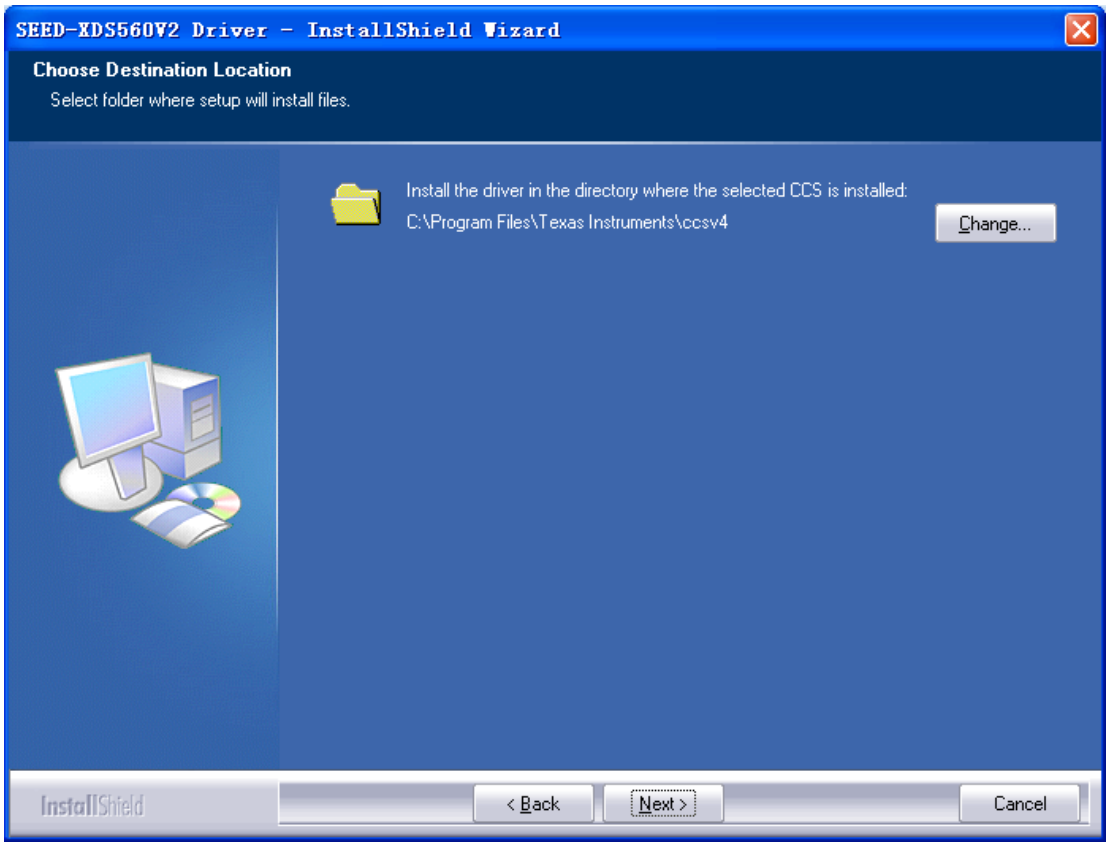
2. Click “Next “.



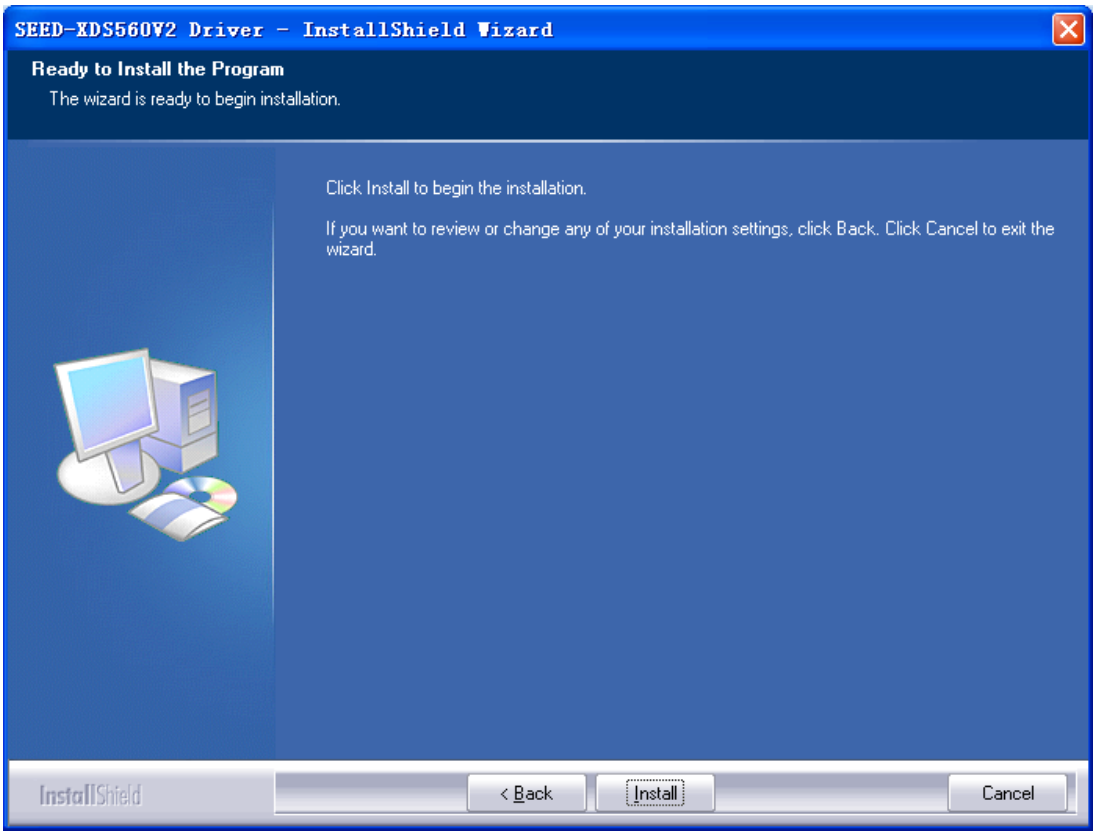
3. Choose “I access the terms of the license agreement “, click “Next “.



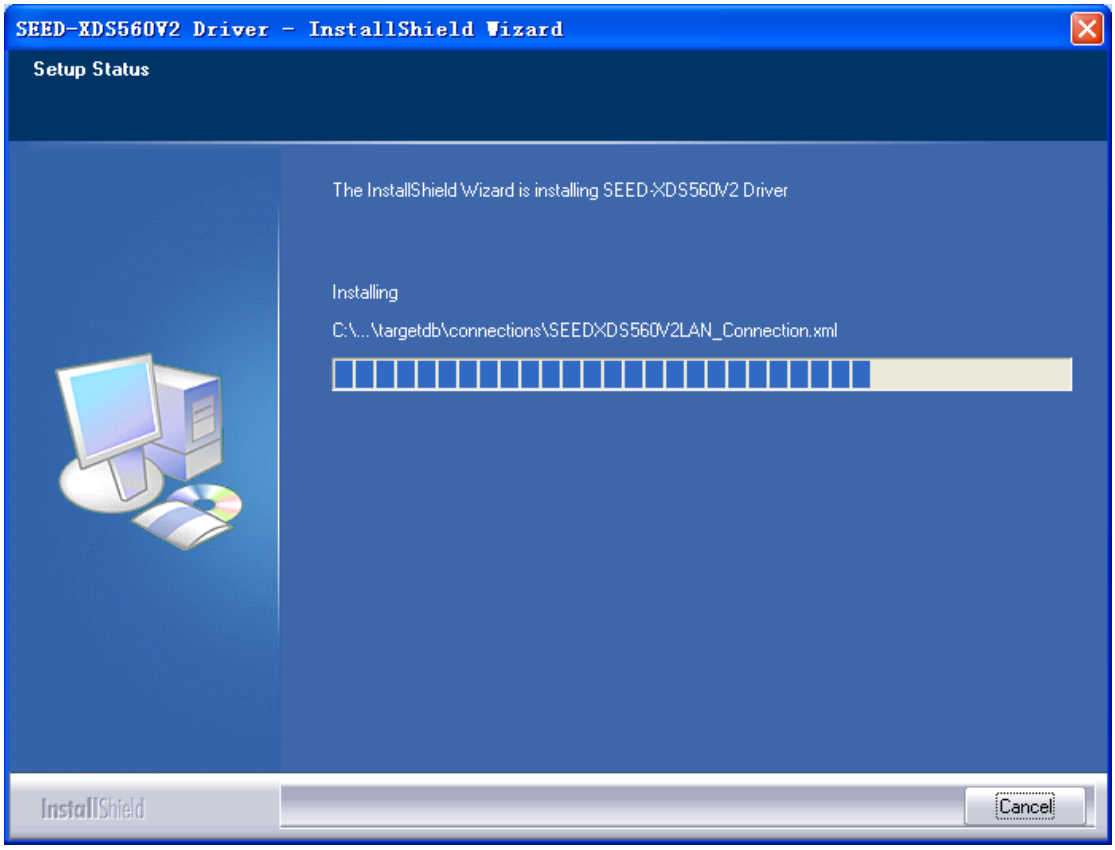
4. Choose CCS Installation Path, choose “Next “ (the default install path is recommended)



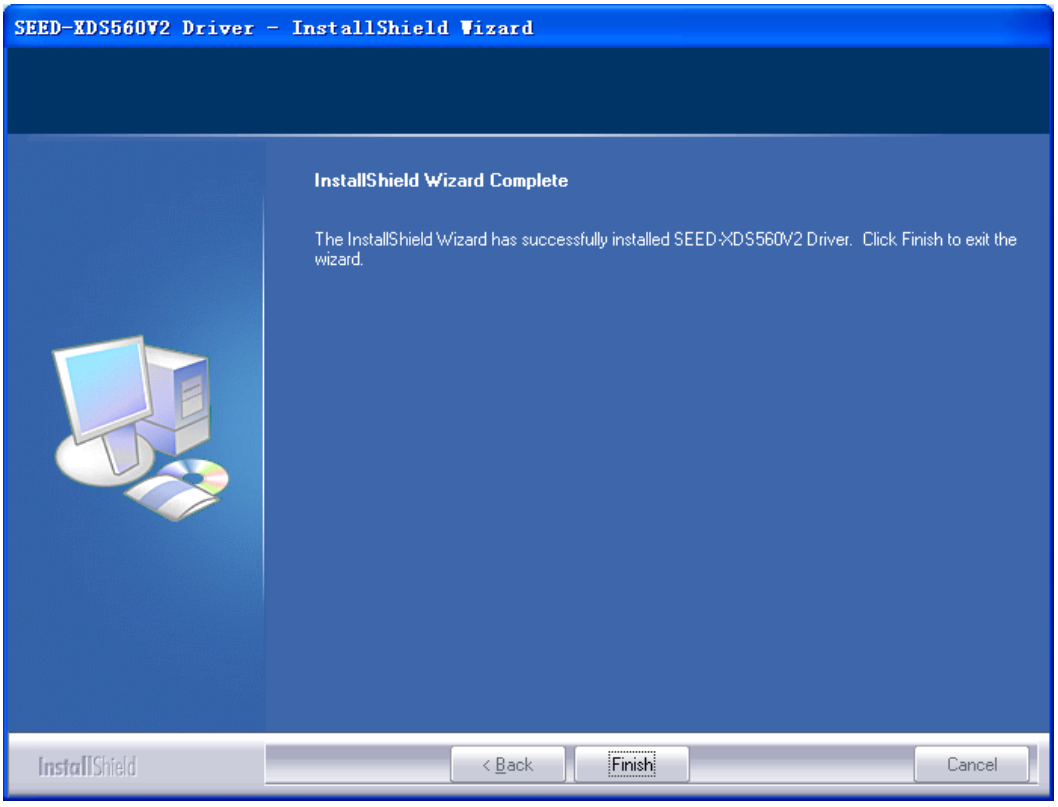
5. Click “Install “.



6. Install driver



7. Click “Finish “, finish the installation of driver.



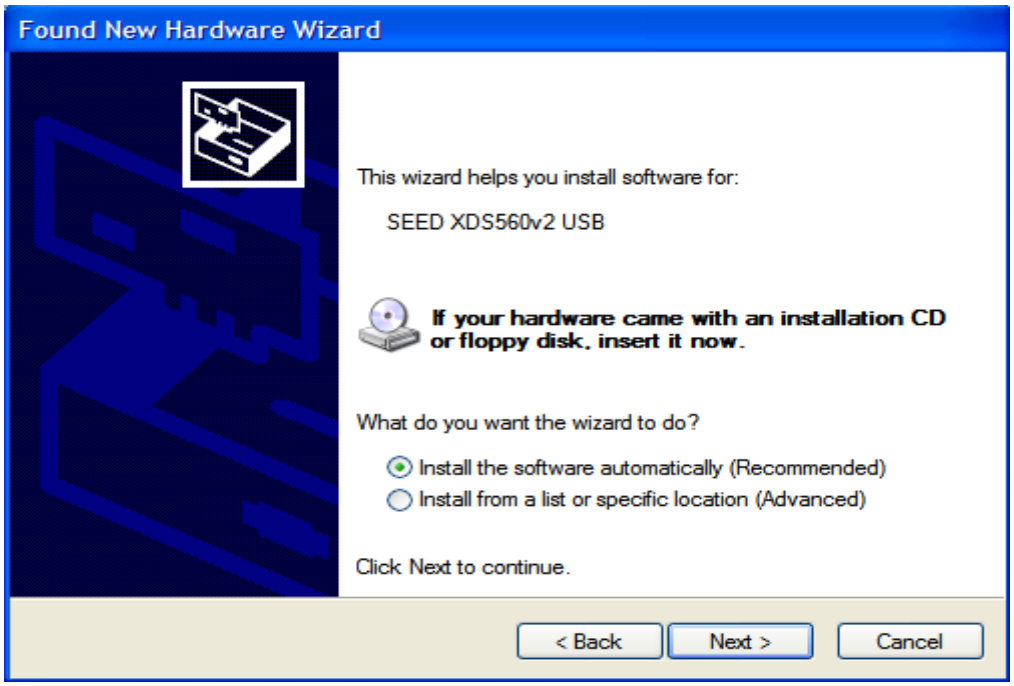
2.2.2 Install emulator hardware devices

1. Use the USB Cable to connect the emulator with the computer;
2. Power the emulator with the 5V power, COM-LED3 light turns green, XDS560v2 starts loader.

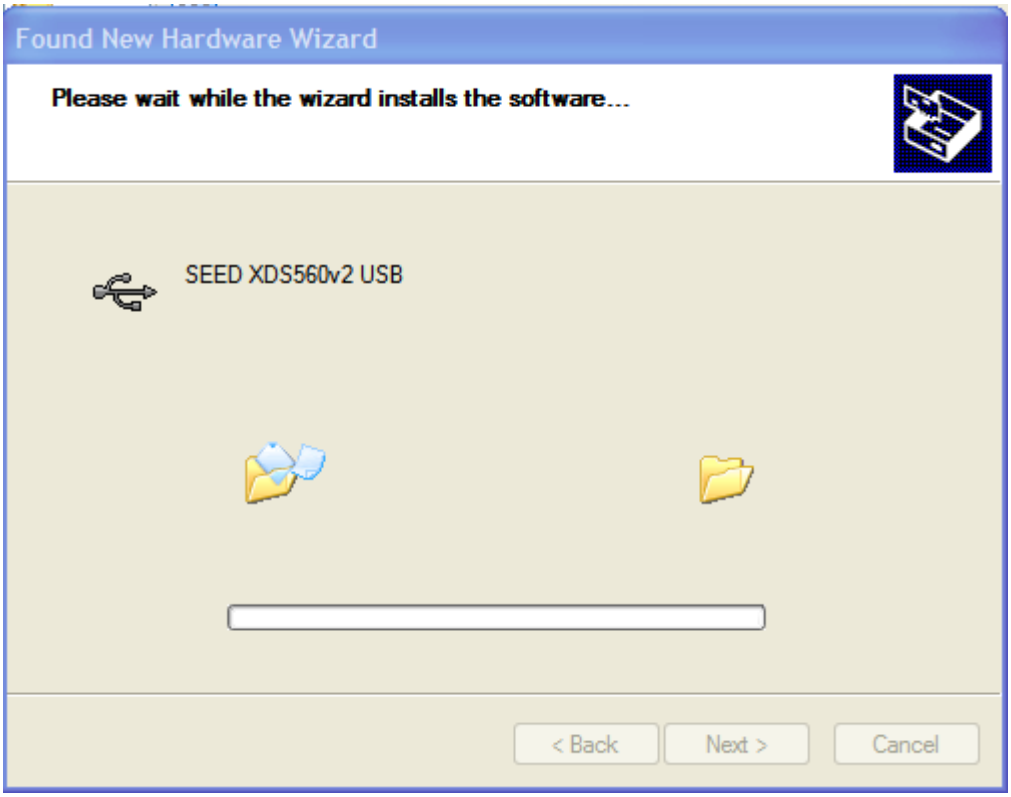
3. Please wait until the COM-LED3 green light is off and the lights “COM-LED1” & “COM-LED2” turn red, that means loader finish, PC will display “found new hardware “.

4. Choose “No, not this time “ , choose “next“.

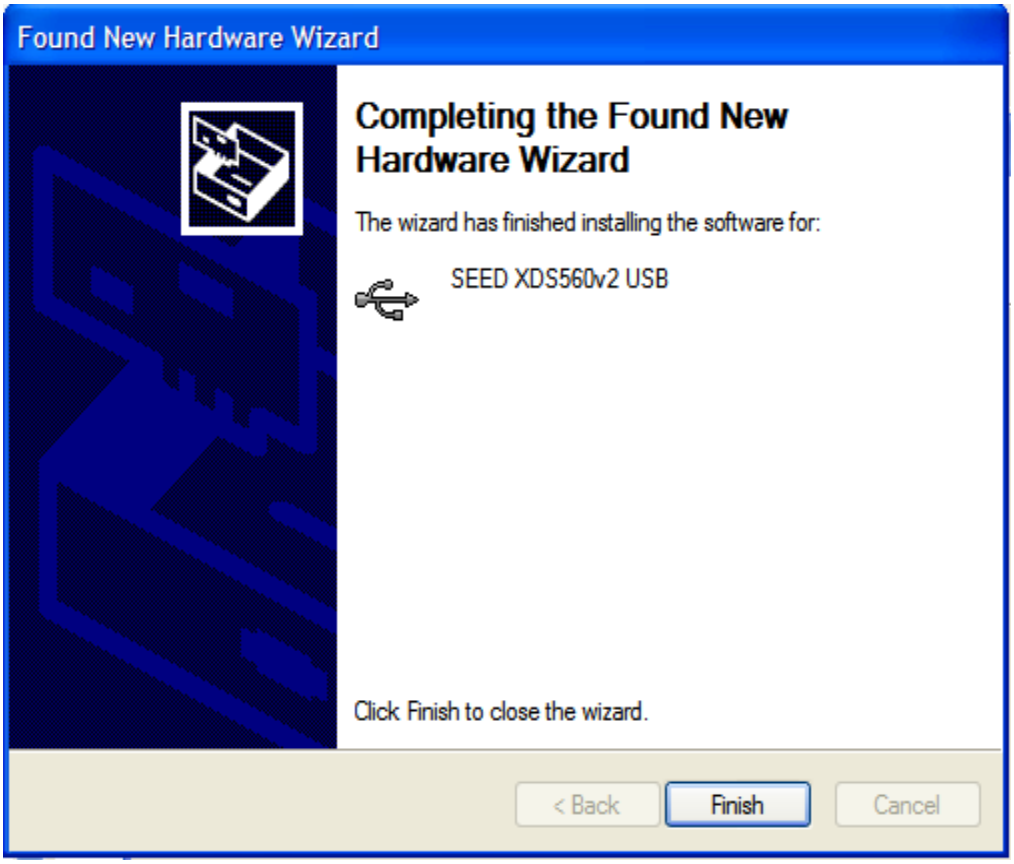
5. Choose “Install the software automatically (Recommended)“, click “Next “



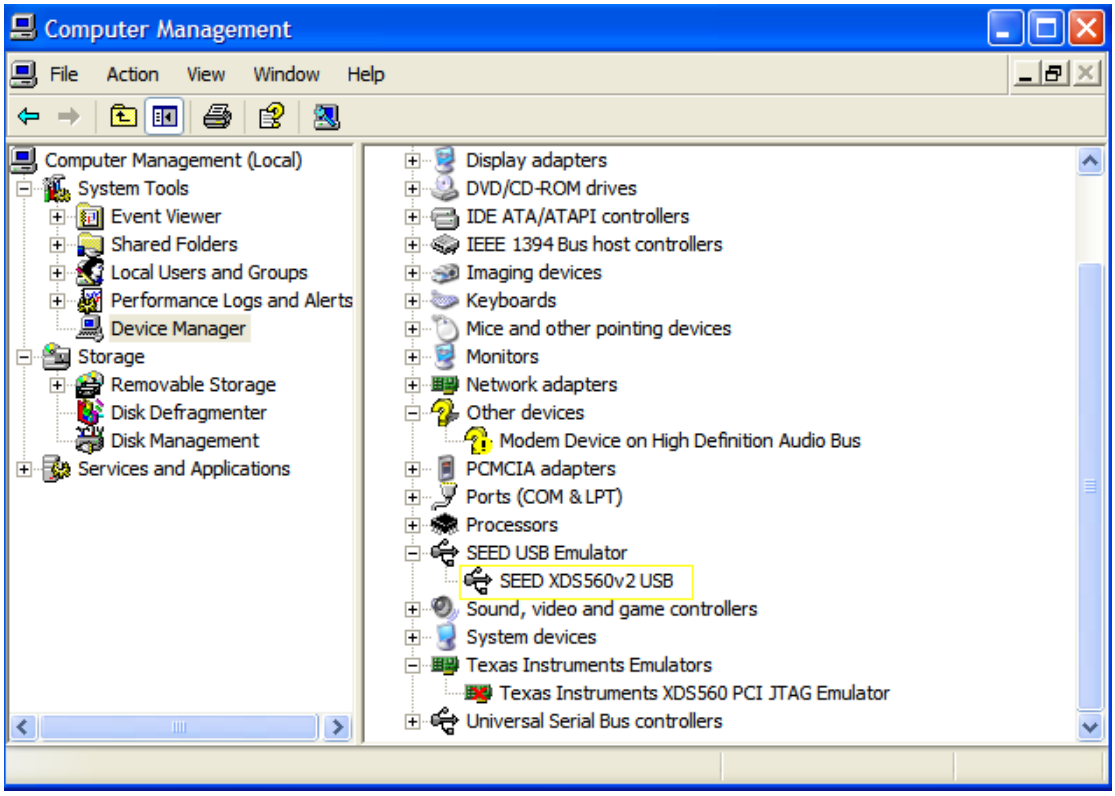
6. PC is installing emulator driver.



7. Click “Finish “, the emulator finish driver intallation.



8. Open “Device Manager “. Windows will confirm that the SEED-XDS560v2 has been installed successfully shown in following figure:



9. Unplug the emulator power.

Chapter 3

SEED-XDS560v2 Usage

SEED-XDS560v2 Emulator could connect the target board via network or USB. Details of the two ways introduction are as following.

This article take CCS V4.2.3.00004 as an example, the target board is SEED-DEC28335 (a kind of EVM board produced by SEED International which has the similar function as TI's EVM board), target chip is TMS320F28335.

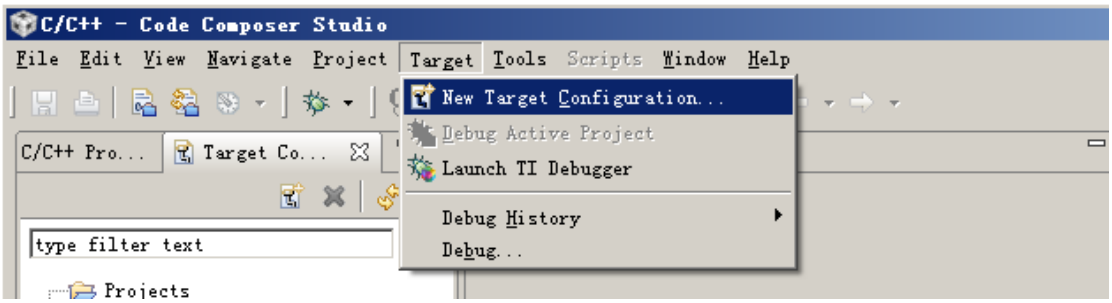
3.1 XDS560v2 USB debug

3.1.1 Hardware connection

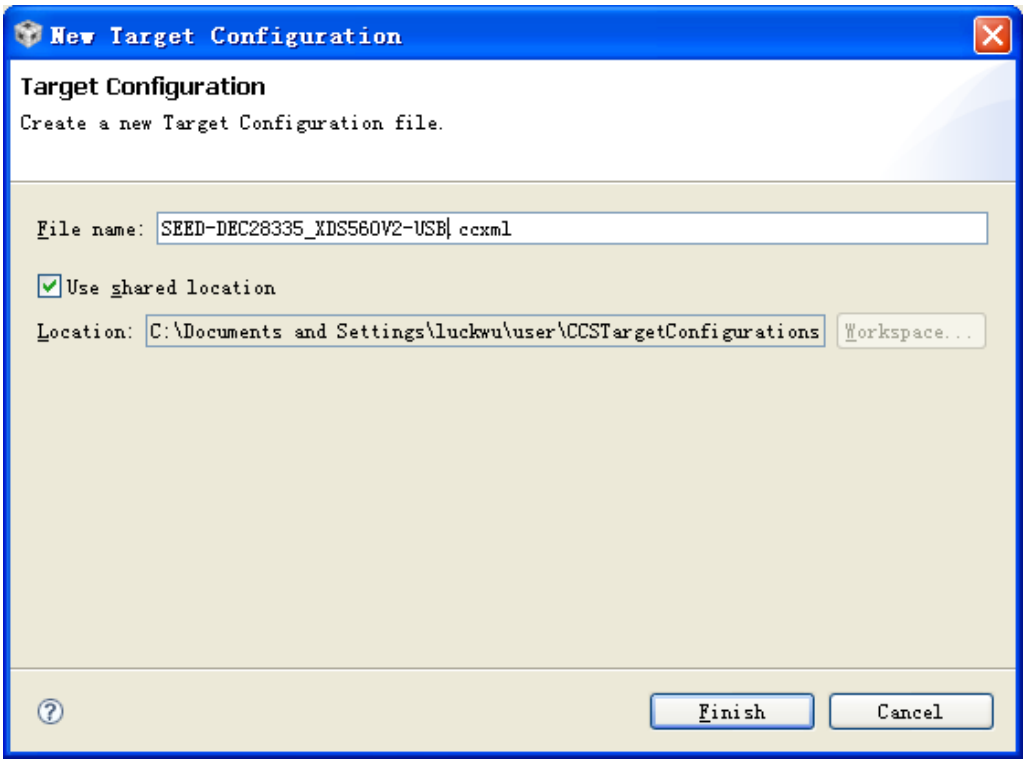
1. Use USB Cable to connect SEED-XDS560v2 with computer host
2. Plug the JTAG of the emulator into the JTAG interface of the target board
3. Power emulator with 5V power, COM-LED3 light turns green, the emulator starts program loading
4. Wait until COM-LED3 light is off, and lights COM-LED1 and COM-LED2 turn red.
5. Power the target board.

3.1.2 Software Debugging

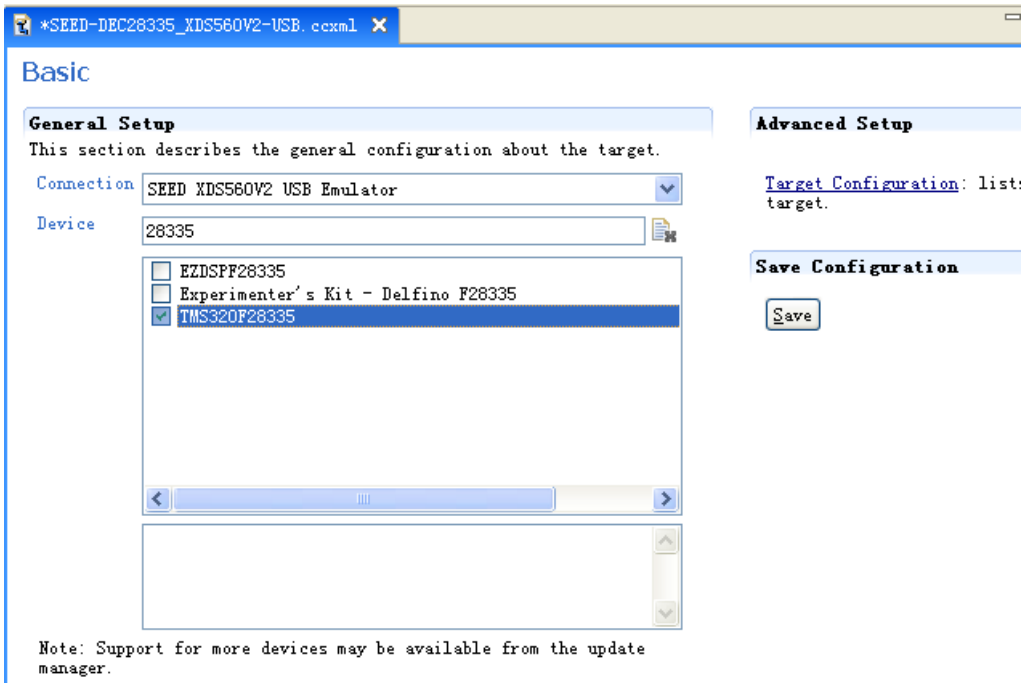
1. Launch "CCS4.2.3 ", choose "Target\New Target Configuration".



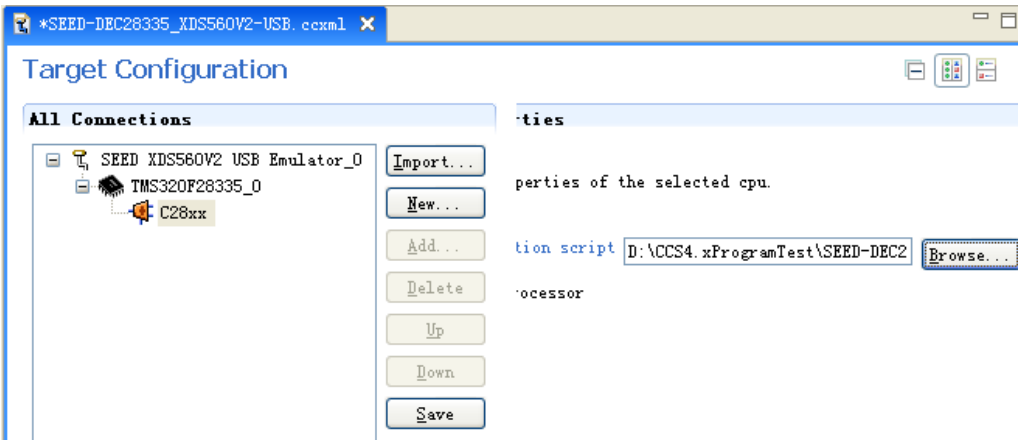
2. You can use the default file name or also rename it, then click “Finish“.



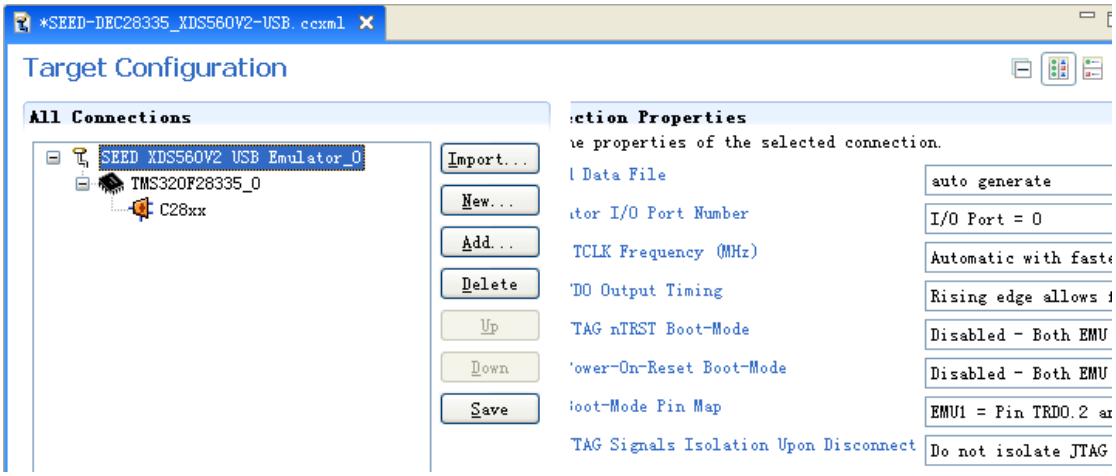
3. Connection: choose “SEED XDS560V2 USB Emulator”
   Device: write “28335”
   And choose the option “TMS320F28335”
   Then click “Target Configuration”



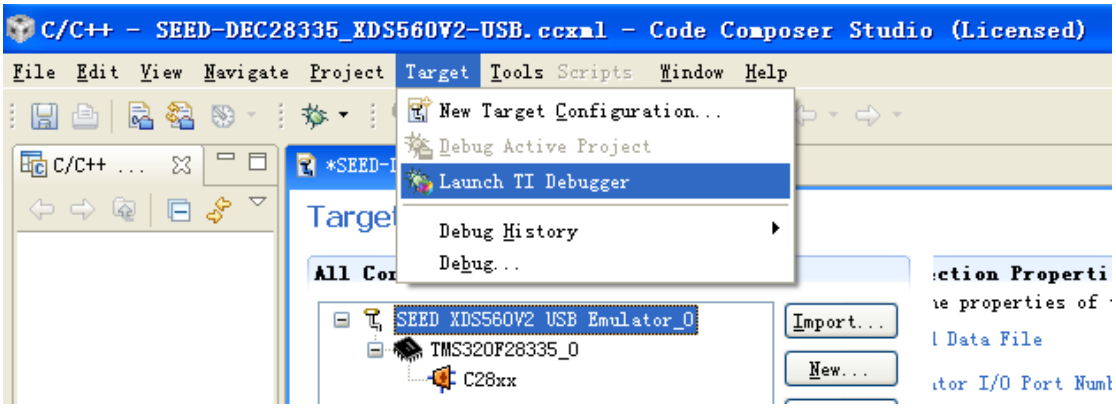
4. Click C28XX, choose the “gel” file though “Browse”



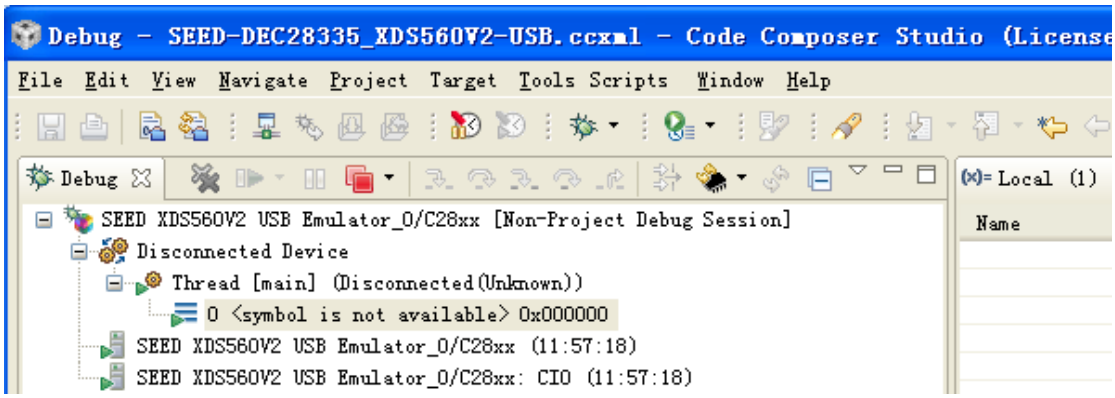
5. Click “SEED XDS560V2 USB Emulator_0”, you can find some configurations, you need to revise the parameter according to different chips. For chip TMS320F28335, please choose default parameter, then click “Save”



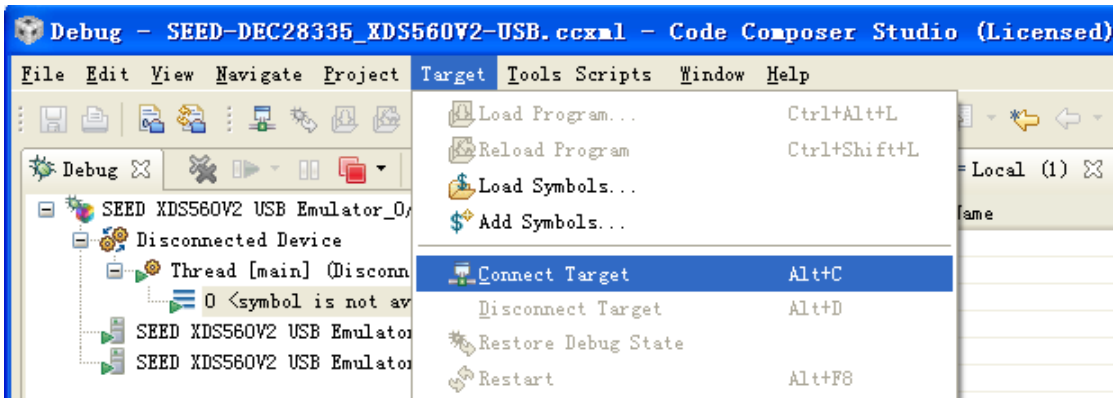
6. Choose “Target\Launch TI Debugger”;



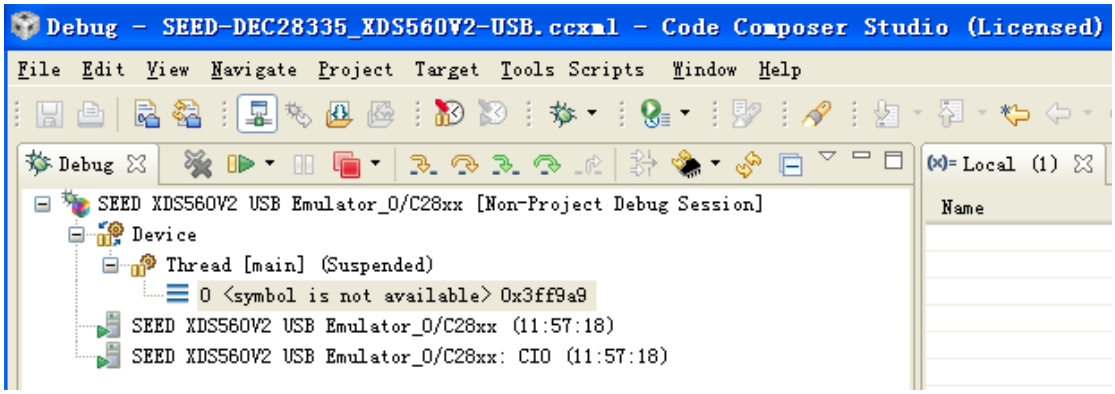
7. After uploading, it is showed as the following figure:



8. Choose “Target\Connect Target”, connect the board.



9. At this time, the board has been connected with the emulator; you can debug the chip now. Meanwhile, EMU-LED3 turns green.



3.2 Network Debug

Before debugging by network, you must configure network IP for the emulator, the configuration tool locates at: ..\ccsv4\common\uscif\SEEDXDS560V2_Config.exe

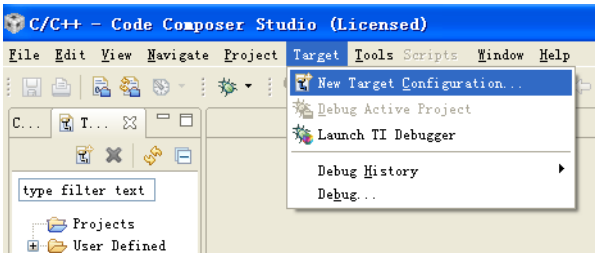
Set static IP Address, for detailed step please refer to the document on CD ROM "SEED-XDS560v2 Configuration Tools Users' Guide"

3.3.1 Hardware connection

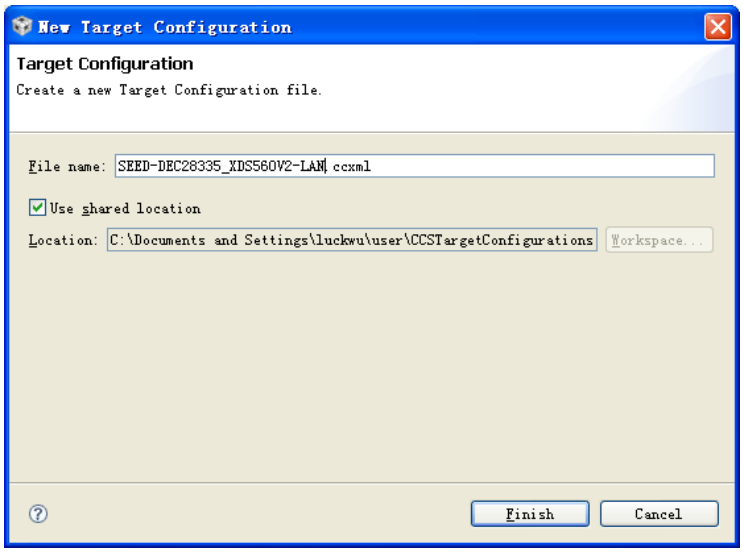
1. Connect SEED-XDS560v2 to PC with the USB cable (If the IP has been configured already, you can also don't use the USB cable)
2. Connect SEED-XDS560v2 to PC with the Ethernet cable.
3. Plug the end of emulator's JTAG into the board's JTAG.
4. Power the emulator with 5V-POWER, the COM-LED3 turns green, then the emulator is uploading programme.
5. Please wait until COM-LED3 off and COM-LED1 & COM-LED2 turn red
6. Power the board.

3.3.2 Software debugging

1 Launch CCS4.2.3, choose"Target\New Target Configuration";



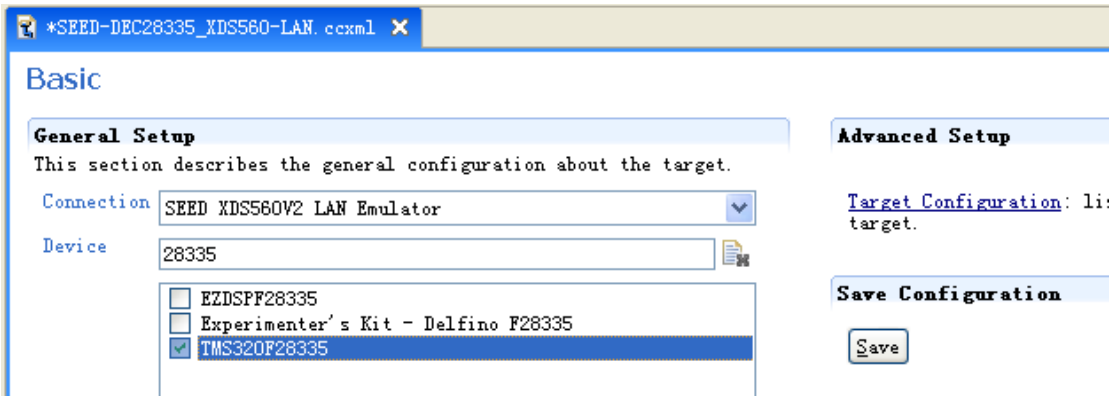
2 You can use the default file name, or rename it by yourself. Click "Finish" ;



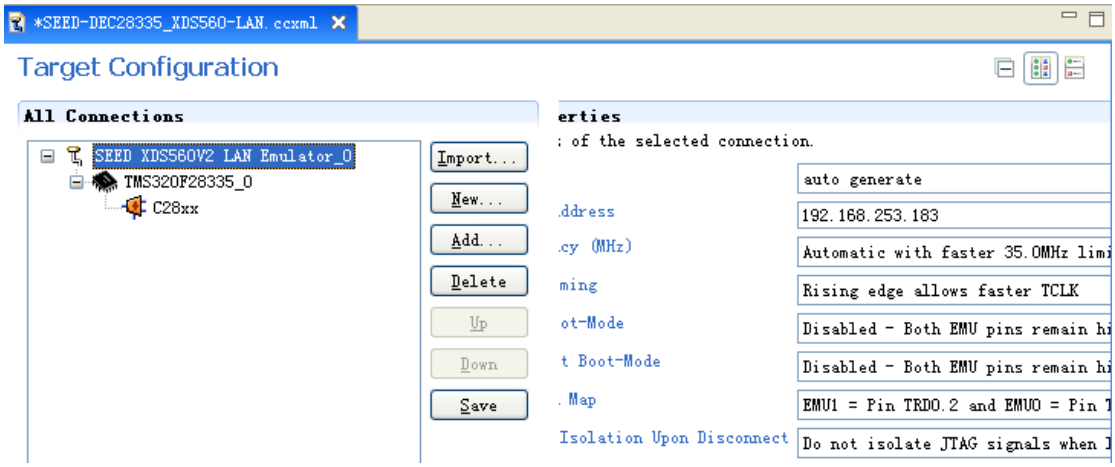
3 Connection: choose “SEED XDS560V2 LAN Emulator”

Device: write “28335”

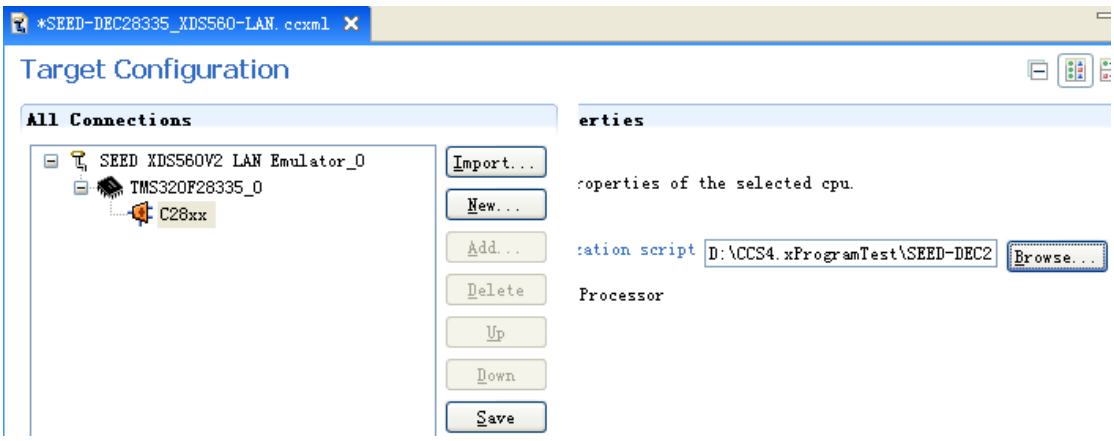
Choose the option “TMS320F28335”, and then click “Target Configuration”



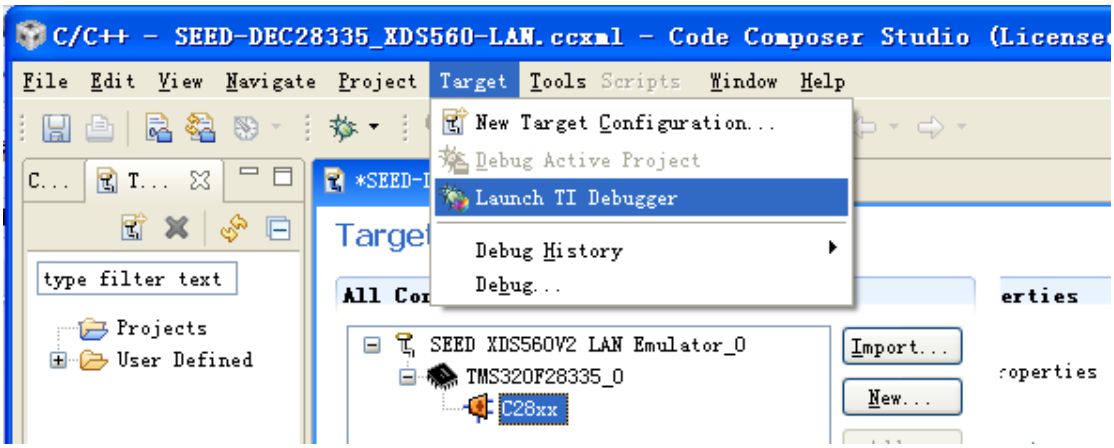
4 Click “SEED XDS560V2 LAN Emulator_0”, input the IP address on the option of “The Emulator IP Address”. This article set the IP as “192.168.253.183”;



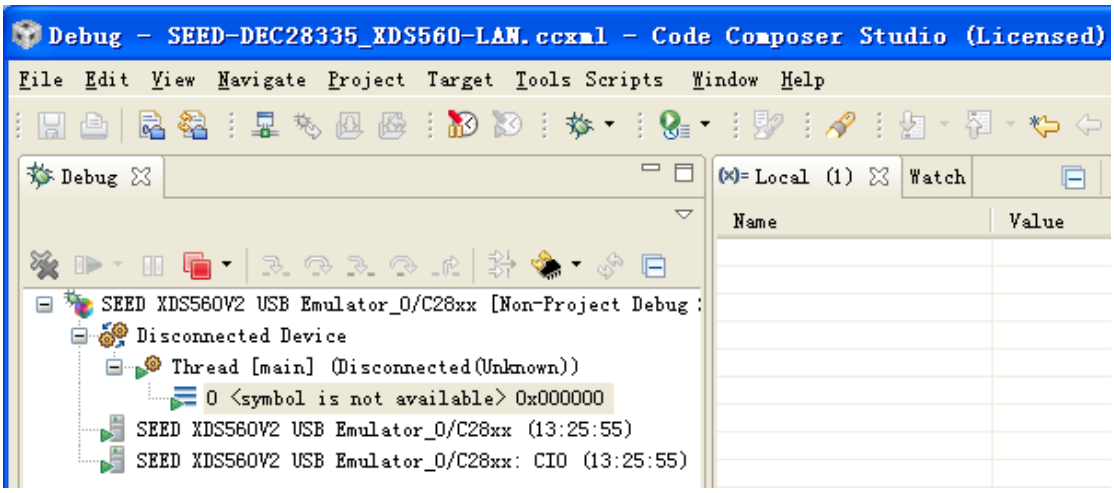
5 Click “C28XX”, choose the “gel” file through “Browse”;



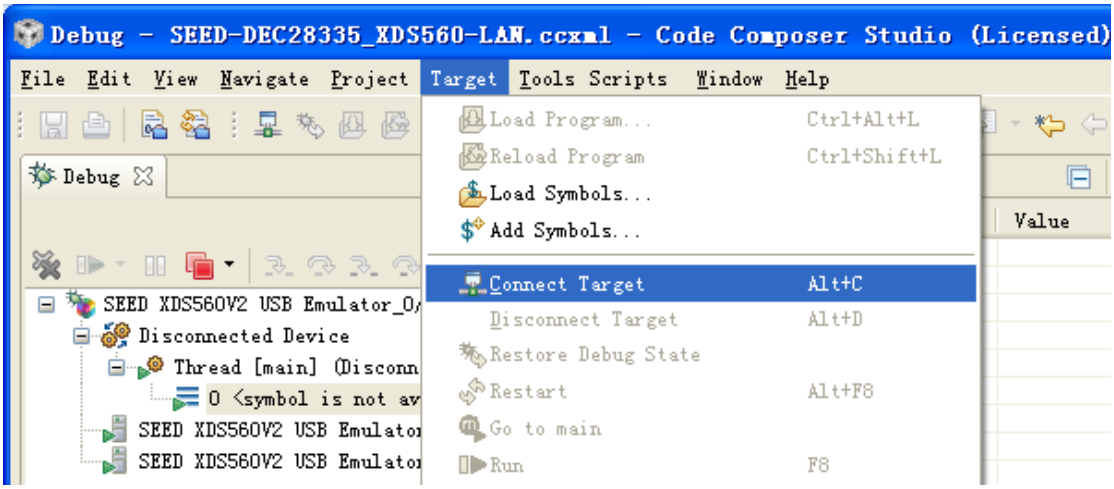
6 Choose “Target\Launch TI Debugger”;



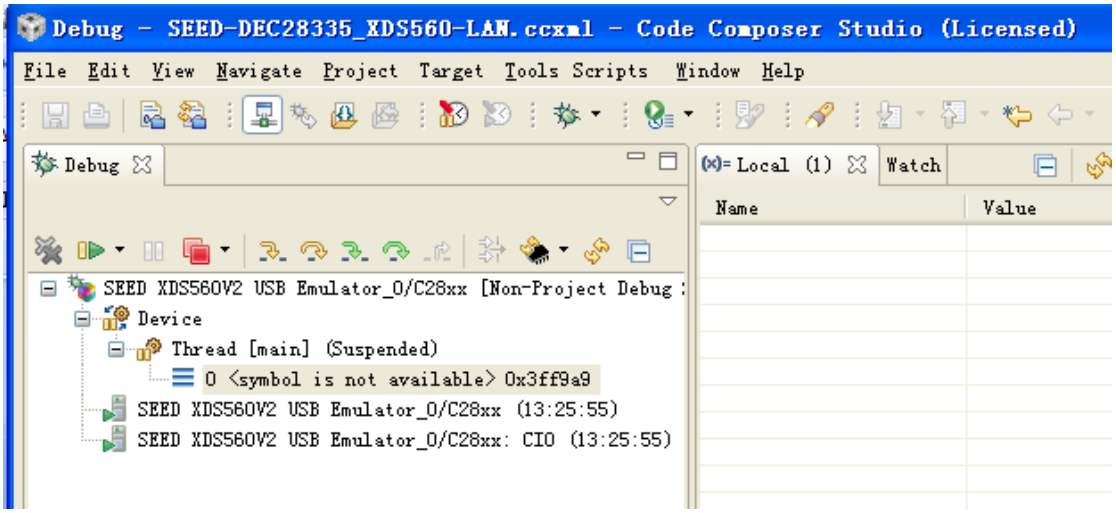
7 After uploading, it shows as the following figure:



8 Choose “Target\Connect Target”;



9 At this time, the board and the emulator have been connected, you can start the debugging. Meanwhile, EMU-LED3 turns green.



Chapter 4

Cautions when using SEED-XDS560v2

1. Do not plug or unplug emulator JTAG cable when it is working
2. When using the configuration tools, it is necessary to use USB cable to connect XDS560v2 with the computer;
3. When configuring network IP of the emulator, ensure that the emulator's IP and the computer's IP are in the same network segment;
4. If you have modified IP, you must restart the emulator to make it work normal.
5. When removing the emulator, to protect the cable working normally, please note that do not strain the JTAG cable or pull it hard.
6. Please connect JTAG cable in a right way, otherwise it will lead the emulator or target system broken. In order to prevent you from plugging wrong port, the six pin in JTAG has been blocked.

Appendix A

JTAG Adaptor Introduction

A.1 SEED-XDS560v2_6014_v0.3

Signal	Pin#	Pin#	Signal
TMS	1	2	nTRST†
TDI	3	4	TDIS
TVD	5	6	key
TDO	7	8	GND
RTCK	9	10	GND
TCLK	11	12	GND
EMU0	13	14	EMU1

† Signal active low

A.2 SEED-XDS560v2_6020_v0.3

Signal	Pin#	Pin#	Signal
TMS	1	2	nTRST†
TDI	3	4	TDIS
TVD	5	6	key
TDO	7	8	GND
RTCK	9	10	GND
TCLK	11	12	GND
EMU0	13	14	EMU1
nSRST†	15	16	GND
EMU2	17	18	EMU3
EMU4	19	20	GND

† Signal active low