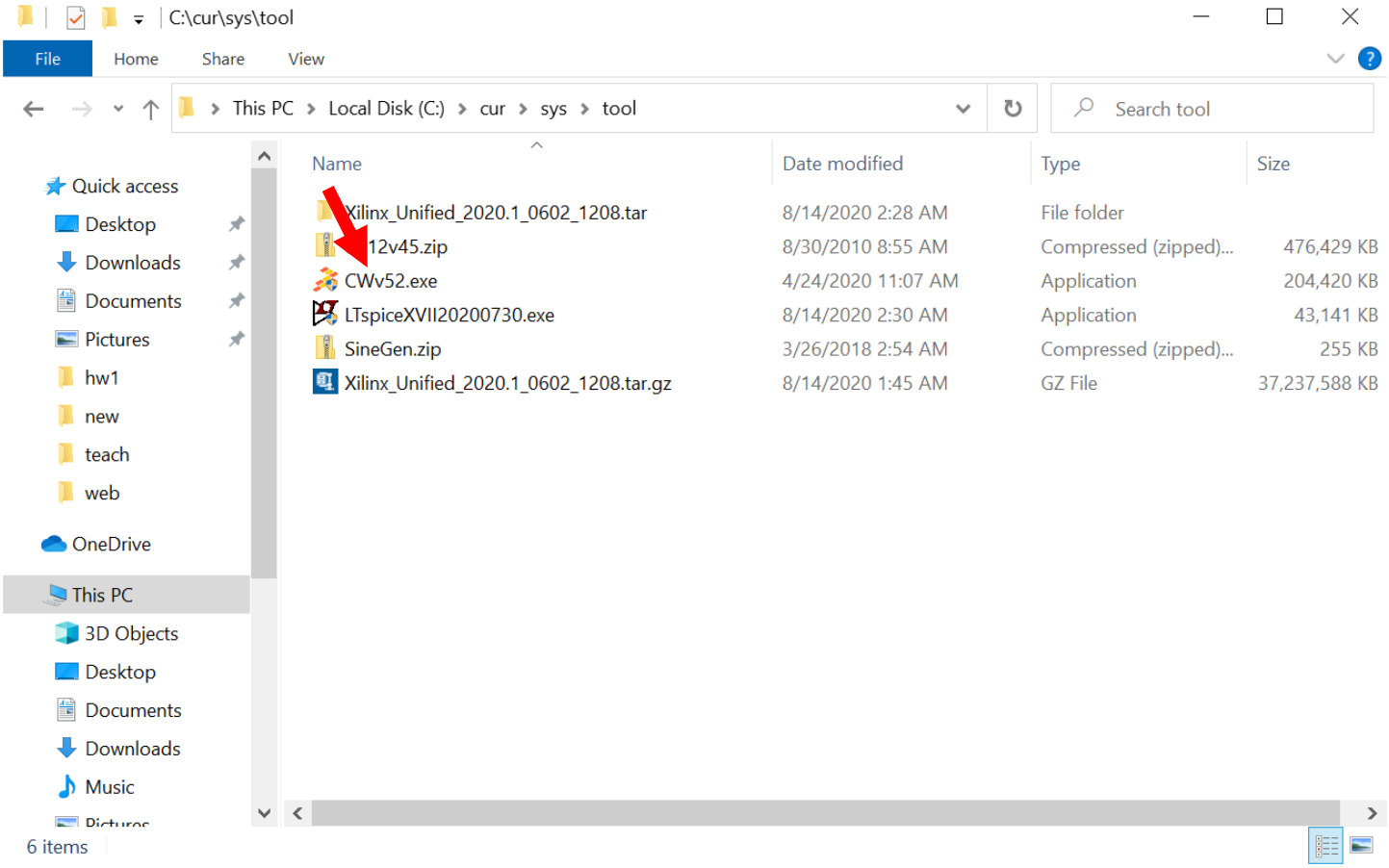
CMPEN 472, **CodeWarrior Full Chip Simulator (Debugger) Guide**

First step, download the later version of CodeWarrior® Development Studio for NXP® HCS12(X) Microcontrollers directly from the NXP site below. Download free Evaluation version of the CodeWarrior® for HCS12(X) Software. It should be good for next 30 days or more for your use. In this version, the debugger/simulator works well with Windows 10, and it will allow you to simulate LEDs, serial port Terminal, and Interrupts. However, it requires little bit more work to set up the I/O operations. To download, you may need to register with NXP.

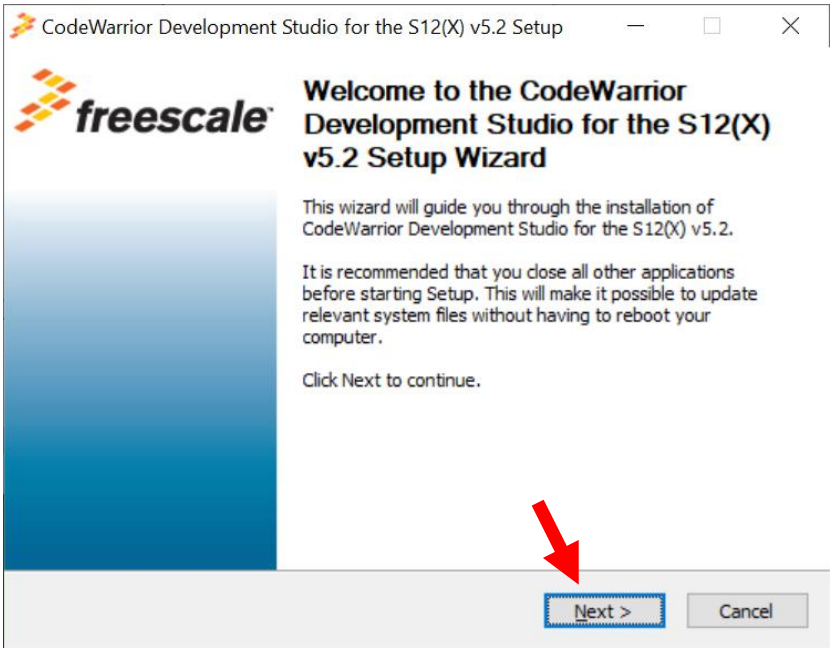
https://www.nxp.com/design/software/development-software/codewarrior-development-tools/codewarrior-legacy/codewarrior-development-studio-for-hcs12x-microcontrollers-classic-ide-v5-2:CW-HCS12X

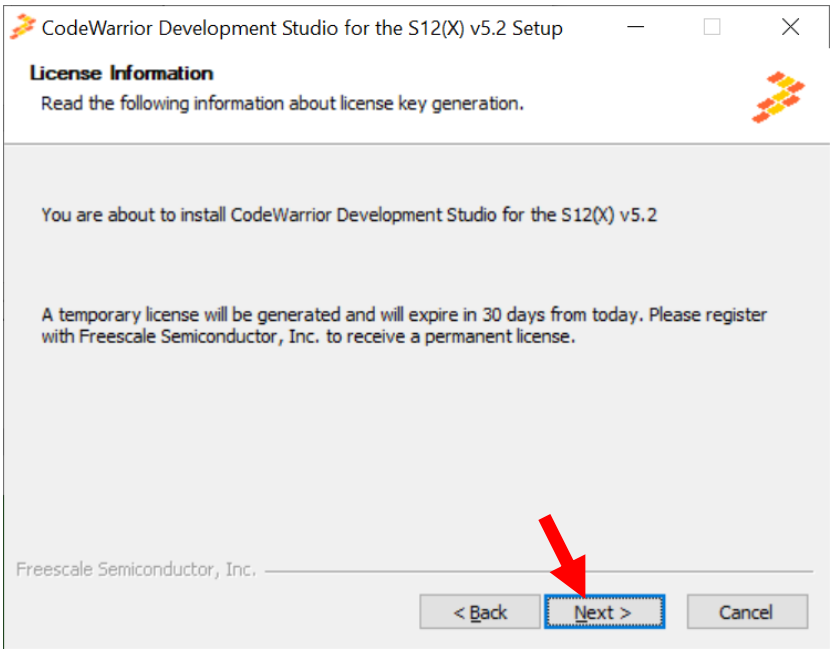
Once you have obtained the CodeWarrior installation file, double click to install - usual installation process.

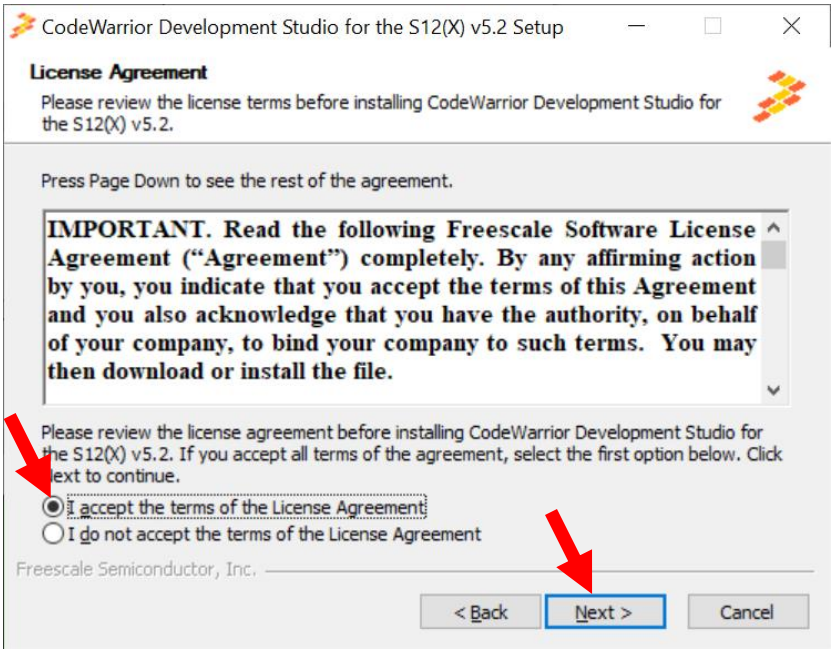
You do NOT need to install any of the drivers that come as part of the CodeWarrior, for you will use only the software tools and Full Chip Simulator tool. So you may refuse or hit OK to continue when prompted – any error messages, hit OK. The installation process of CodeWarrior may require Restart of your Windows PC, so save any work before you start installing. And you do not need to check for update to finish installing (we use old features only).

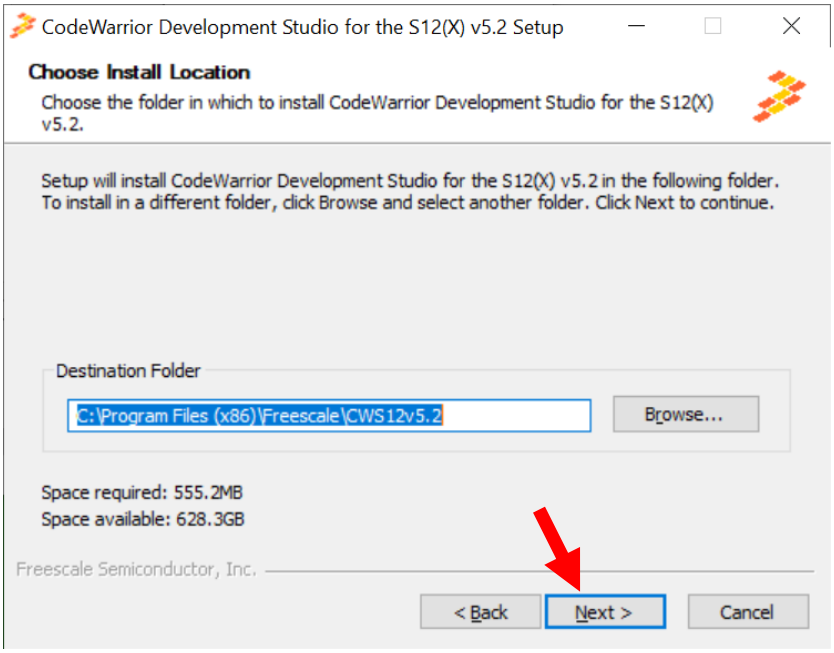


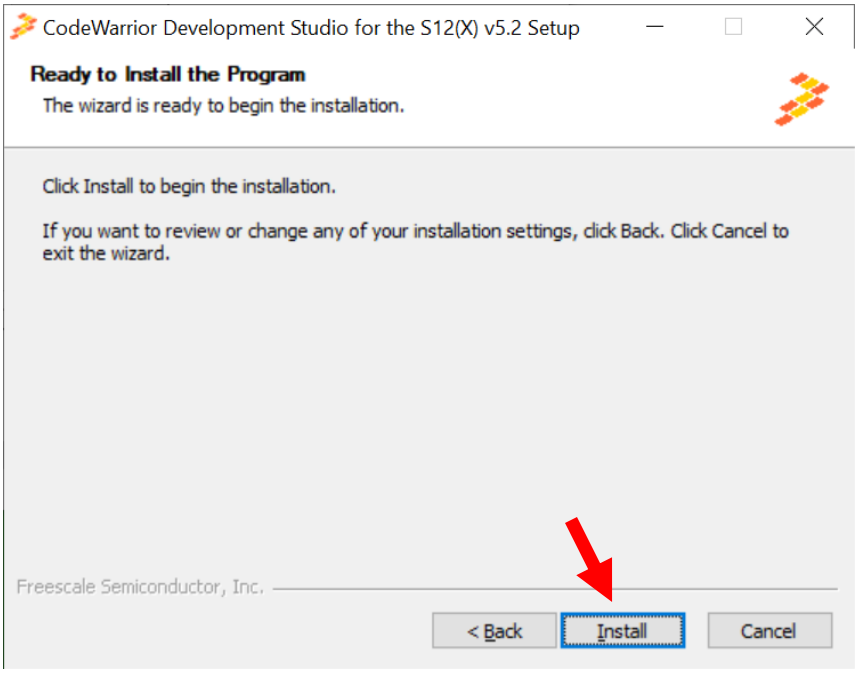
Double click

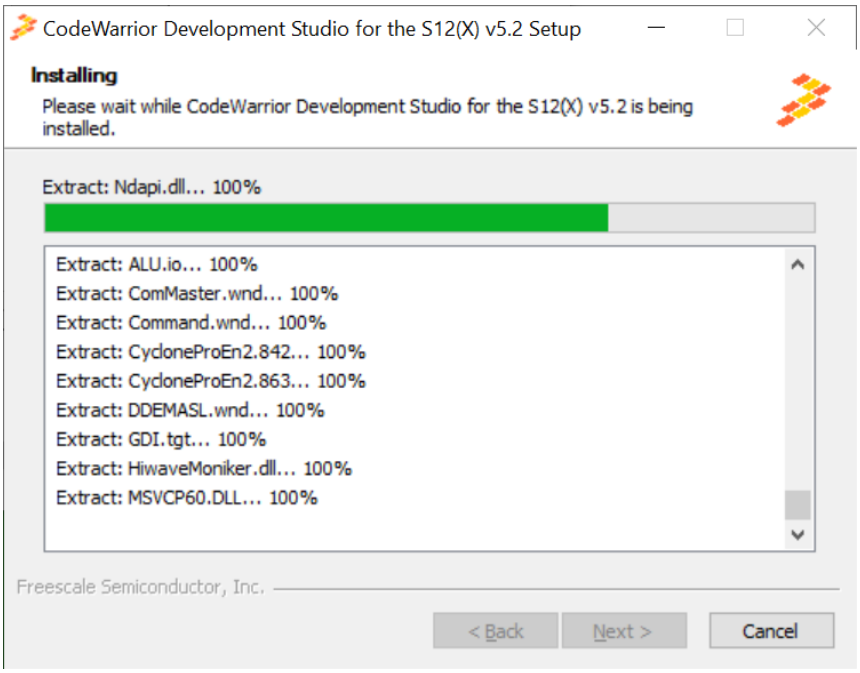

CodeWarrior Development Studio for the S12(X) v5.2 Setup
freescale
Welcome to the CodeWarrior Development Studio for the S12(X) v5.2 Setup Wizard
This wizard will guide you through the installation of CodeWarrior Development Studio for the S12(X) v5.2.
It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer.
Click Next to continue.
Next >
Cancel

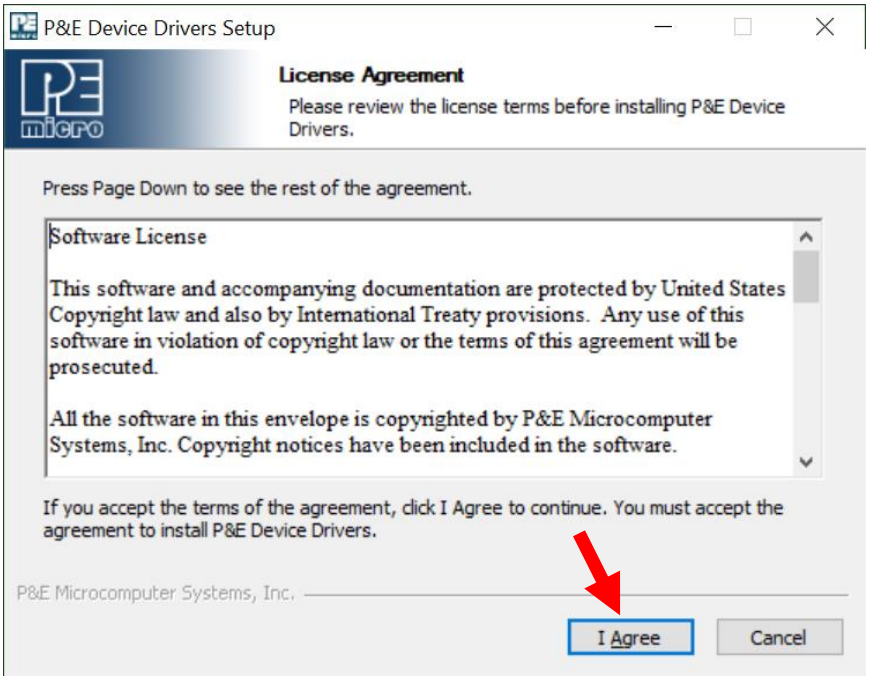

CodeWarrior Development Studio for the S12(X) v5.2 Setup
License Information
Read the following information about license key generation.
You are about to install CodeWarrior Development Studio for the S12(X) v5.2
A temporary license will be generated and will expire in 30 days from today. Please register with Freescale Semiconductor, Inc. to receive a permanent license.
Freescale Semiconductor, Inc.
< Back
Next >
Cancel

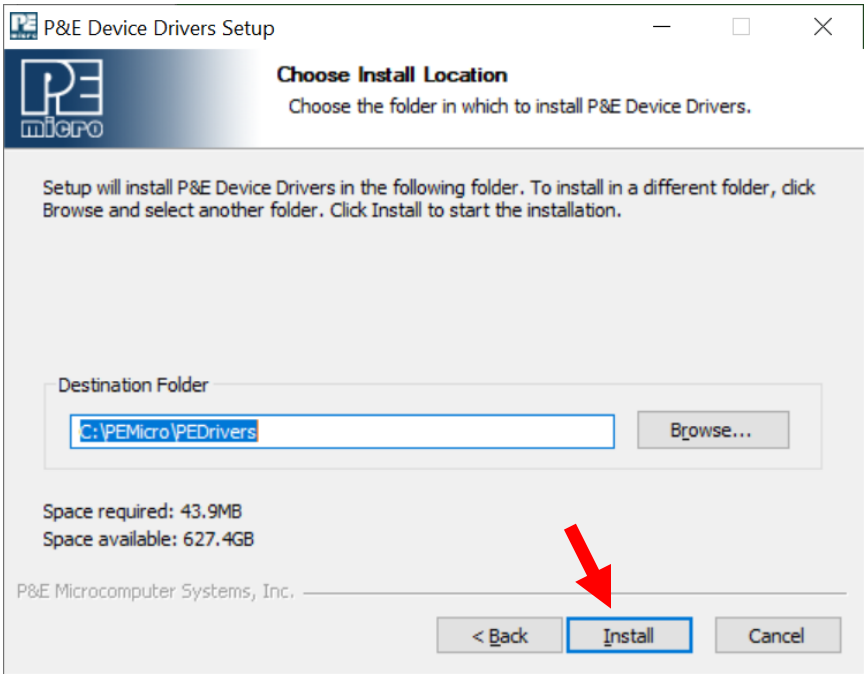

CodeWarrior Development Studio for the S12(X) v5.2 Setup
License Agreement
Please review the license terms before installing CodeWarrior Development Studio for the S12(X) v5.2.
Press Page Down to see the rest of the agreement.
IMPORTANT. Read the following Freescale Software License Agreement ("Agreement") completely. By any affirming action by you, you indicate that you accept the terms of this Agreement and you also acknowledge that you have the authority, on behalf of your company, to bind your company to such terms. You may then download or install the file.
Please review the license agreement before installing CodeWarrior Development Studio for the S12(X) v5.2. If you accept all terms of the agreement, select the first option below. Click Next to continue.
I accept the terms of the License Agreement
I do not accept the terms of the License Agreement
Freescale Semiconductor, Inc.
< Back
Next >
Cancel

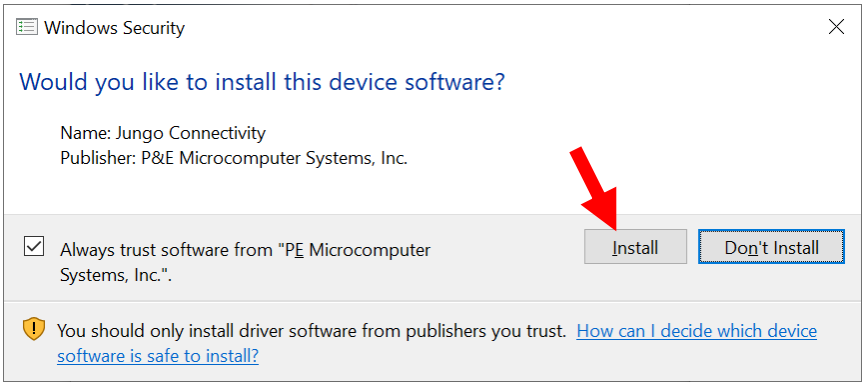

CodeWarrior Development Studio for the S12(X) v5.2 Setup
Choose Install Location
Choose the folder in which to install CodeWarrior Development Studio for the S12(X) v5.2.
Setup will install CodeWarrior Development Studio for the S12(X) v5.2 in the following folder. To install in a different folder, click Browse and select another folder. Click Next to continue.
Destination Folder
C:\Program Files (x86)\Freescale\CWS12v5.2
Browse...
Space required: 555.2MB
Space available: 628.3GB
Freescale Semiconductor, Inc.
< Back
Next >
Cancel

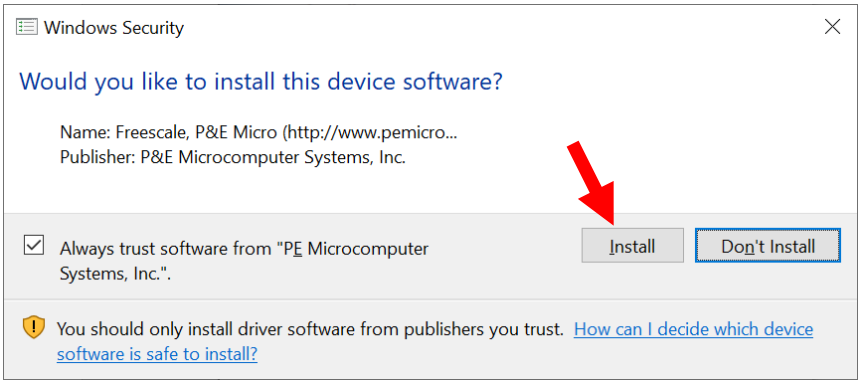

CodeWarrior Development Studio for the S12(X) v5.2 Setup
Ready to Install the Program
The wizard is ready to begin the installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
Freescale Semiconductor, Inc.
< Back
Install
Cancel

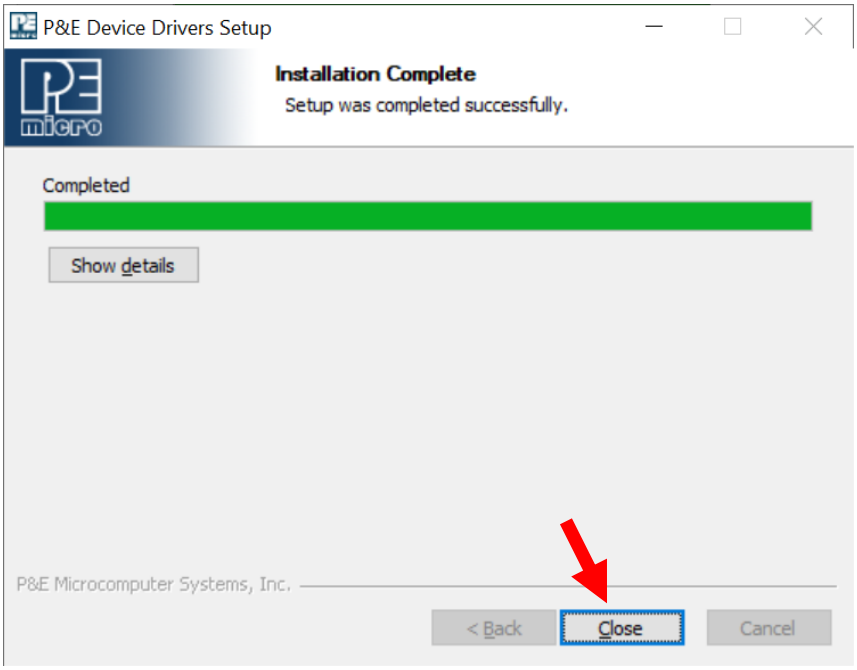

CodeWarrior Development Studio for the S12(X) v5.2 Setup
Installing
Please wait while CodeWarrior Development Studio for the S12(X) v5.2 is being installed.
Extract: Ndapi.dll... 100%
Extract: ALU.io... 100%
Extract: ComMaster.wnd... 100%
Extract: Command.wnd... 100%
Extract: CycloneProEn2.842... 100%
Extract: CycloneProEn2.863... 100%
Extract: DDEMASL.wnd... 100%
Extract: GDI.tgt... 100%
Extract: HiwaveMoniker.dll... 100%
Extract: MSVCP60.DLL... 100%
Freescale Semiconductor, Inc.
< Back
Next >
Cancel

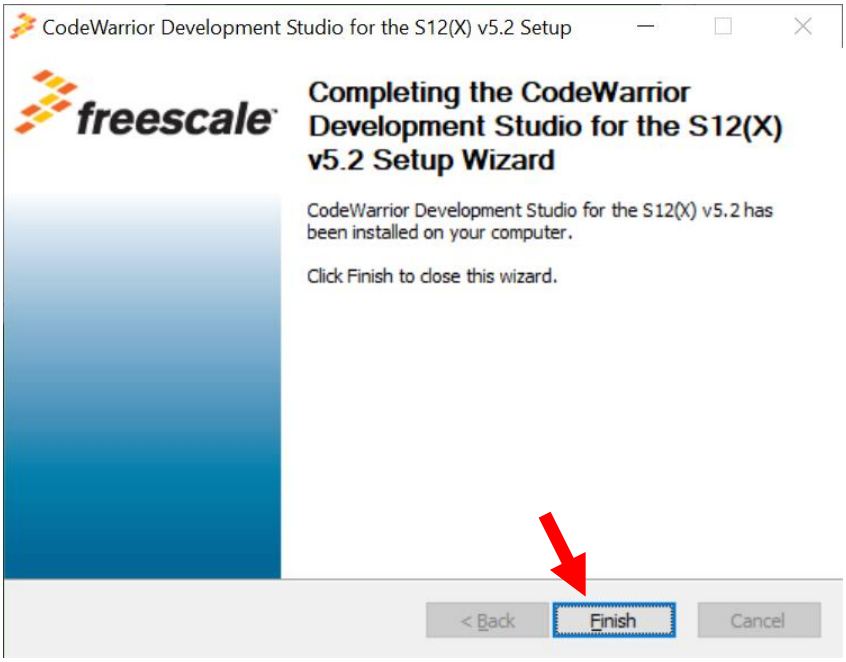

P&E Device Drivers Setup
License Agreement
Please review the license terms before installing P&E Device Drivers.
Press Page Down to see the rest of the agreement.
Software License
This software and accompanying documentation are protected by United States Copyright law and also by International Treaty provisions. Any use of this software in violation of copyright law or the terms of this agreement will be prosecuted.
All the software in this envelope is copyrighted by P&E Microcomputer Systems, Inc. Copyright notices have been included in the software.
If you accept the terms of the agreement, click I Agree to continue. You must accept the agreement to install P&E Device Drivers.
P&E Microcomputer Systems, Inc.
I Agree
Cancel


P&E Device Drivers Setup
Choose Install Location
Choose the folder in which to install P&E Device Drivers.
Setup will install P&E Device Drivers in the following folder. To install in a different folder, click Browse and select another folder. Click Install to start the installation.
Destination Folder
C:\PEMicro\PEDrivers
Browse...
Space required: 43.9MB
Space available: 627.4GB
P&E Microcomputer Systems, Inc.
< Back
Install
Cancel

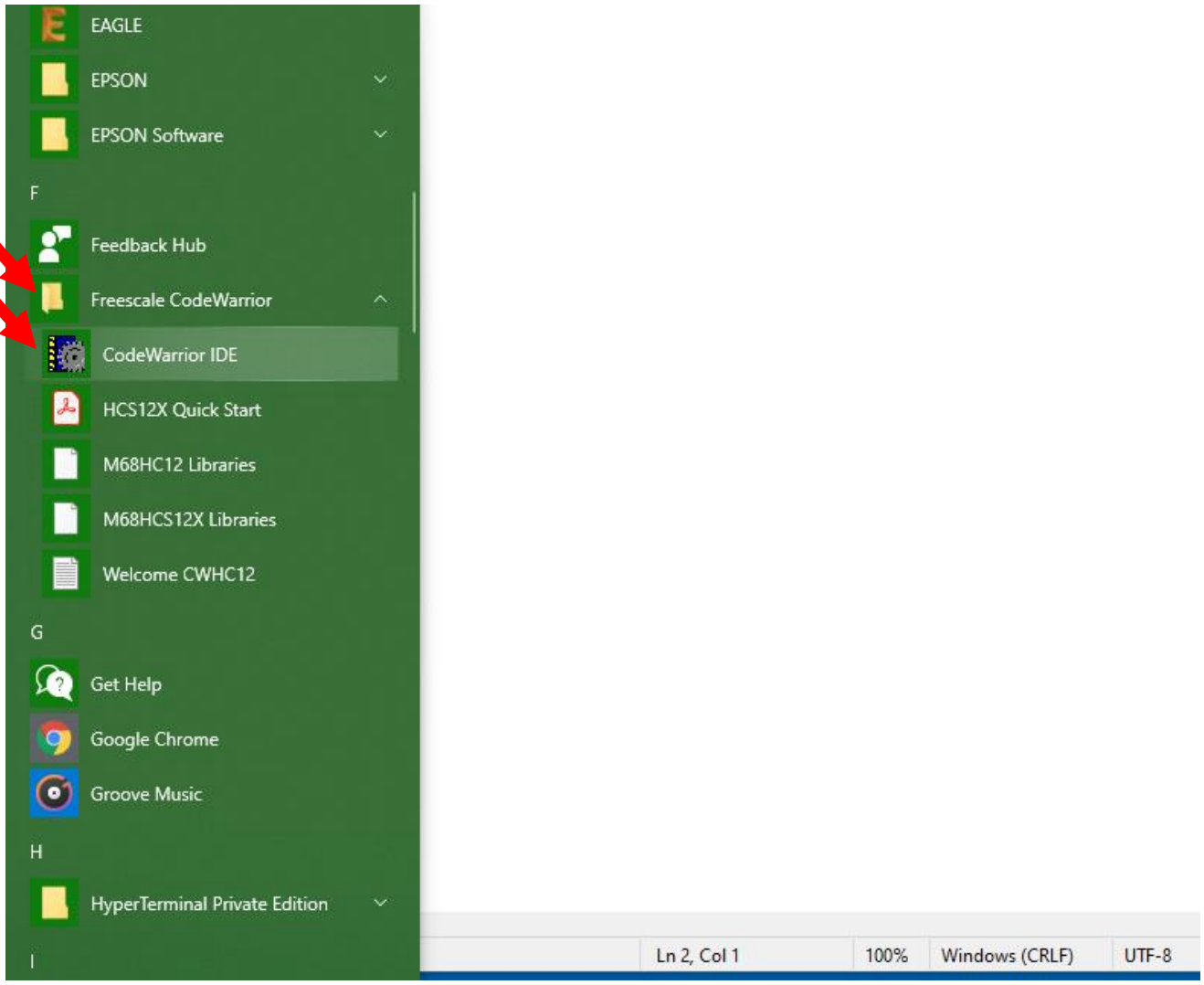

Windows Security
Would you like to install this device software?
Name: Jungo Connectivity
Publisher: P&E Microcomputer Systems, Inc.
Always trust software from "PE Microcomputer Systems, Inc.".
Install
Don't Install
You should only install driver software from publishers you trust. How can I decide which device software is safe to install?

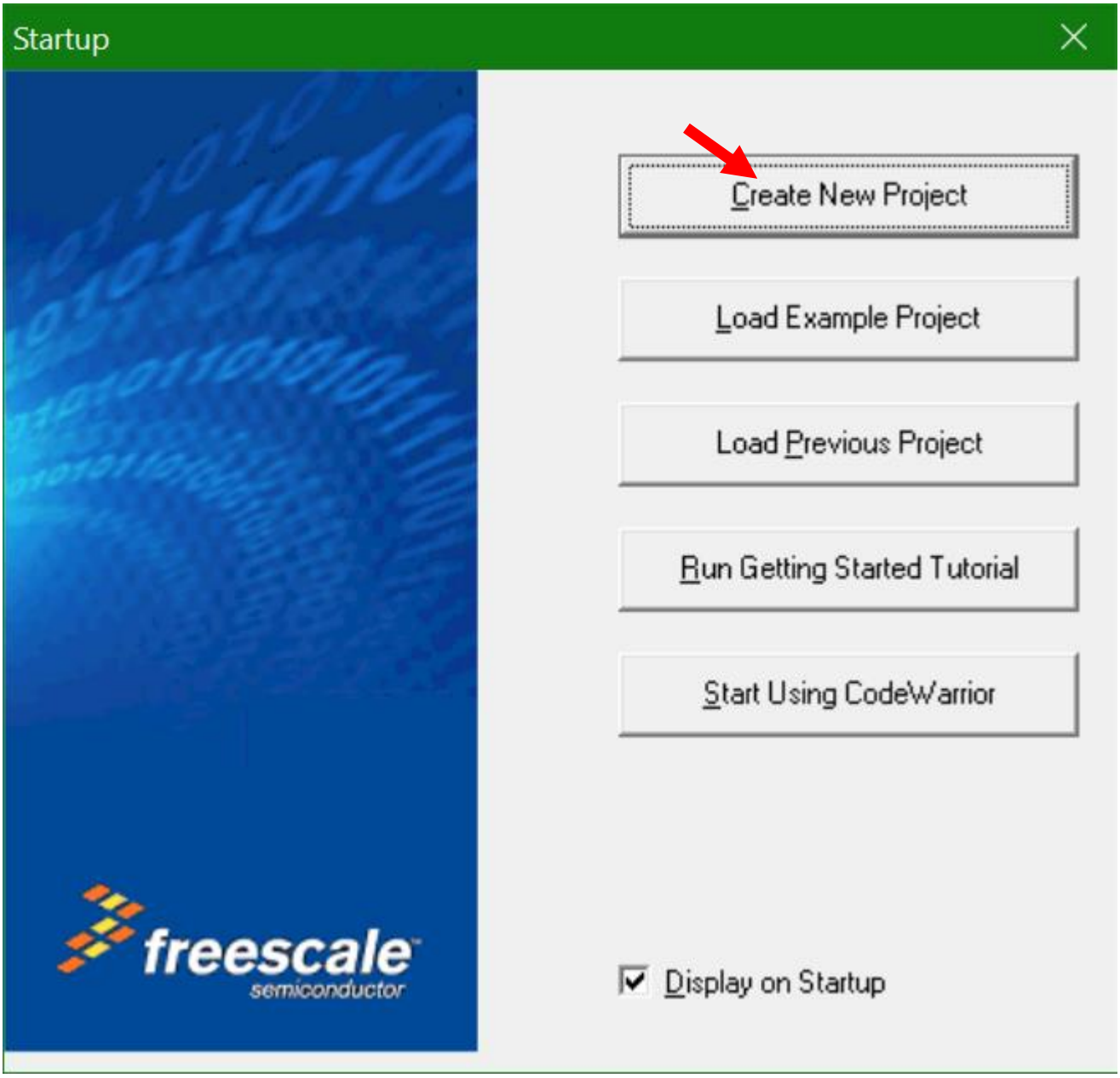

Windows Security
Would you like to install this device software?
Name: Freescale, P&E Micro (http://www.pemicro...
Publisher: P&E Microcomputer Systems, Inc.
Always trust software from "PE Microcomputer Systems, Inc.".
Install
Don't Install
You should only install driver software from publishers you trust. How can I decide which device software is safe to install?


P&E Device Drivers Setup
Installation Complete
Setup was completed successfully.
Completed
Show details
P&E Microcomputer Systems, Inc.
< Back
Close
Cancel

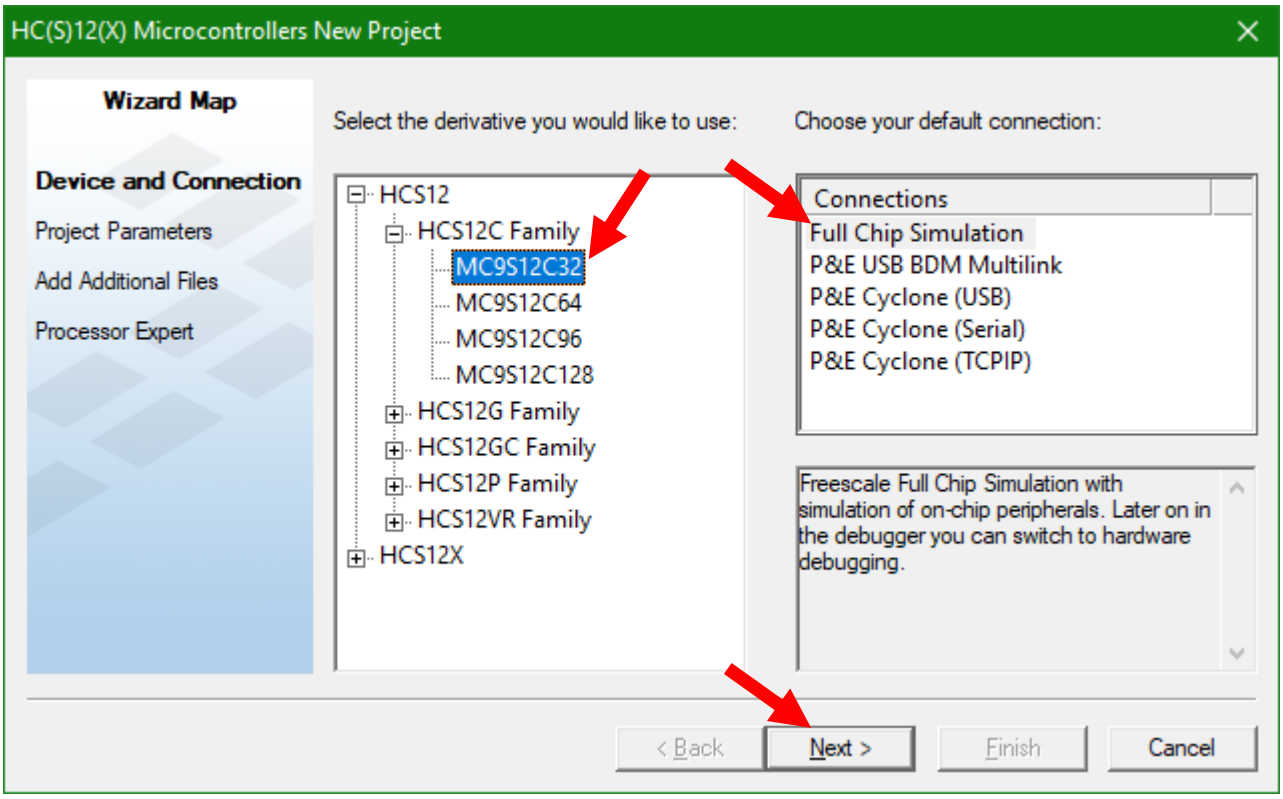


Once finish installing, click the Windows Start menu and follow the red arrows in next pages:

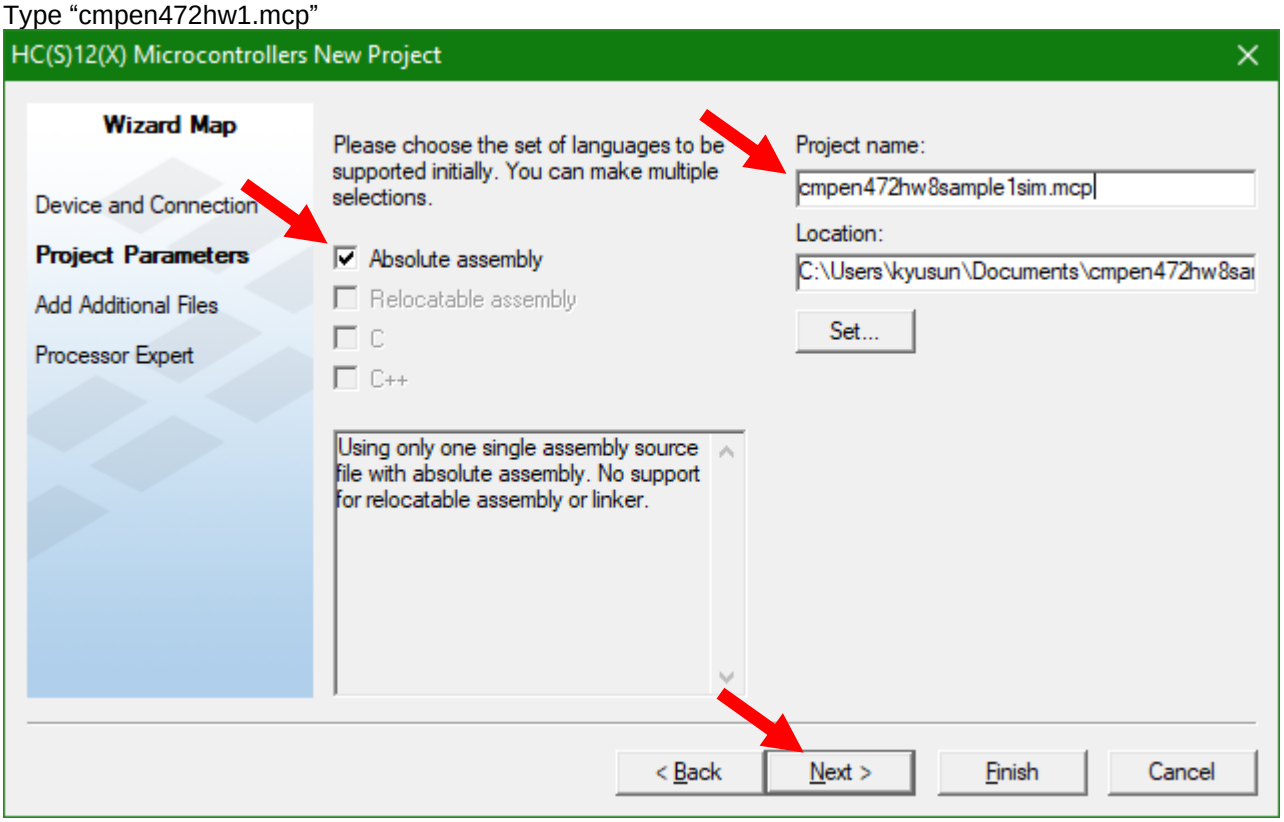


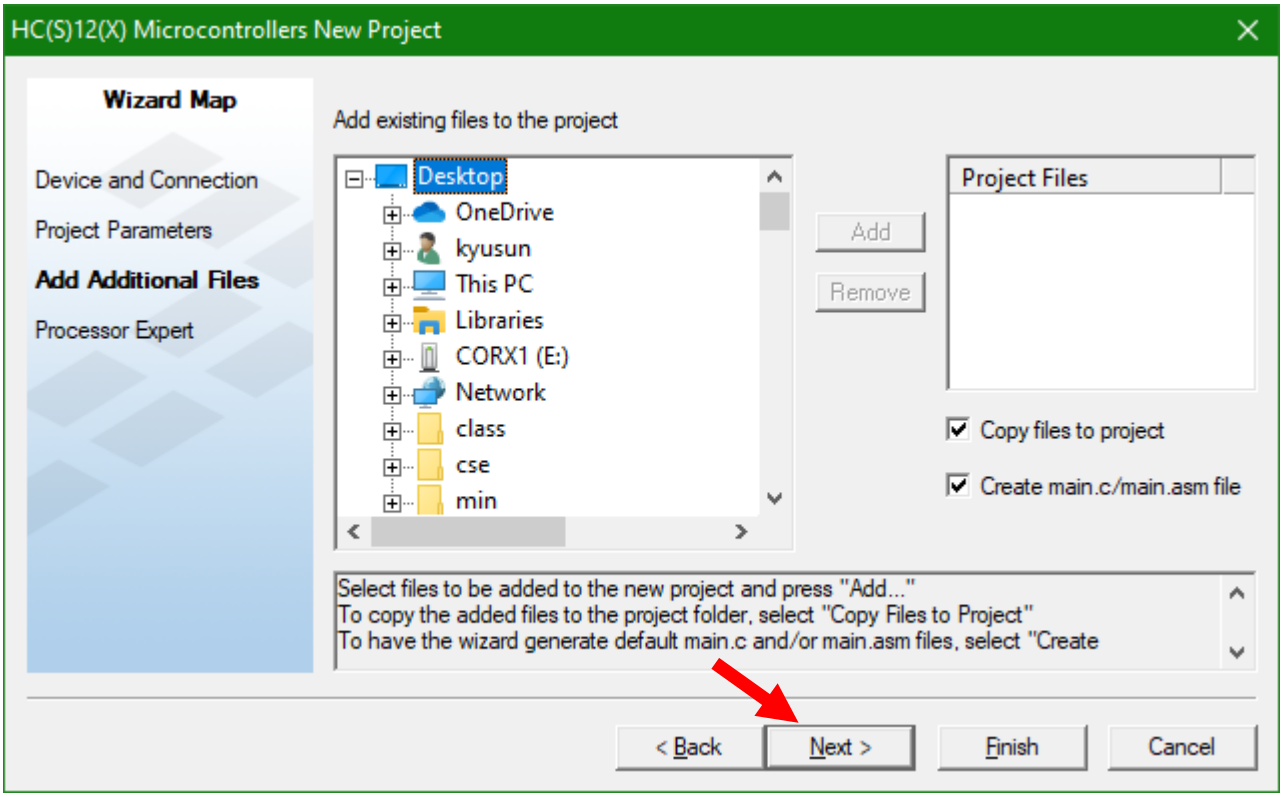

Startup
Create New Project
Load Example Project
Load Previous Project
Run Getting Started Tutorial
Start Using CodeWarrior
freescale
semiconductor
Display on Startup

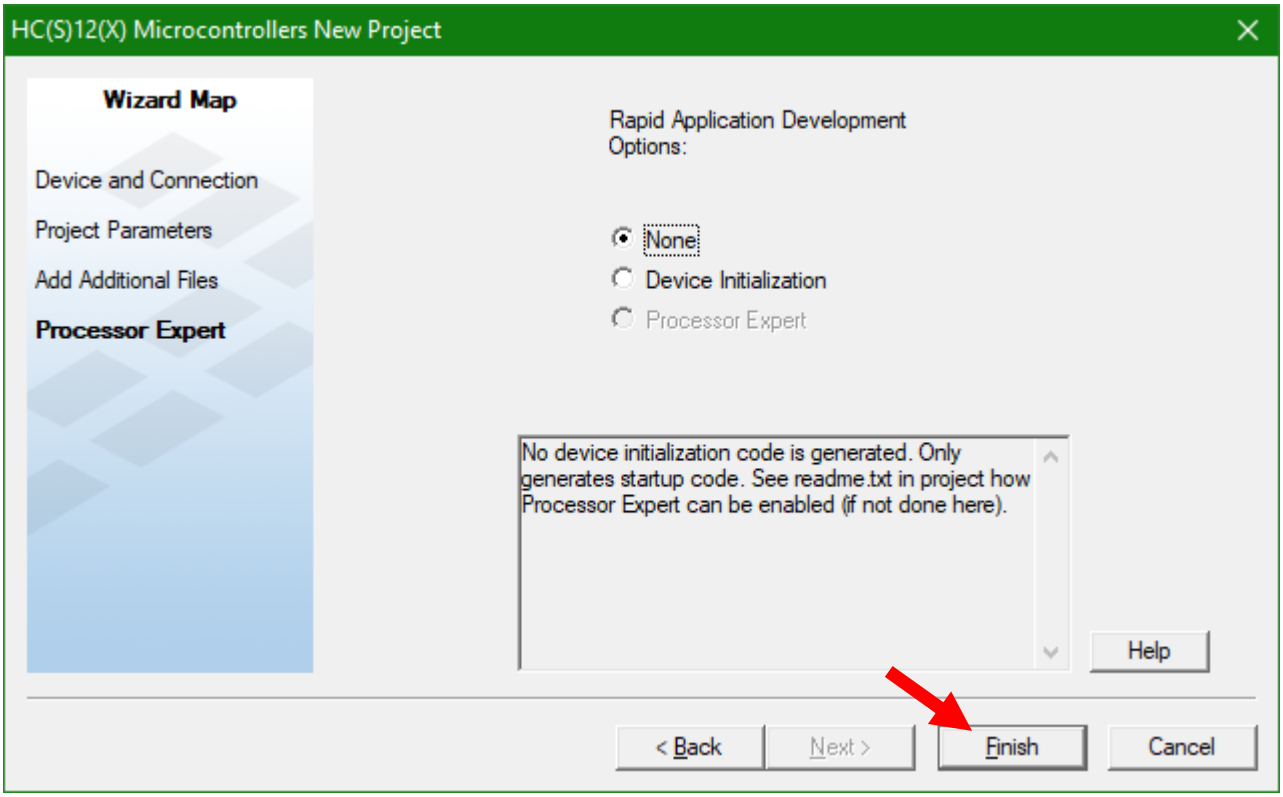
You MUST select MC9S12C32 chip (not MC9S12C128 chip) for proper simulation. (No worries, you will be able to do everything for MC9S12C128 for this class even if you select MC9S12C32 chip.)



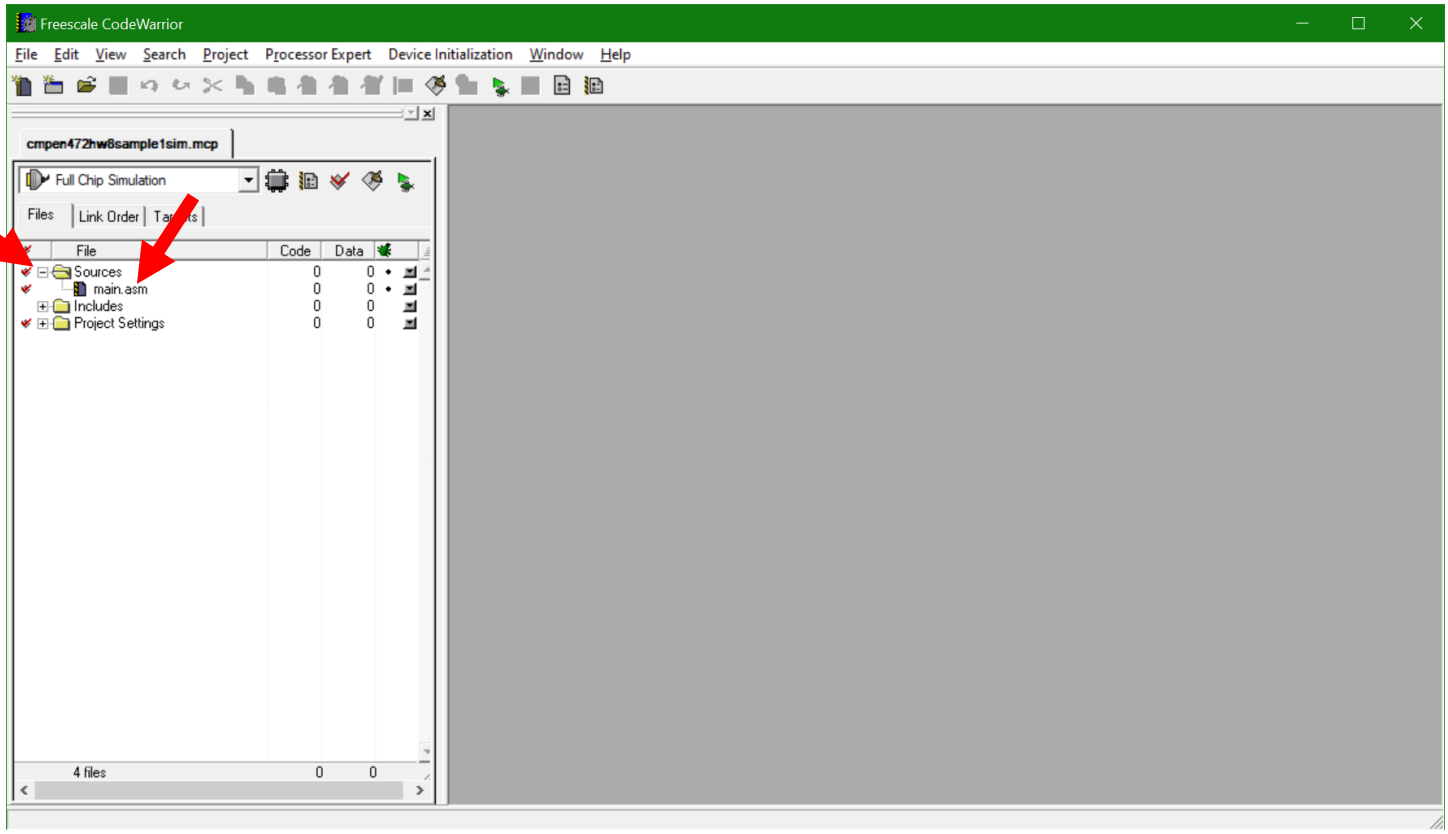
Type “cmpen472hw1.mcp”



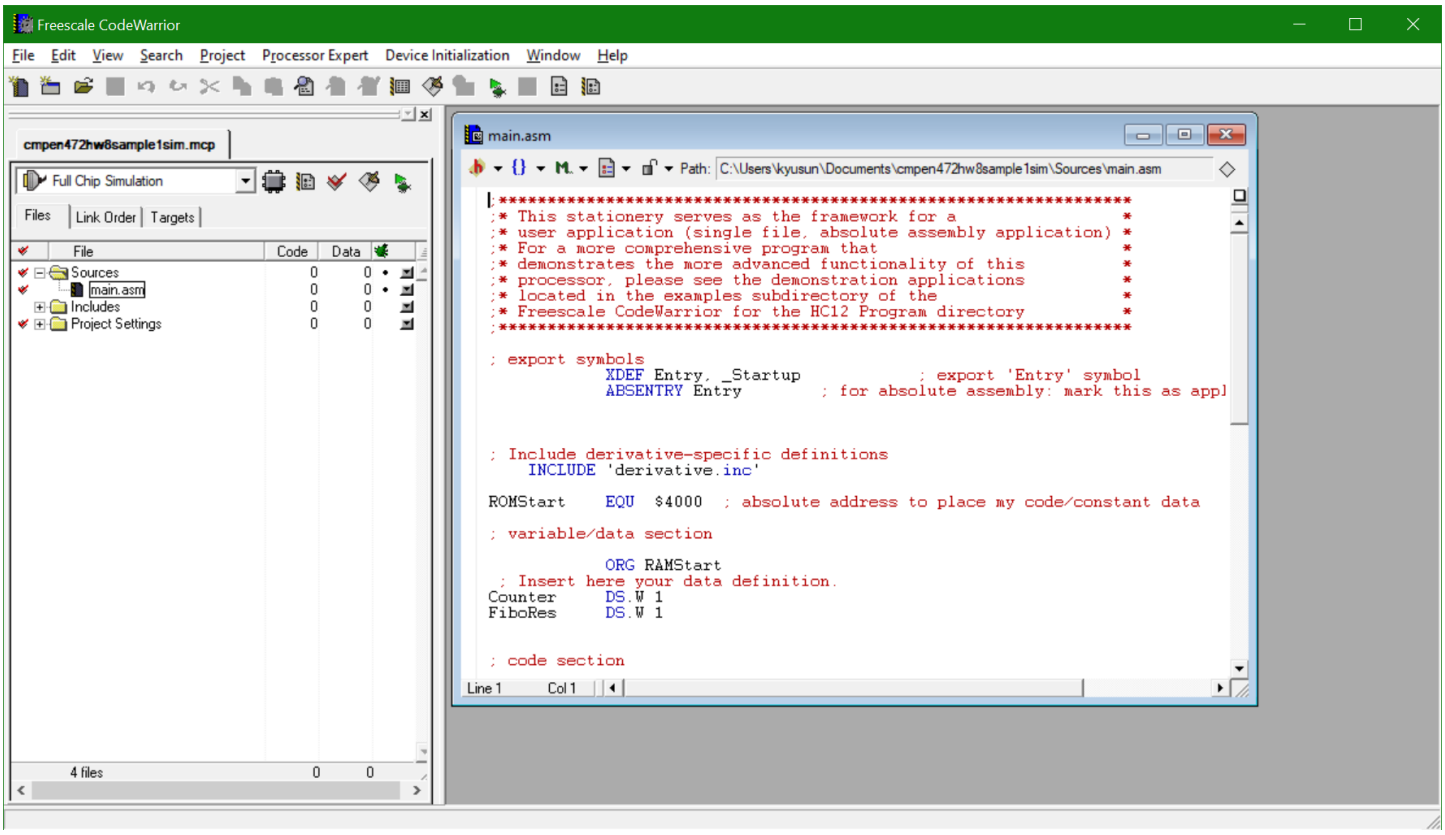

HC(S)12(X) Microcontrollers New Project
Wizard Map
Device and Connection
Project Parameters
Add Additional Files
Processor Expert
Add existing files to the project
Desktop
OneDrive
kyusun
This PC
Libraries
CORX1 (E:)
Network
class
cse
min
Add
Remove
Project Files
Copy files to project
Create main.c/main.asm file
Select files to be added to the new project and press "Add..."
To copy the added files to the project folder, select "Copy Files to Project"
To have the wizard generate default main.c and/or main.asm files, select "Create
< Back
Next >
Finish
Cancel


HC(S)12(X) Microcontrollers New Project
Wizard Map
Device and Connection
Project Parameters
Add Additional Files
Processor Expert
Rapid Application Development
Options:
None
Device Initialization
Processor Expert
No device initialization code is generated. Only generates startup code. See readme.txt in project how Processor Expert can be enabled (if not done here).
Help
< Back
Next >
Finish
Cancel

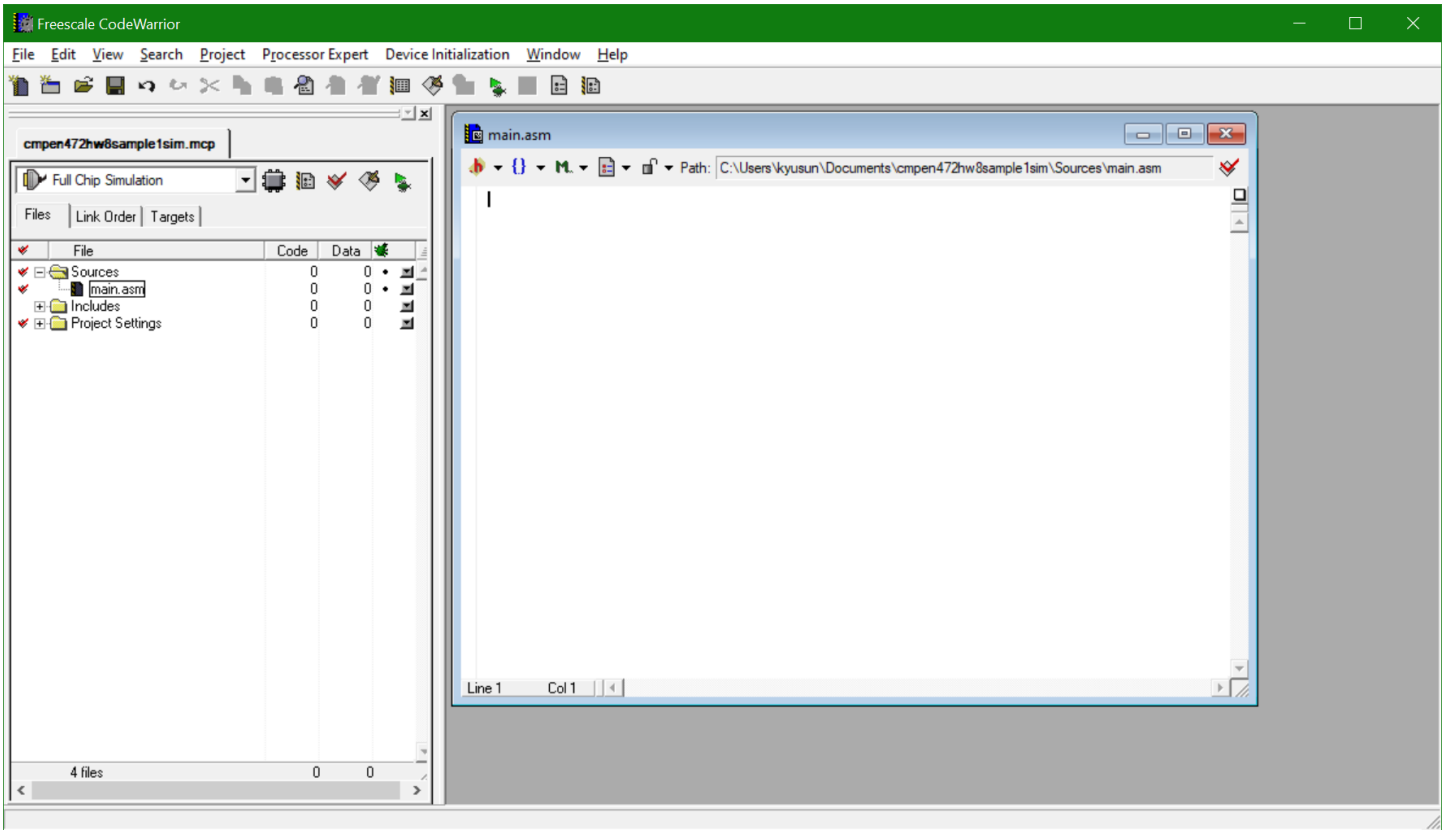
Click on Sources folder, double click on ‘main.asm’

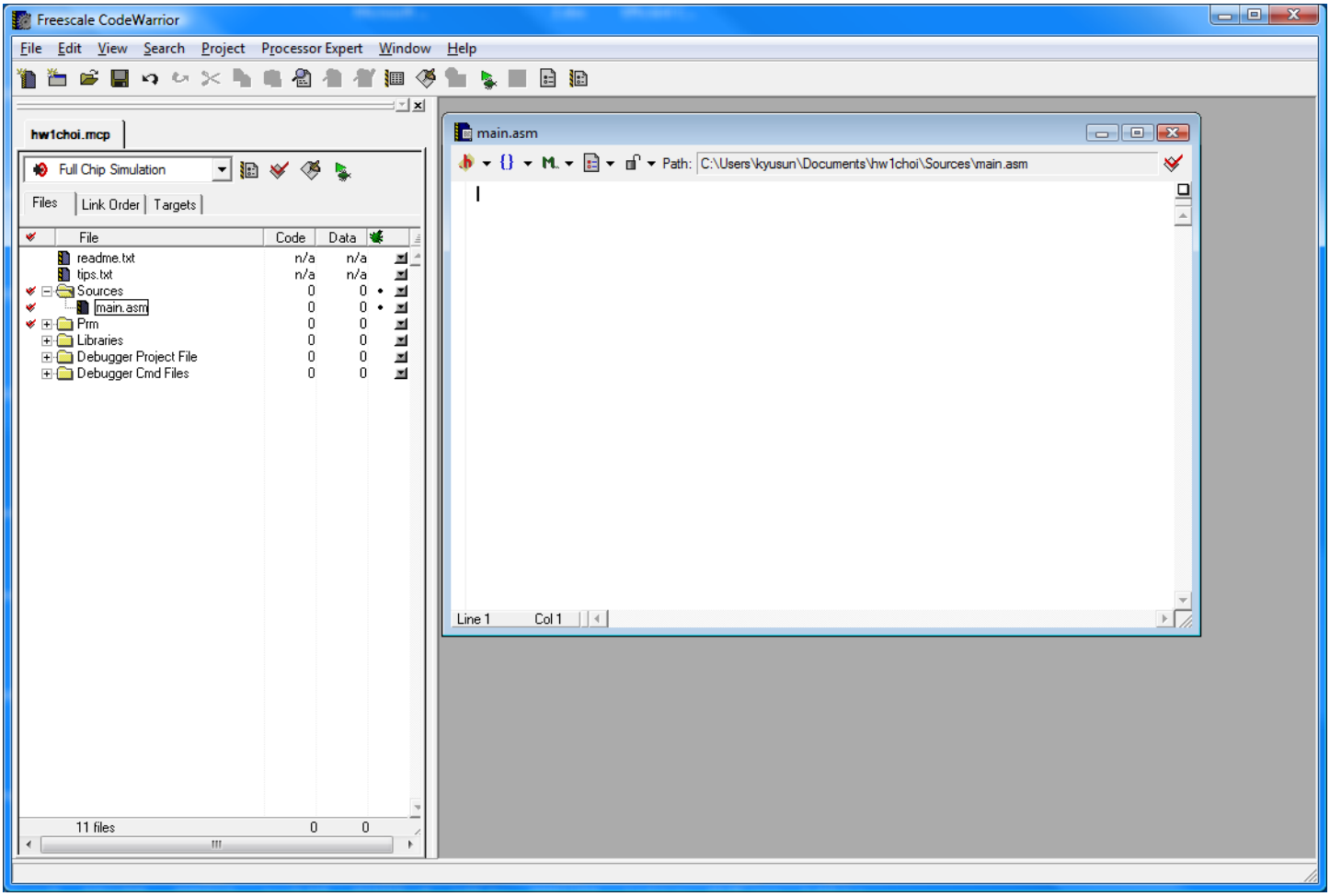


When you see the main.asm file editor, the default template program will be displayed. So DELETE all text and type the Homework 1 Sample program in to the main.asm file editor.

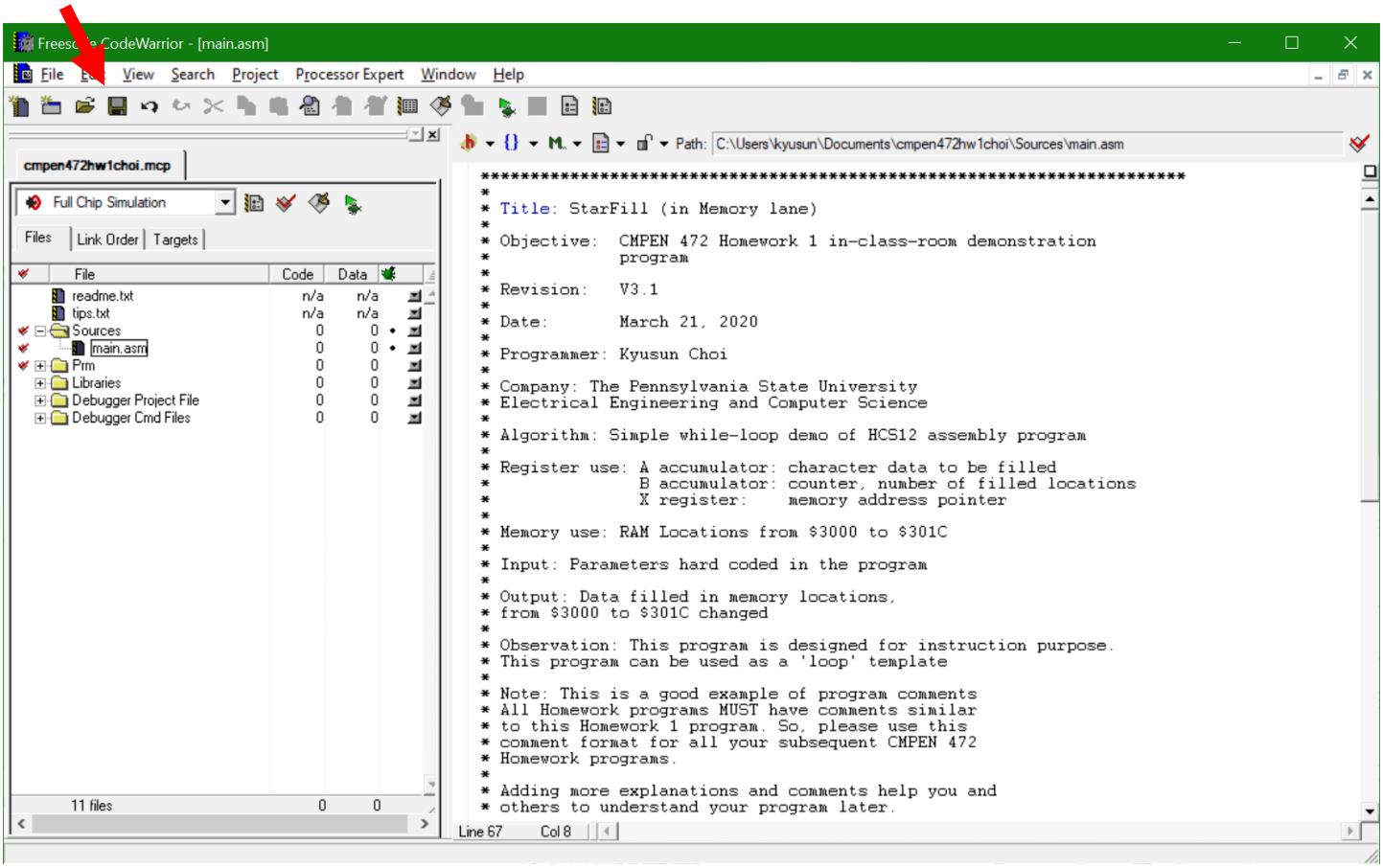


You may use ‘control a’ and ‘DEL’ to delete all text.



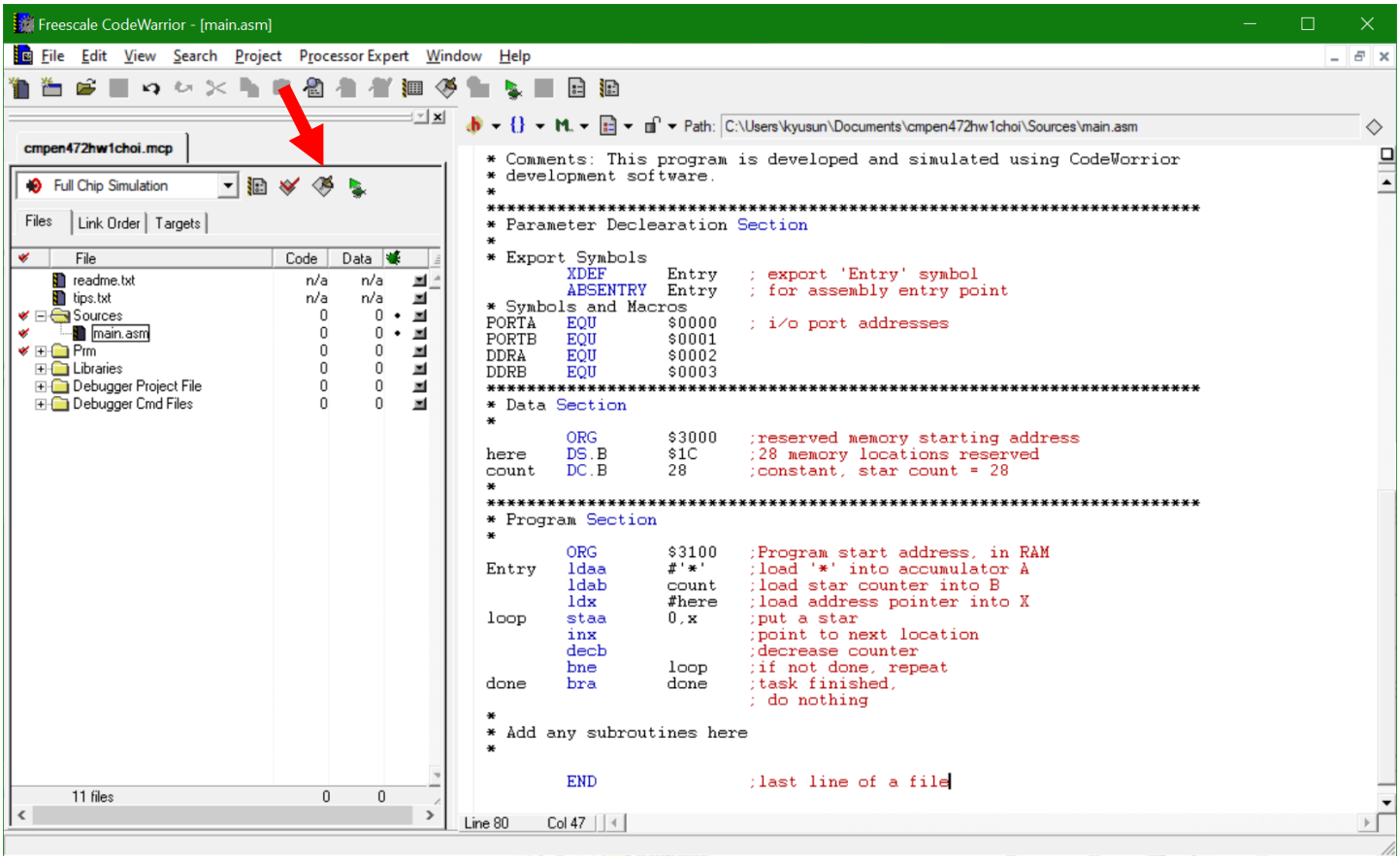


Start typing ‘hw1.asm’ program.



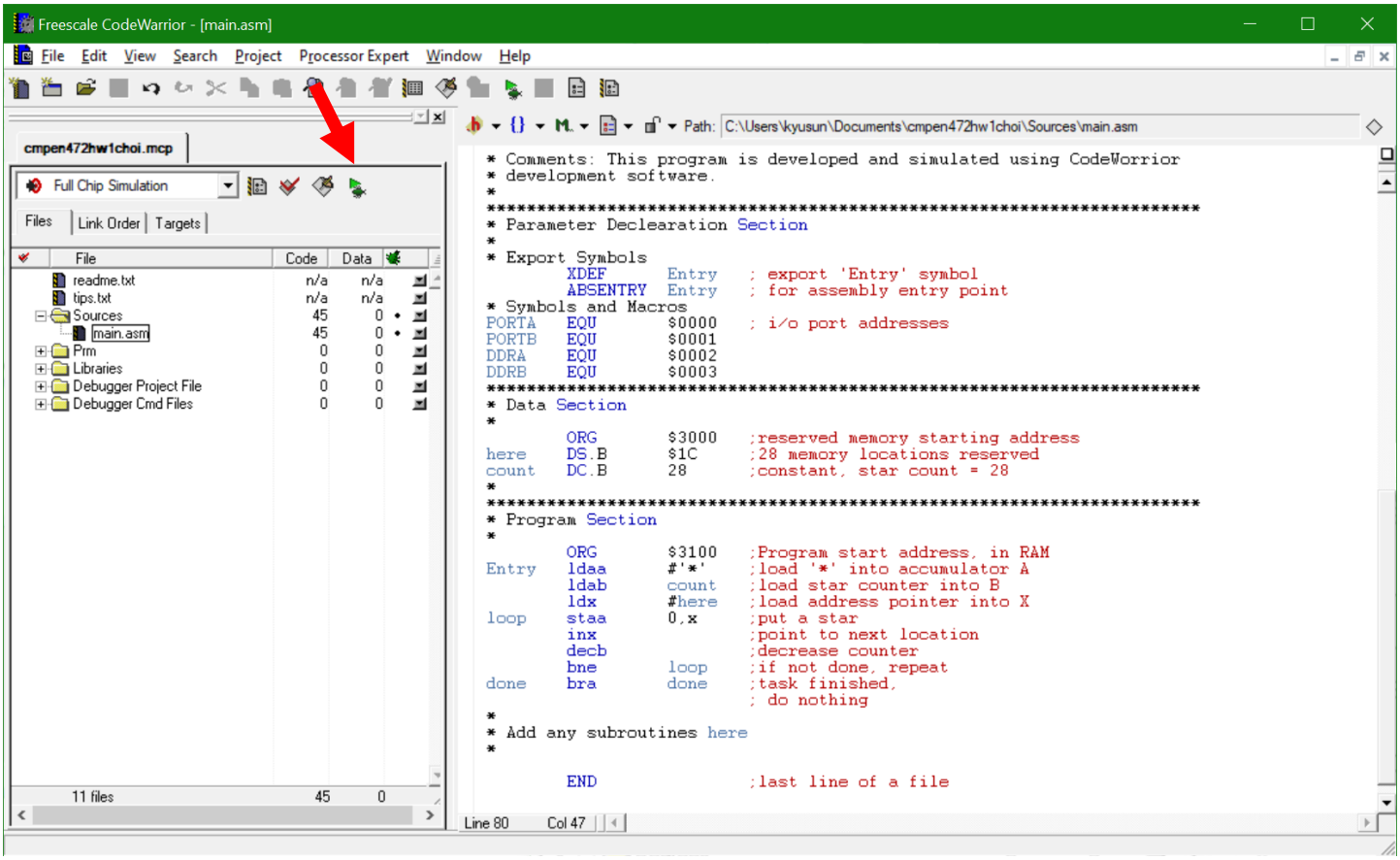
The program starts at $3100 and data section starts at $3000. So, use 'ORG $3000' and 'ORG $3100'.

When finished typing, click ‘Save’.

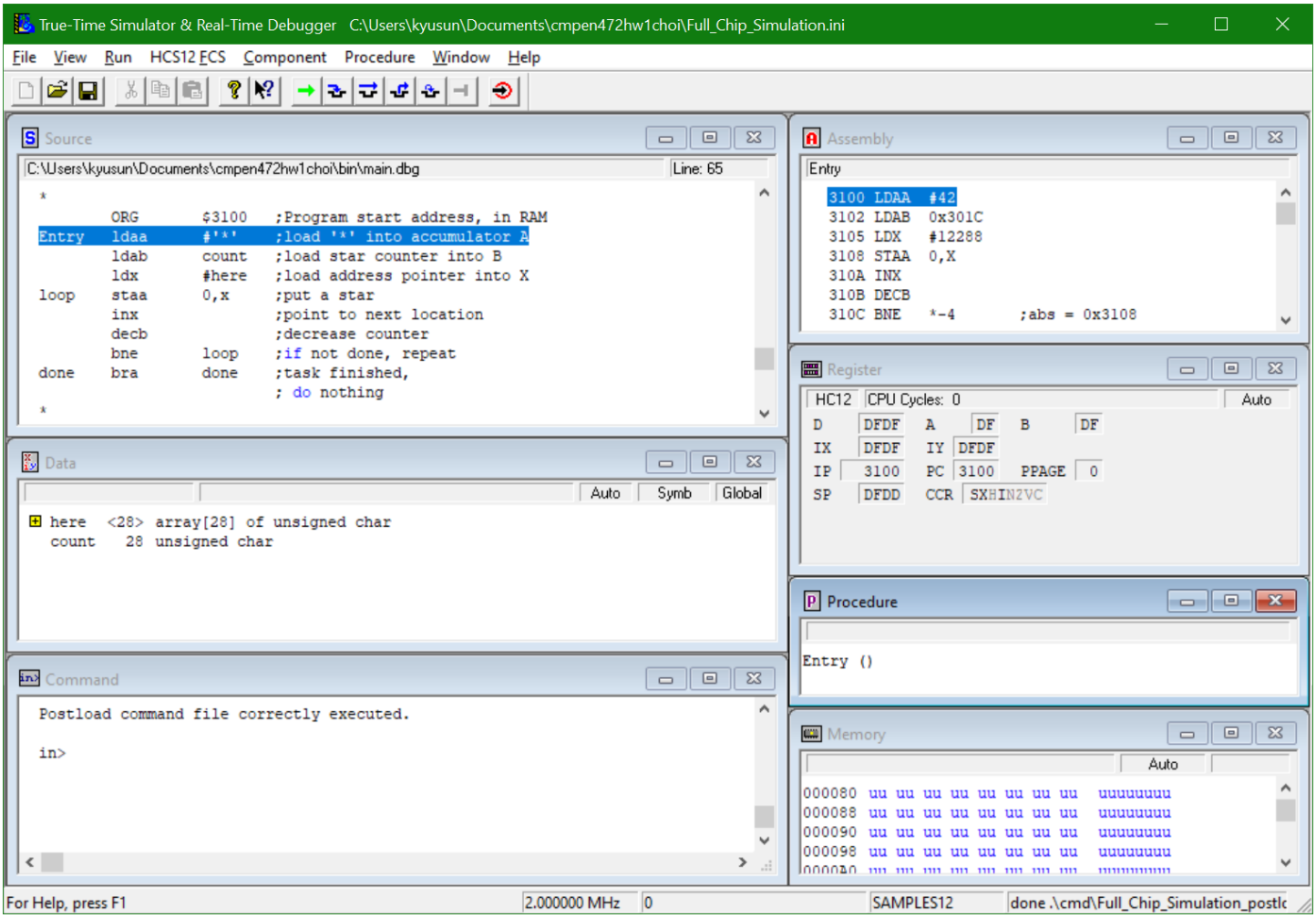


Assemble your source file by ‘Make’ command.

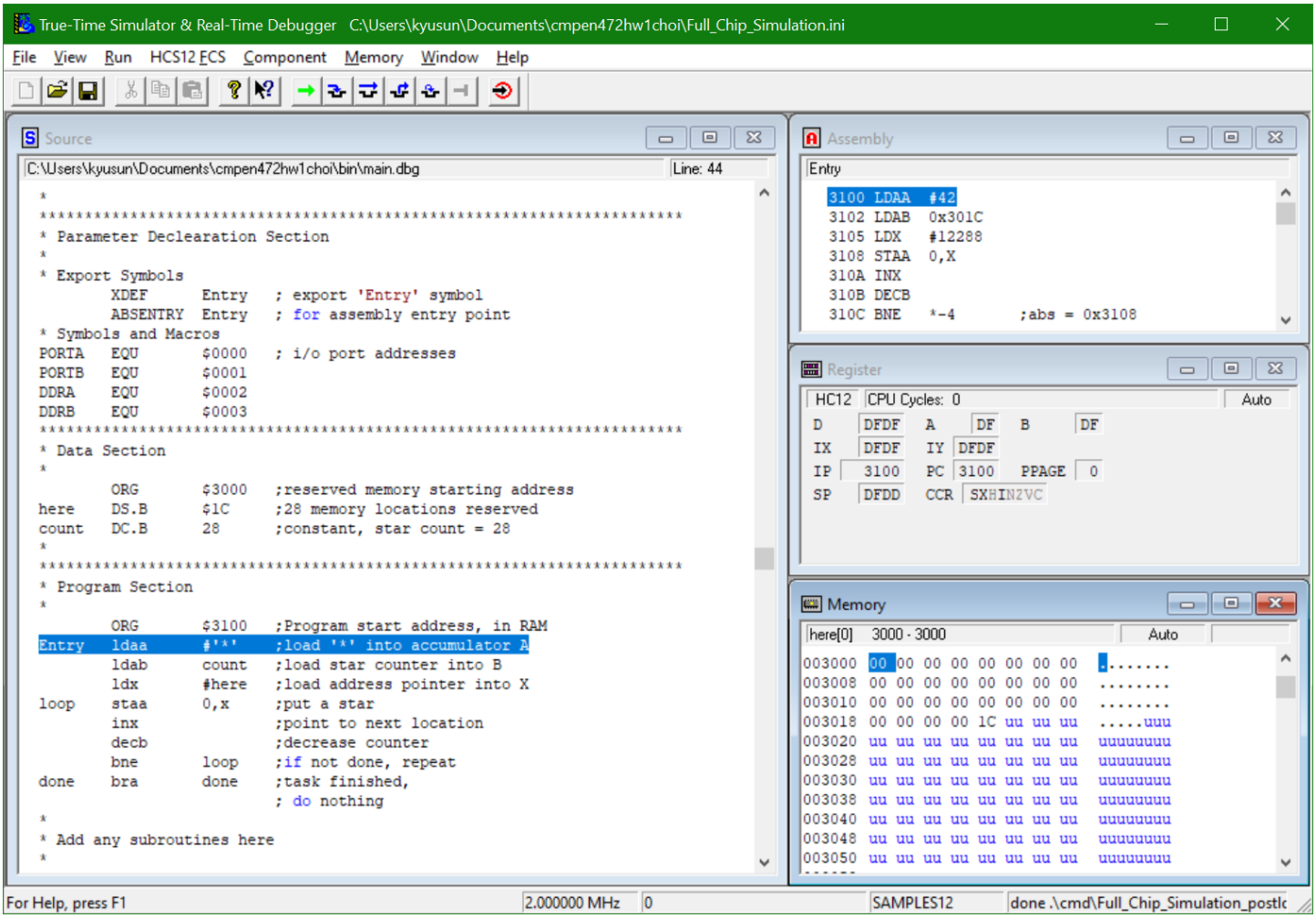
Then click on the debug button next as shown below.



The debugger window will pop up next.

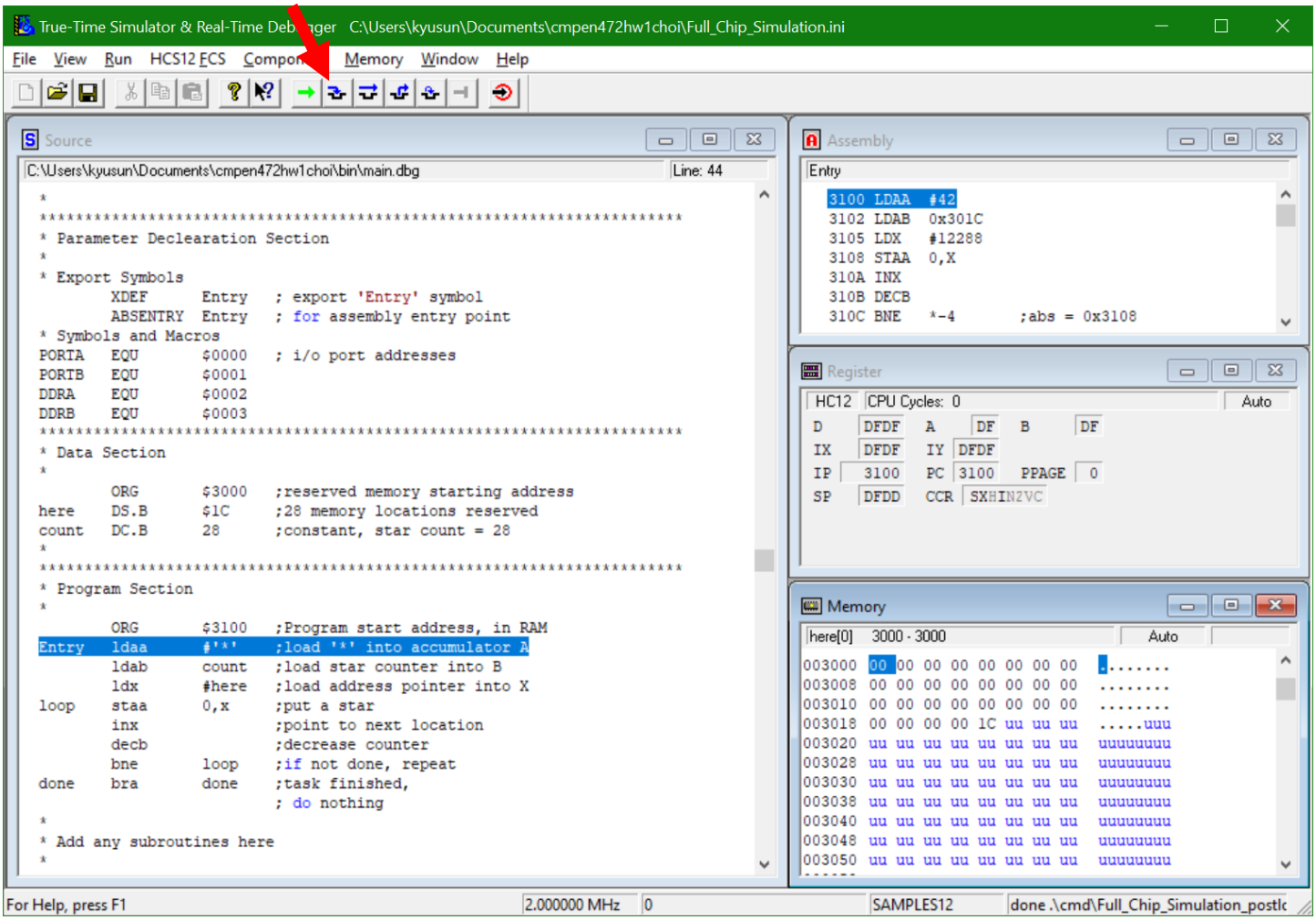


You can customize the debugger window as shown next.



Then you may select the “Save Configuration” on your ‘File’ menu of the Debugger.

Do single step through the program and observe how the register and memory data display changes.



Now exercise using the debugger, try various options and be familiar with all the features.