MPC5744P
SOFTWARE INTEGRATION GUIDE (SWIG)

Ultra-Reliable MCUs for Industrial and Automotive Applications

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S32 DESIGN STUDIO IDE FOR POWER ARCHITECTURE

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- To develop an application, one needs an Integrated Development Environment (IDE)
- S32 Design Studio IDE is the solution to the need
- This document provides stepwise tutoring on “How to use S32 Design Studio IDE” to build an application and uses images from the S32DS for Power v1.2 installation process, but the steps apply for later versions as well

Contents

- S32Design Studio IDE for Power Architecture Supported Devices
- Installing S32 Design Studio IDE for Power Architecture
  - Download and Install the new IDE
- Getting started with a New Project
  - Create, build and debug the new project
- Making Projects from built-in Examples

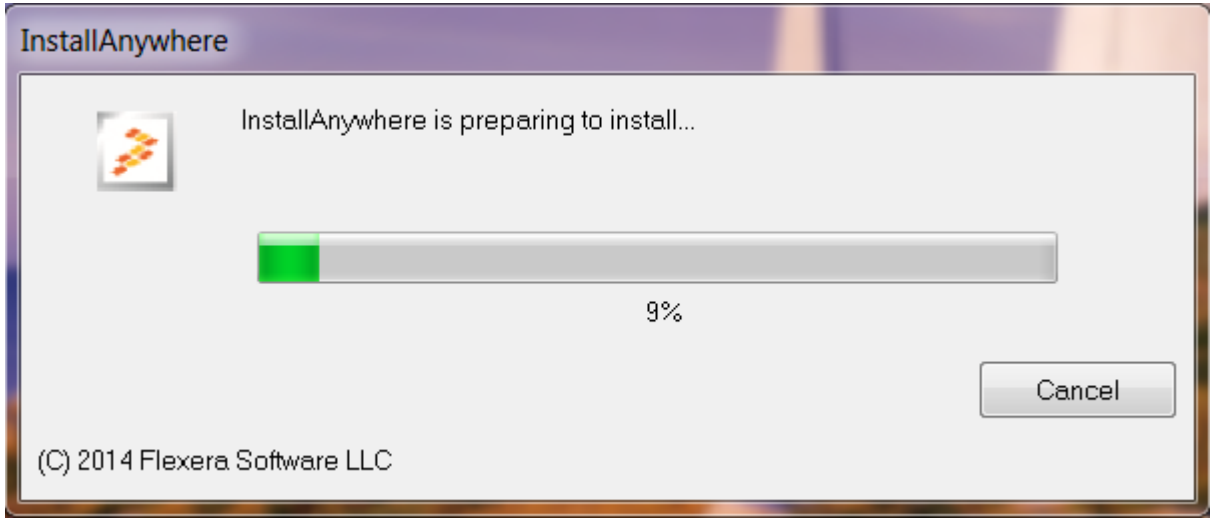
S32 Design Studio IDE for Power Architecture v1.2 Supported Devices

- MPC560xB/C/D Family
- MPC560xE Family
- MPC560xP Family
- MPC560xS Family
- MPC564xA Family
- MPC564xB Family
- MPC564xC Family
- MPC564xL Family
- MPC567xR Family
- MPC563xM Family
- MPC5674F
- MPC567xK Family
- MPC574xB/C/D Family
- MPC574xG Family
- MPC577xK Family
- MPC574xP Family
- MPC574xR Family
- MPC5777C
- MPC5777M
- S32R274
- S32R372

INSTALLING S32 DESIGN STUDIO IDE FOR POWER ARCHITECTURE

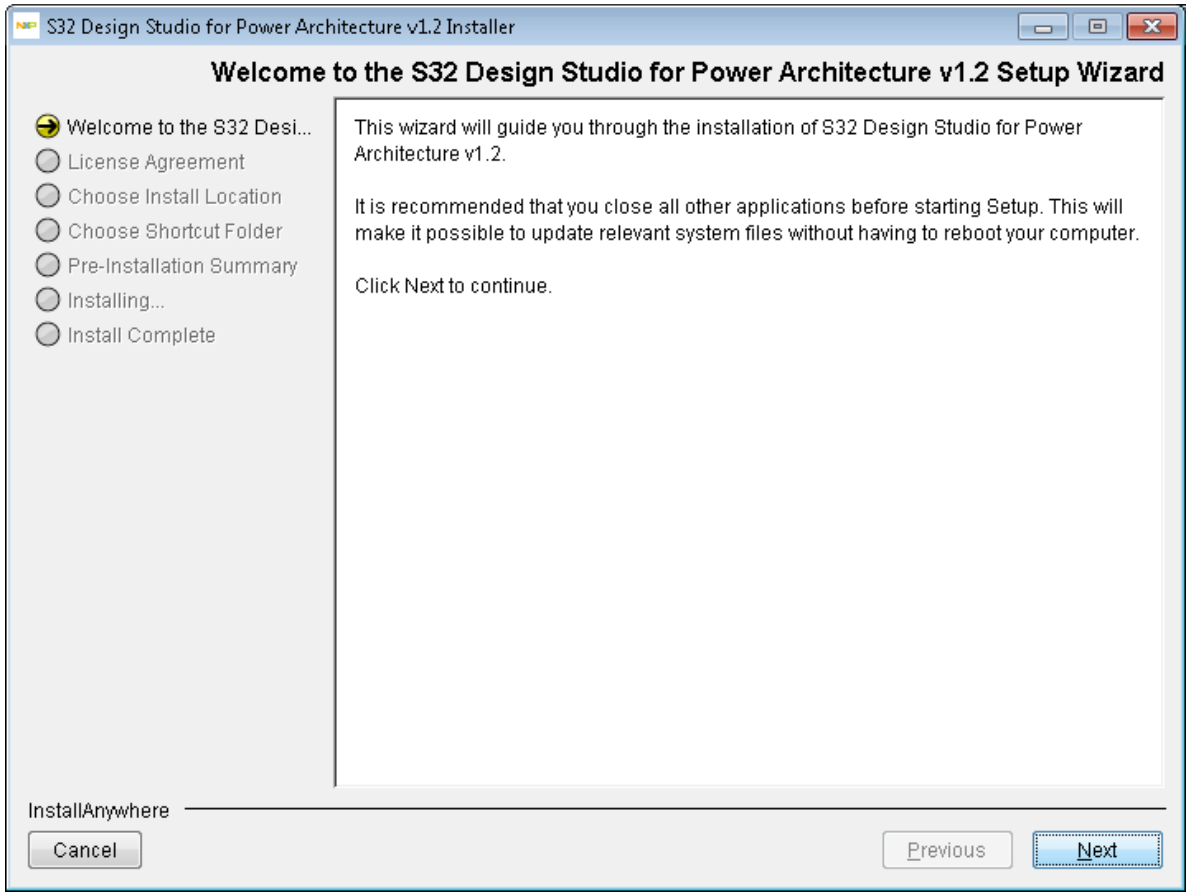
Step-1

- Go to www.nxp.com/S32DS to download latest version of S32DS
- From Downloads folder, run the installation file
- Click on Run if any administrative privilege issues result from unknown software publisher
- The “preparing to install” dialogue box will appear



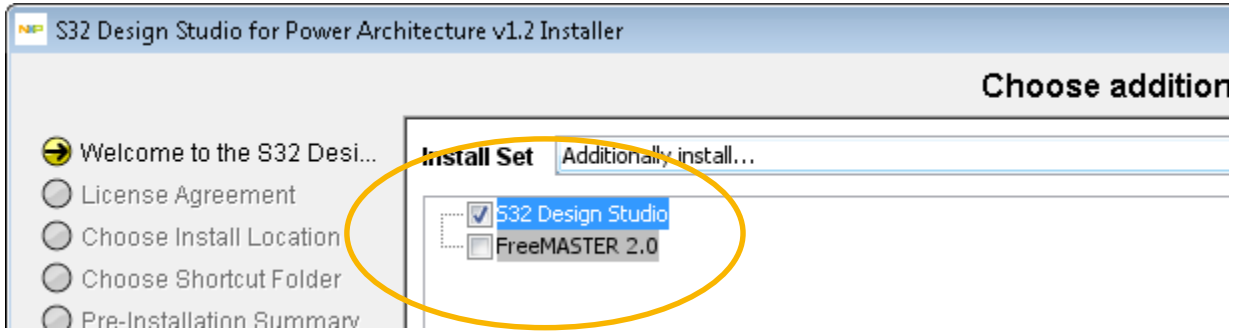
Step-2

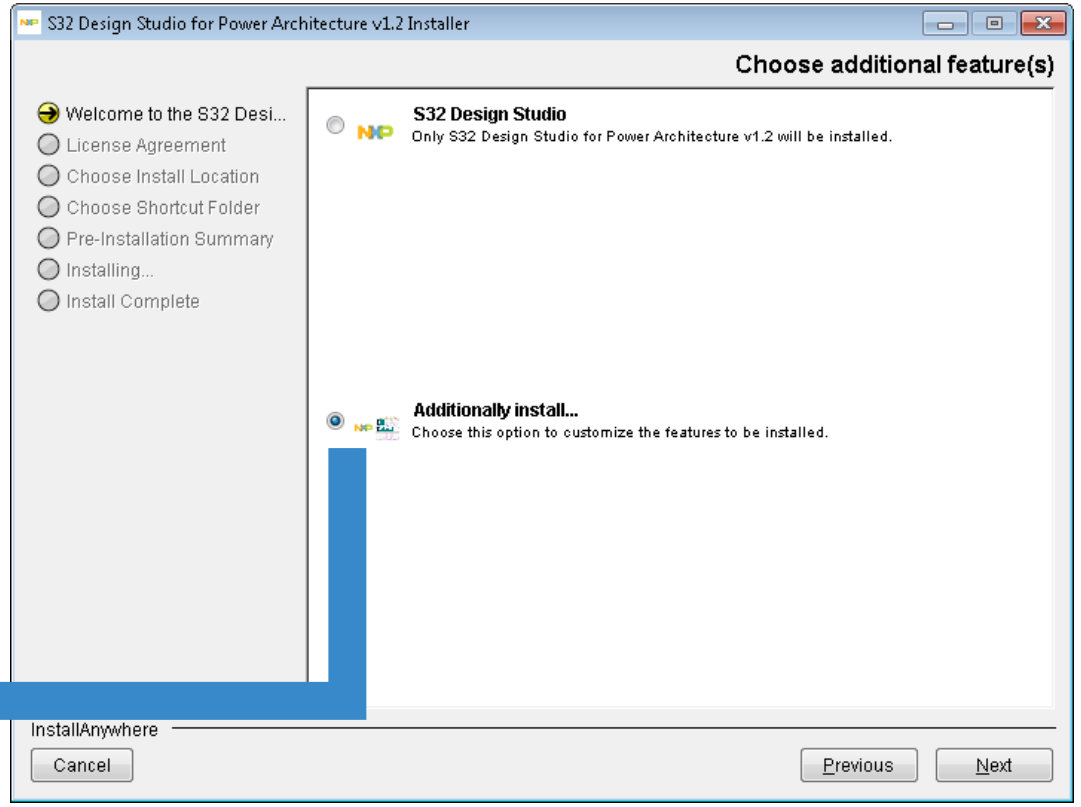
- An Installer welcome window will be displayed, click Next to continue



Step-3

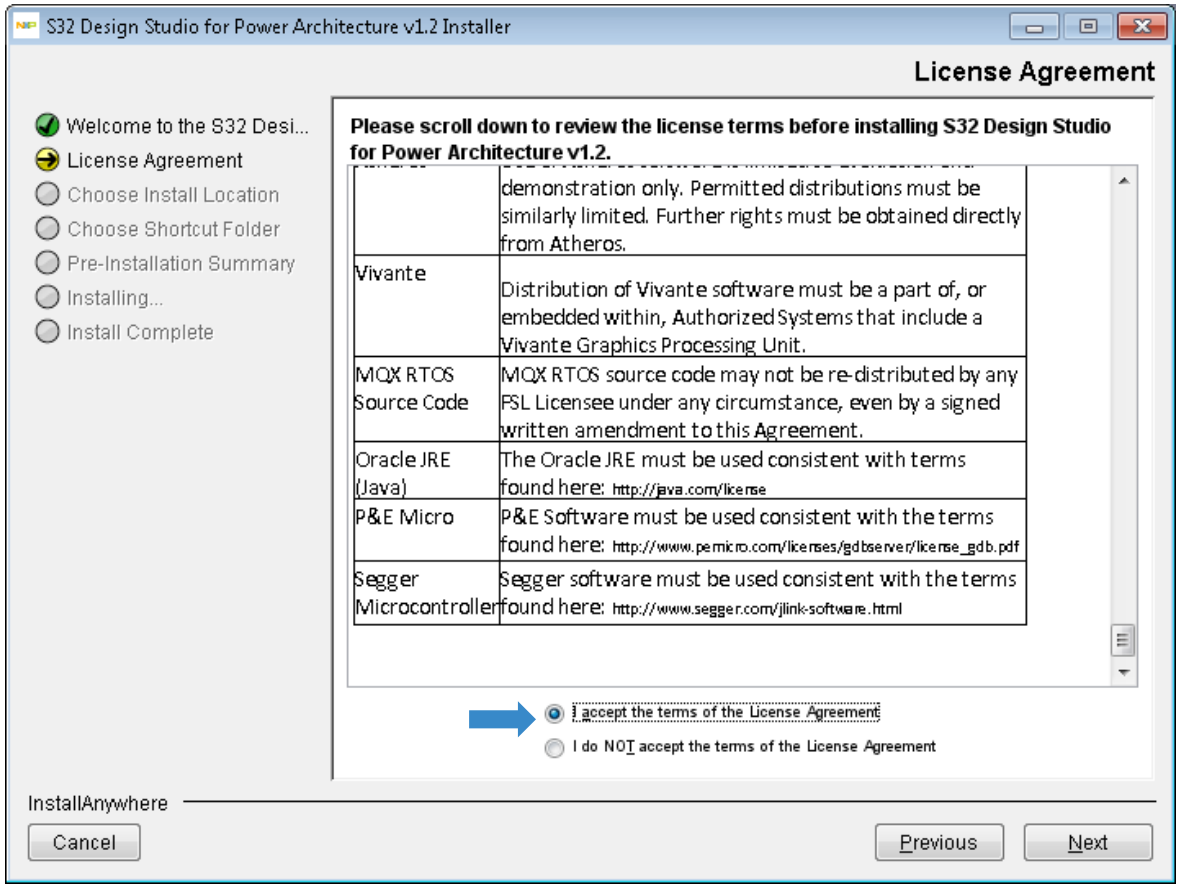
- Choose additional Features
  - Selecting “S32 Design Studio” option will only install S32 Design Studio
  - Selecting “Additionally install…” will allow you to install other software too
- Click on Next





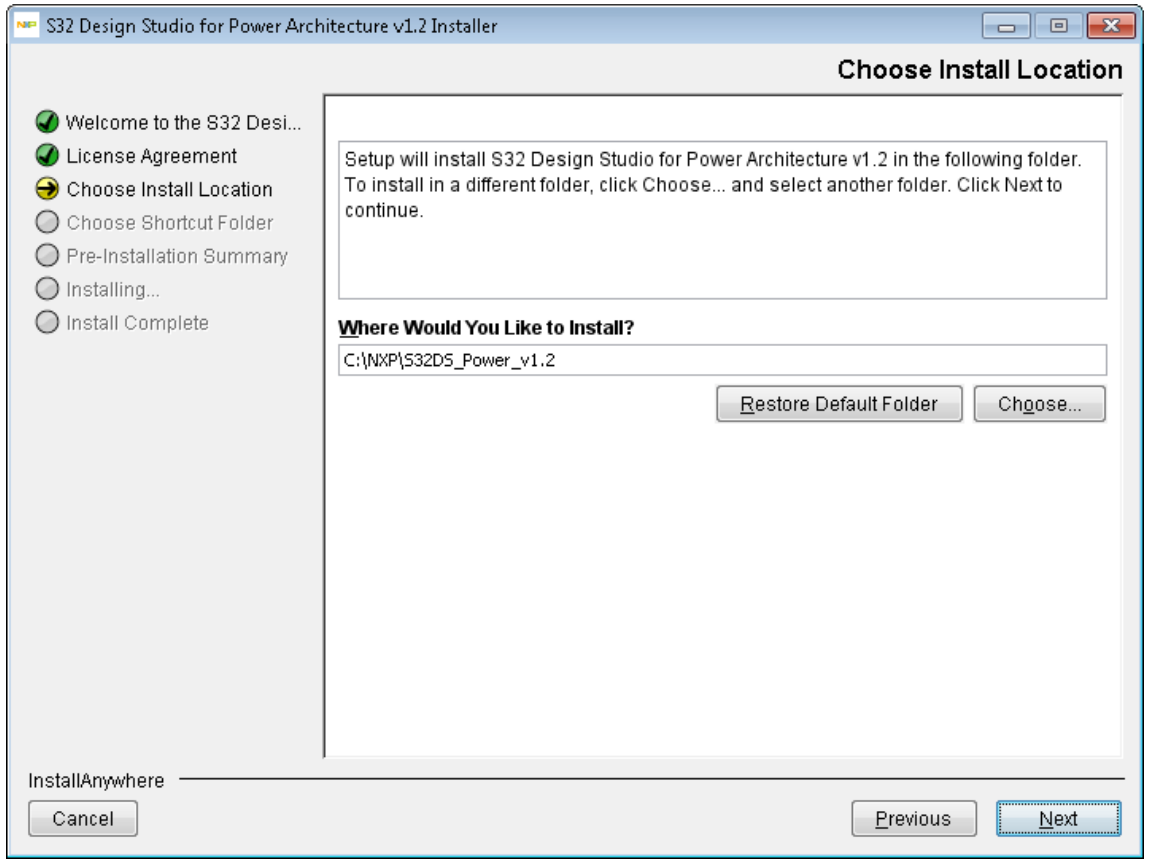
Step-4

- Scroll down the text and read the license agreement.
- Select the radio button acknowledging the license agreement terms and click Next to continue.



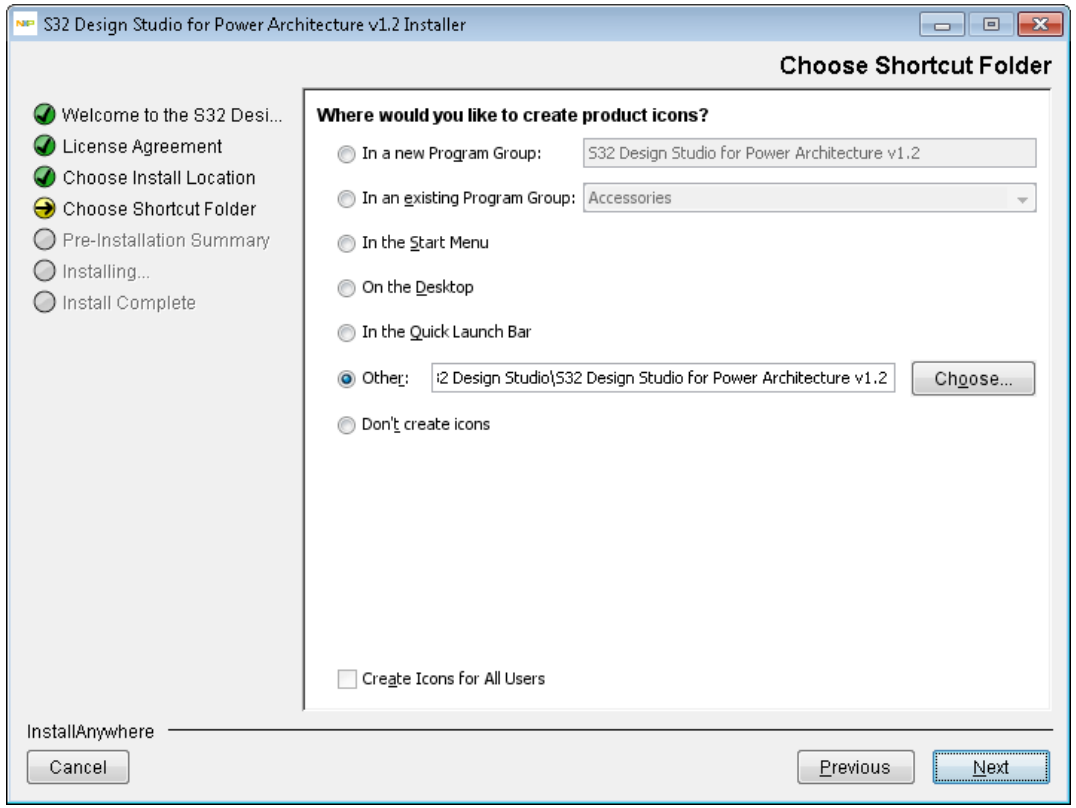
Step-4

- Click **Next** to accept the default installation location (could be changed, but recommended to install into path without spaces).

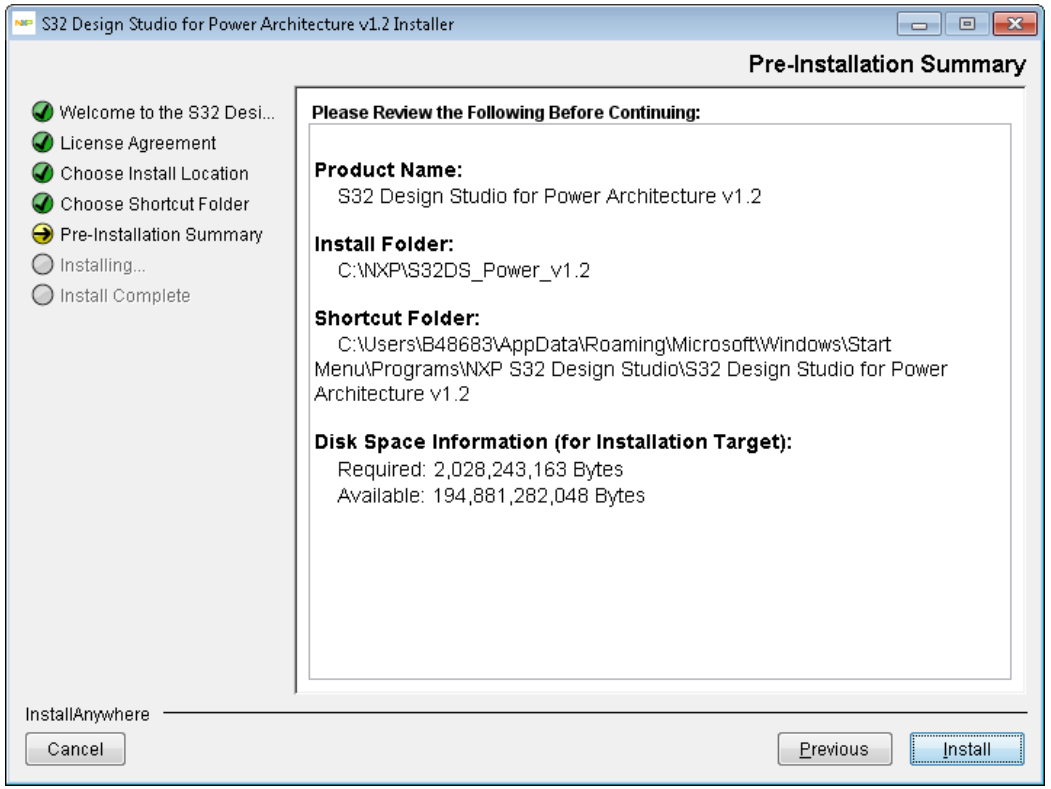


Step-5

- Select folder where you want to generate a Shortcut and click on Next to continue.

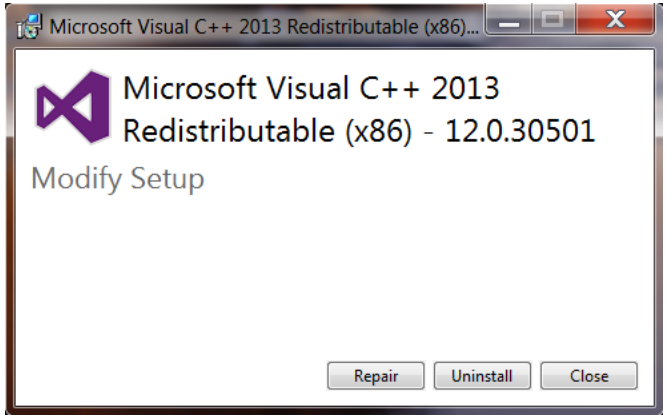


- Verify settings on “Pre-Installation Summery” tab and click Install to start Installation



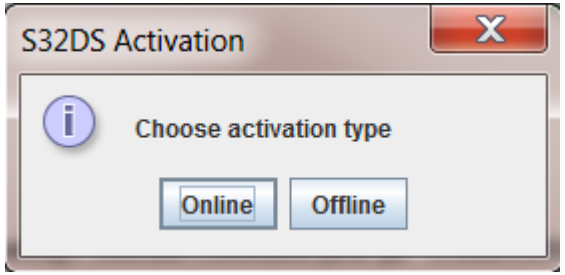
Step-7

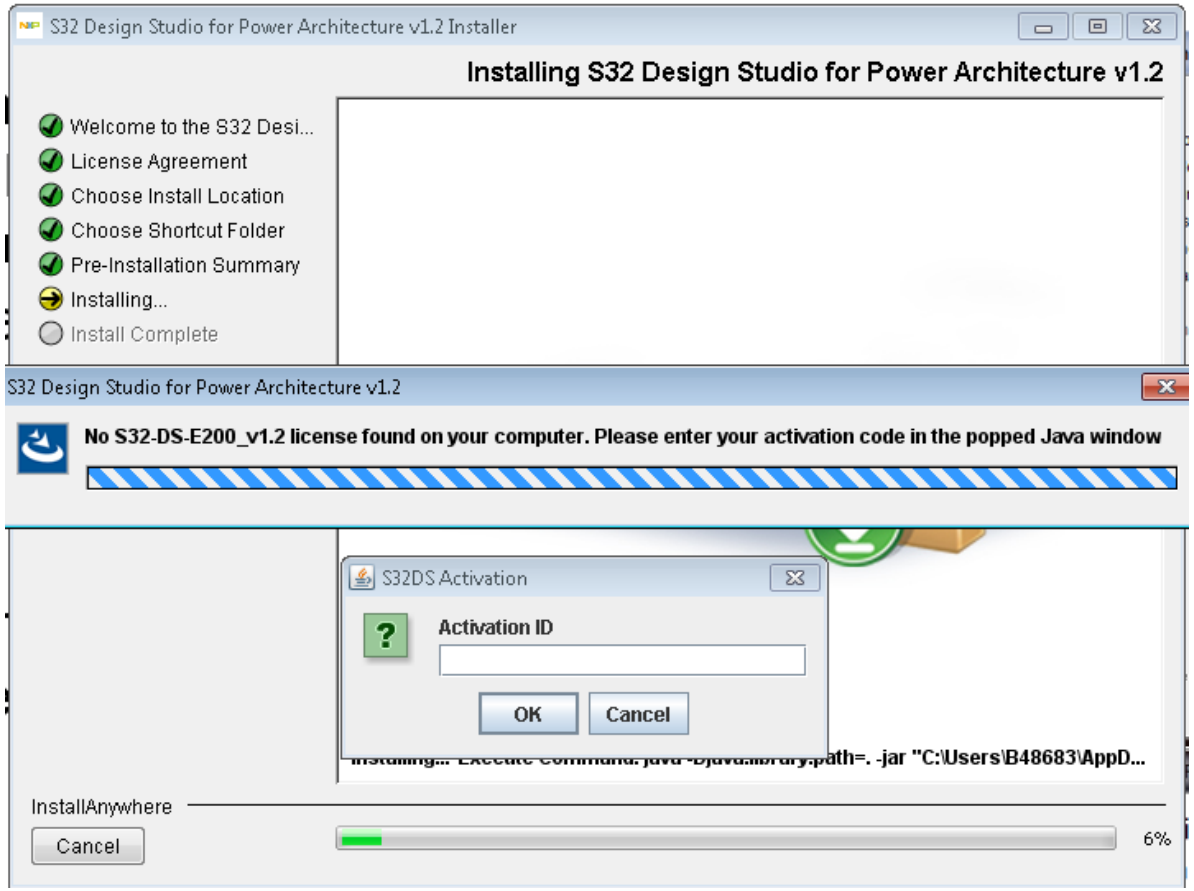
- The installation starts by installing required libraries from the Microsoft Visual C++ 2013 package. Read the license terms and select **I agree…** option and hit the Install
- If the libraries of the Visual C++ 2013 package were already installed on the system then the **Modify Setup** dialog box appears. Now click on Repair to continue



Step-8

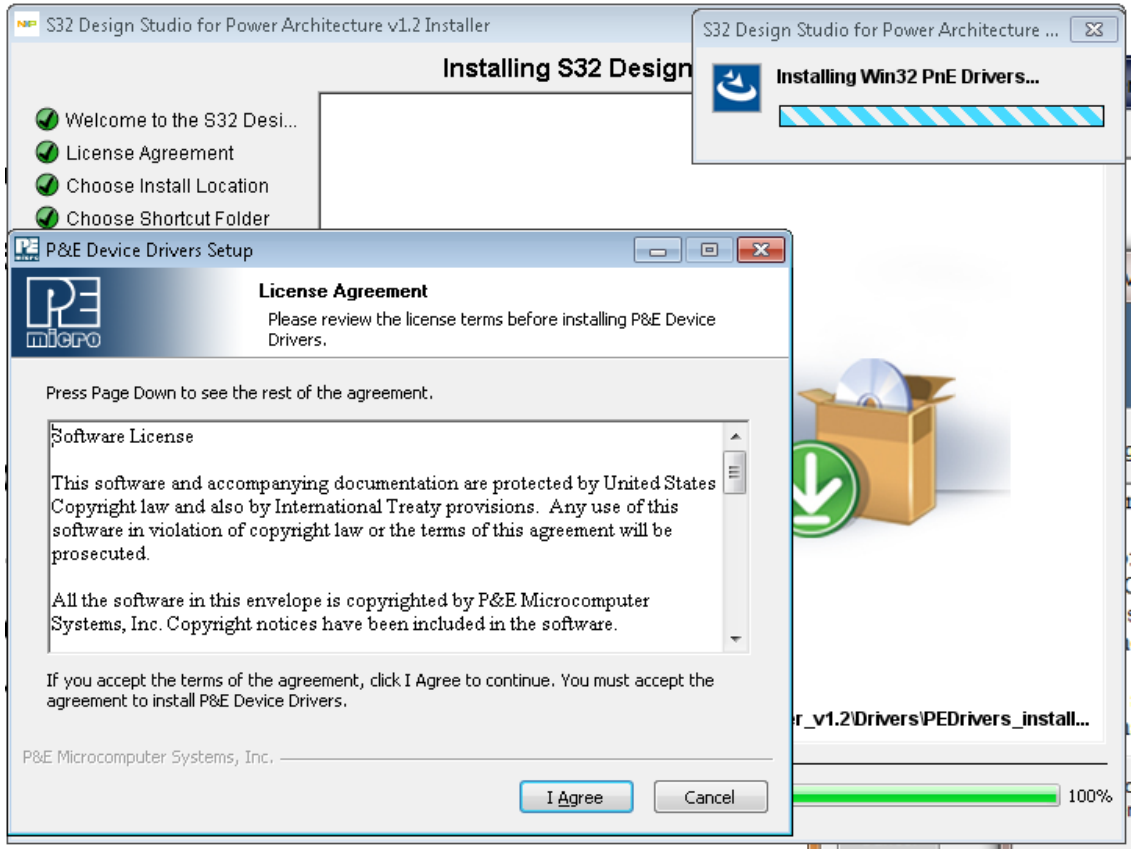
- When asked for Activation ID, copy and pest the key from the Download page
- Then click on OK.
- Next: In activation type window. Click on Online





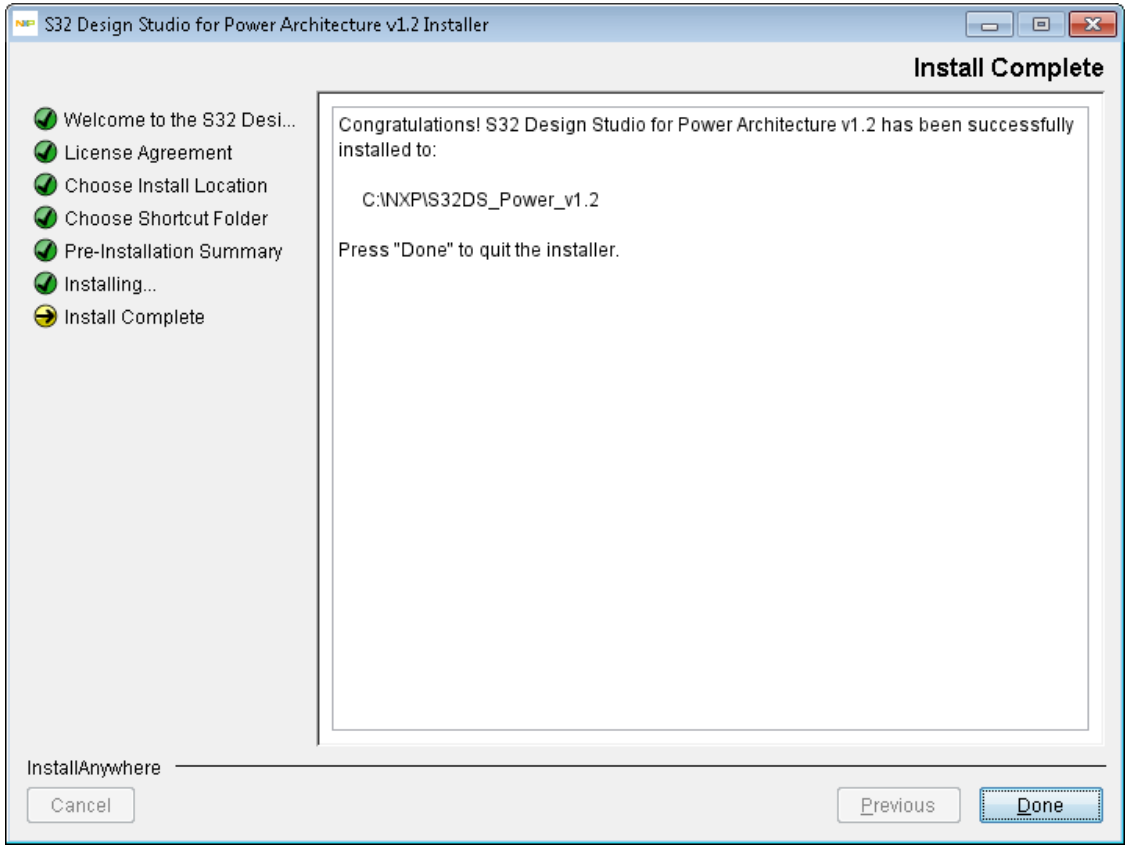
Step-9

- During the Installation it may ask you to install P&E Device Drivers
- Read license agreement and Click on I Agree.
- In next window Select the destination folder and click Install
- Once the installation is done. Click on Close to close the P&E Device Driver Setup window.



Step-10

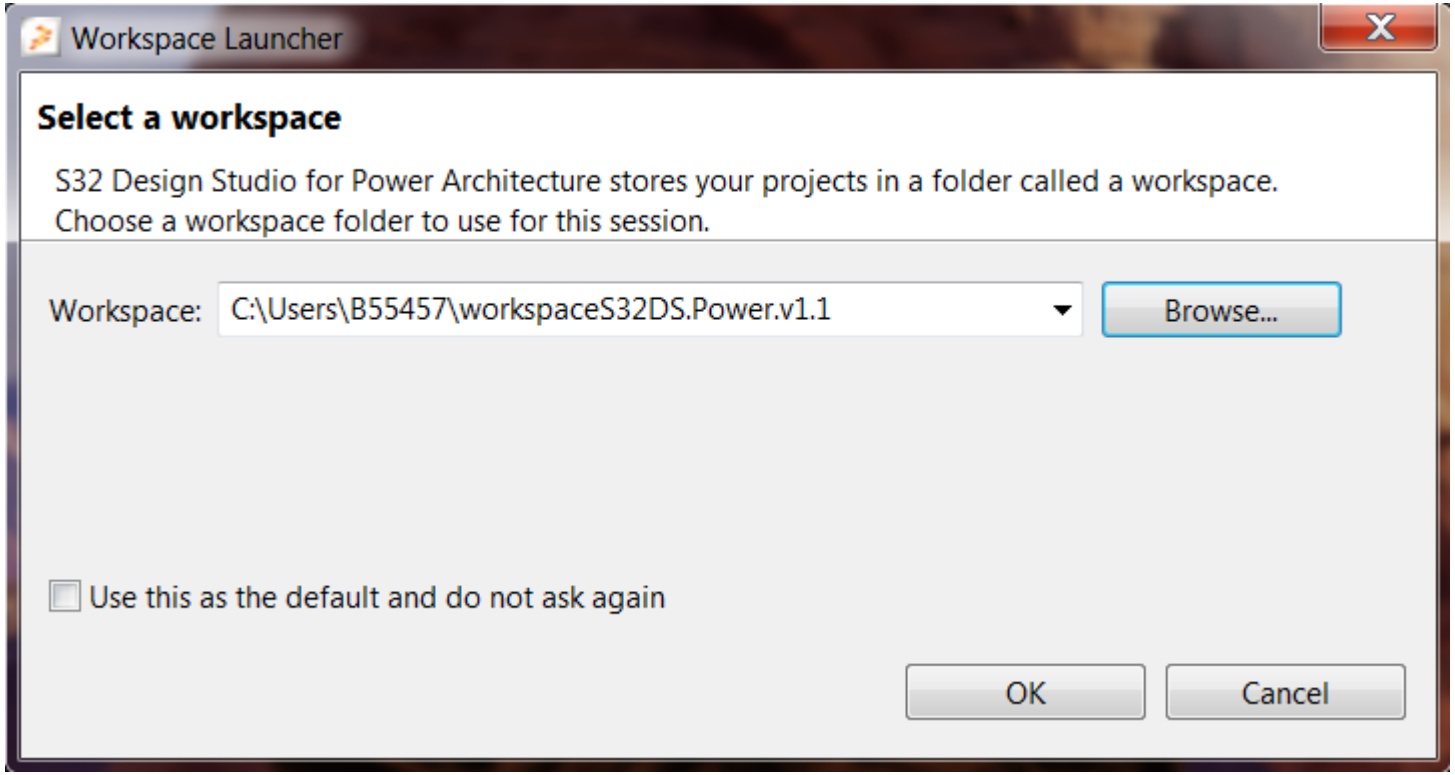
- Once the installation is completed click on Done to exit the installation wizard.



GETTING STARTED WITH A NEW PROJECT

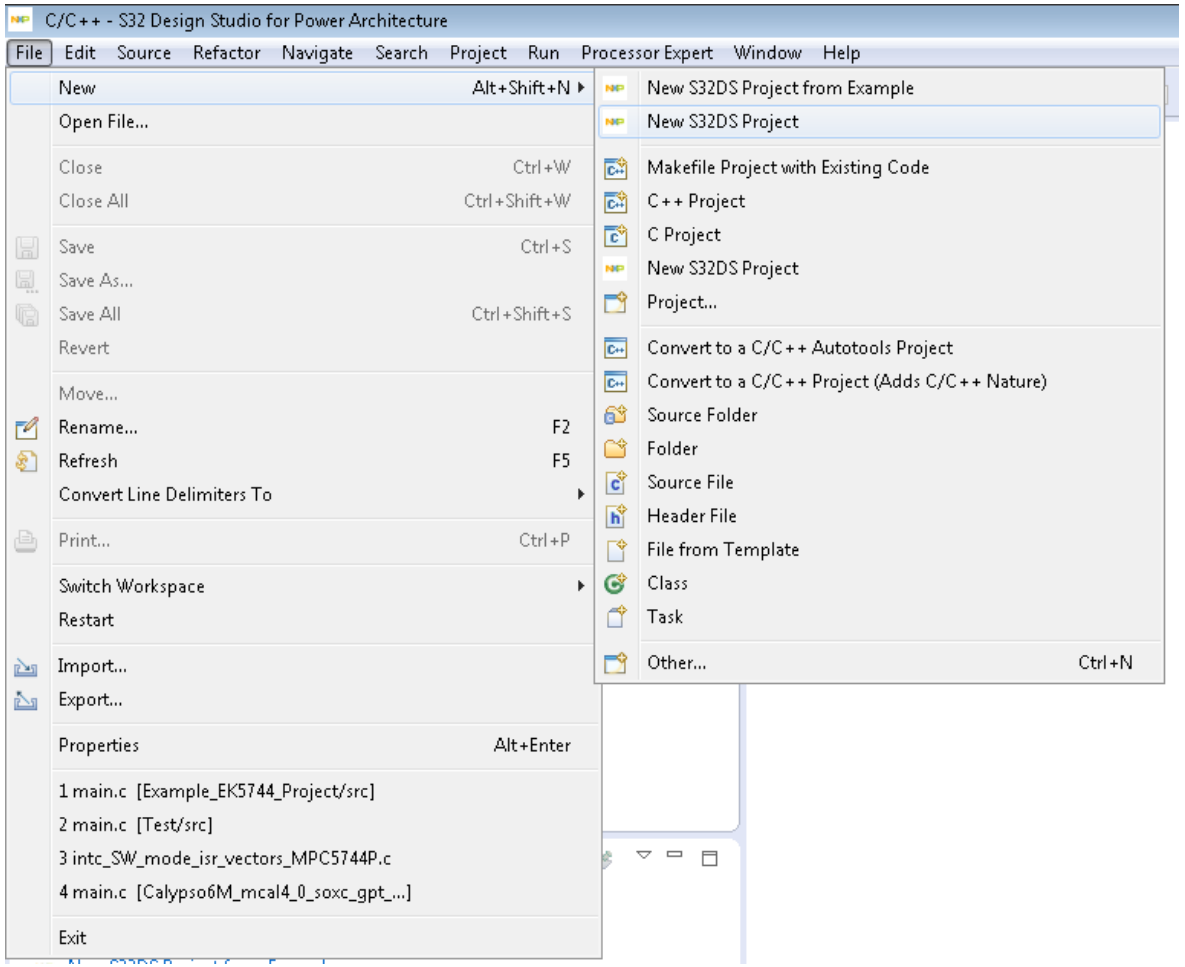
Create a new project

- Start program: Click on “S32 Design Studio for Power Architecture *[version]*” icon
- Select workspace:
  - Choose default or specify new one
  - Suggestion: Uncheck the box “Use this as the default and do not ask again”
  - Click OK



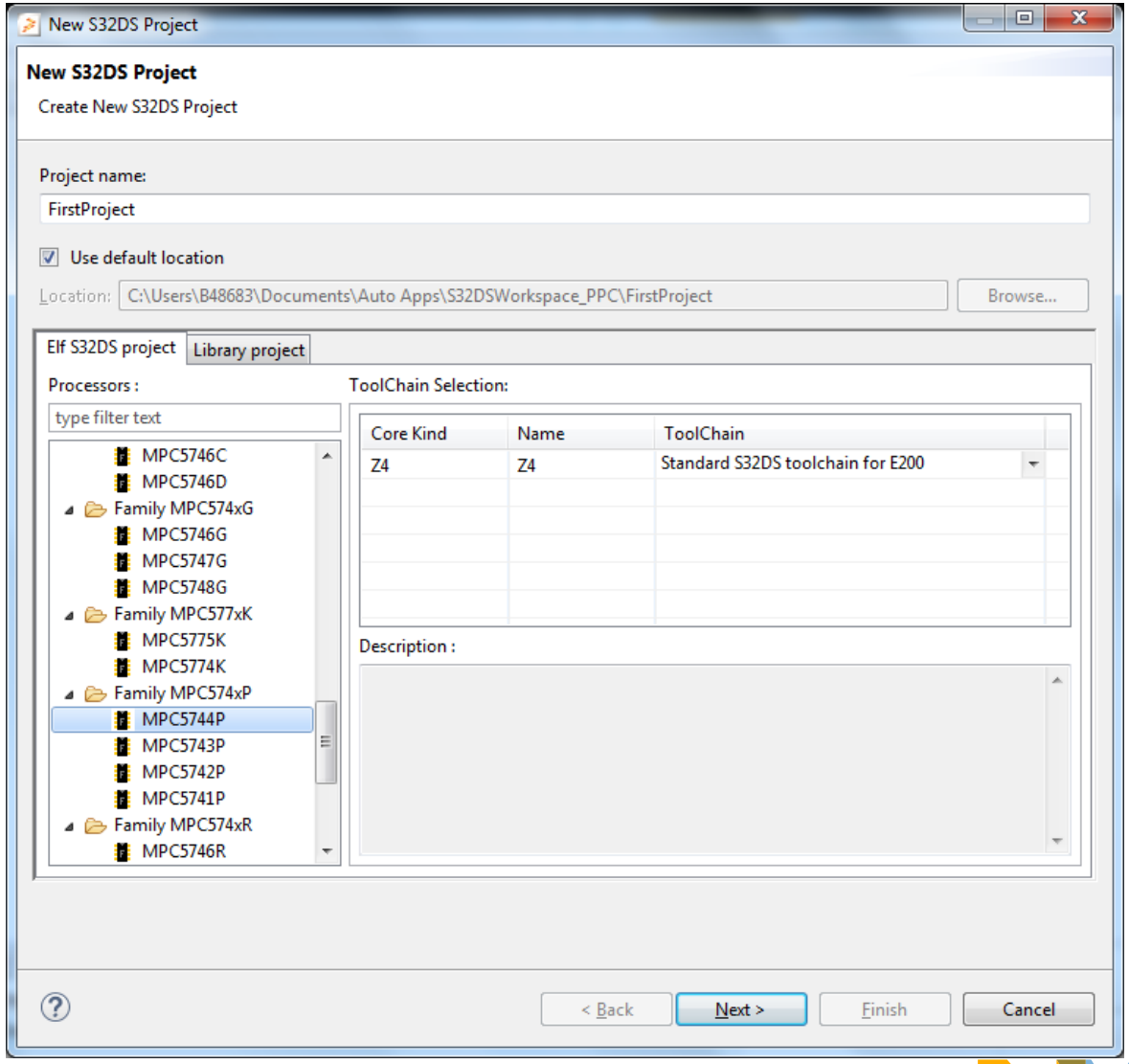
Create a new project

- Go to: File – New – New S32DS Project



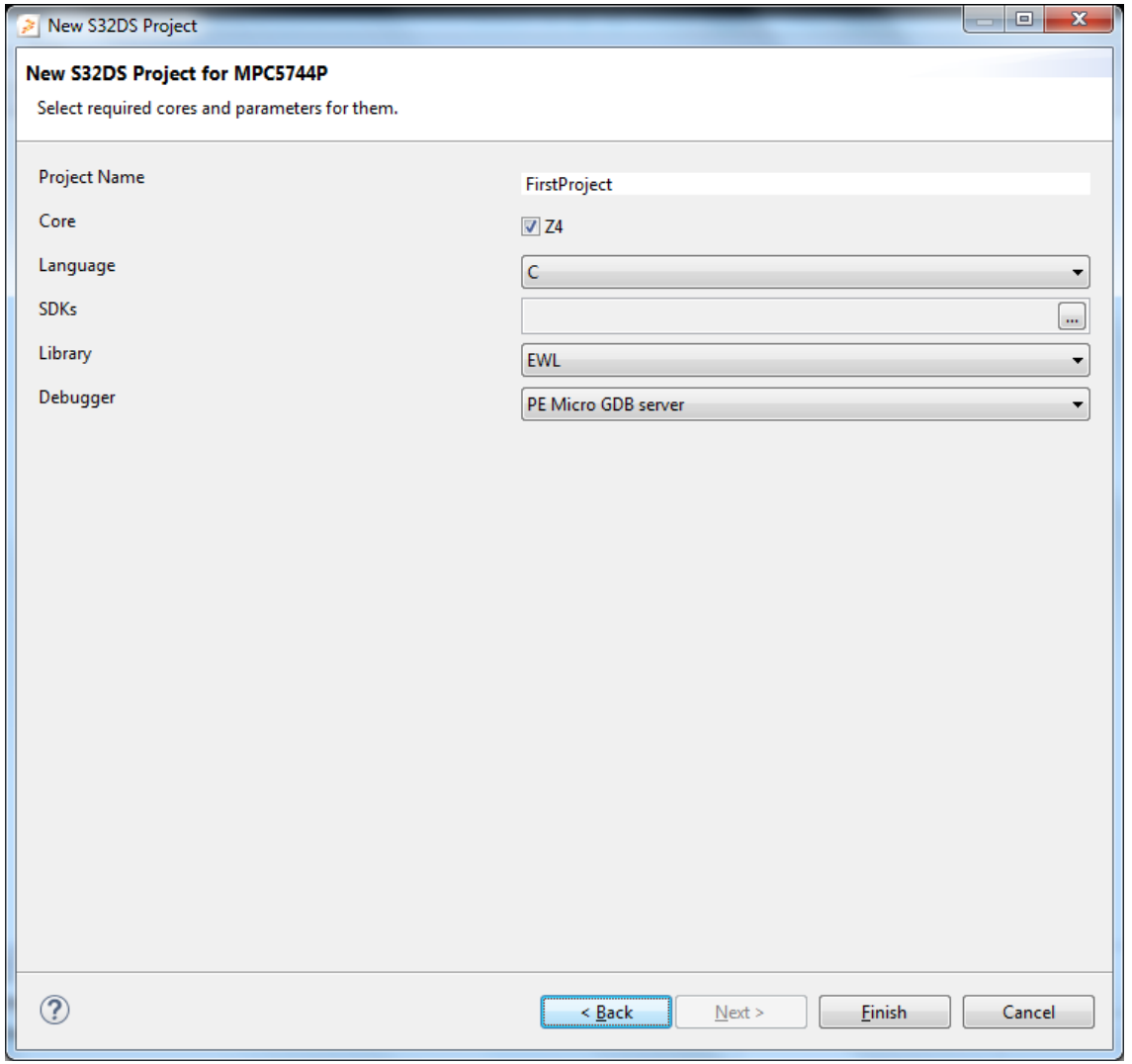
Create a new project

- Project Name:
  - Example: FirstProject
- Project Type:
  - Recommended: use Elf S32DS Project
- Select Controller:
  - Example: MPC5744P

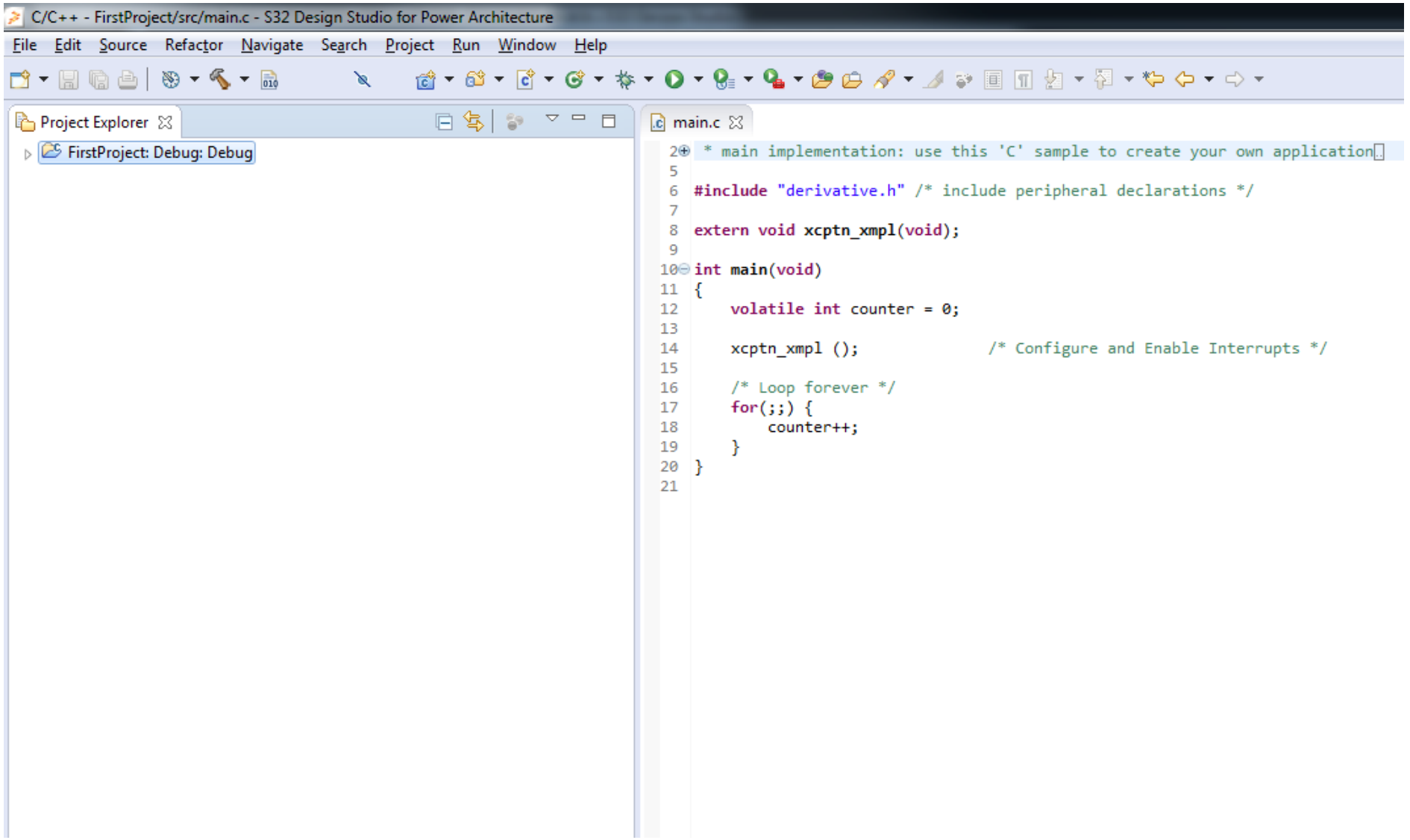


Create a new project

- Select Flash and RAM size
- Select Programming Language
- Select the Library
- Select the Debugger
- Recommended: use Default settings (for beginners)



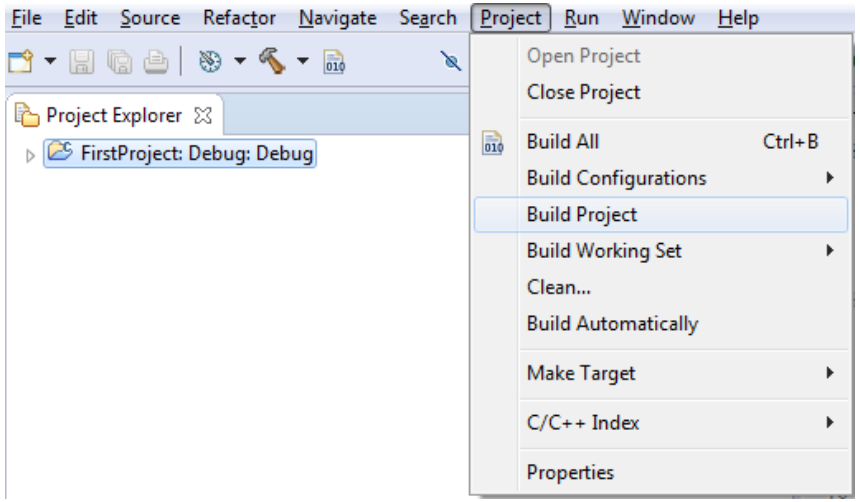
Create a new project



- A project will be created for every core the device has.
- MPC5744P has one

Build a Project

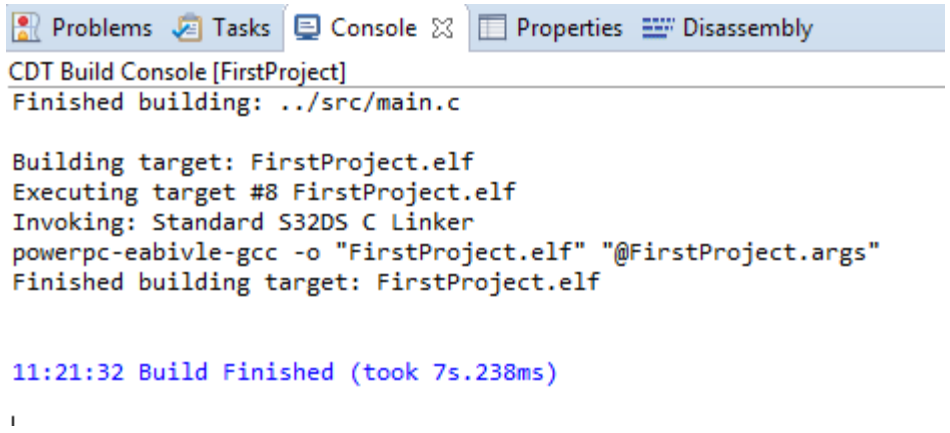
- To build a project follow one of the methods below:
  1. Project – Build Project



  2. Click no hammer symbol to build that project

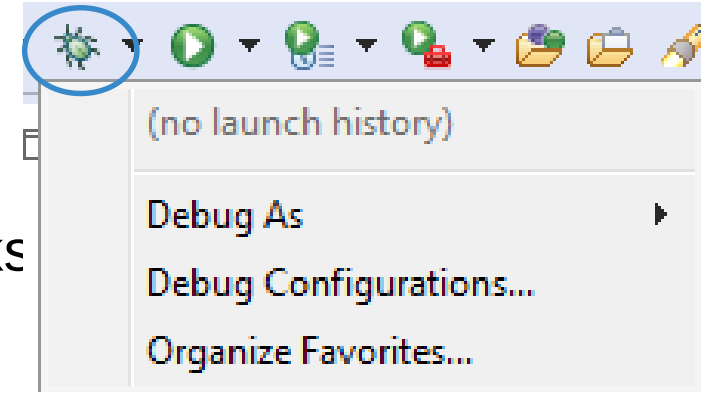
     - Click on page symbol to build all projects

- If project is built successfully, following message will be displayed on the Console



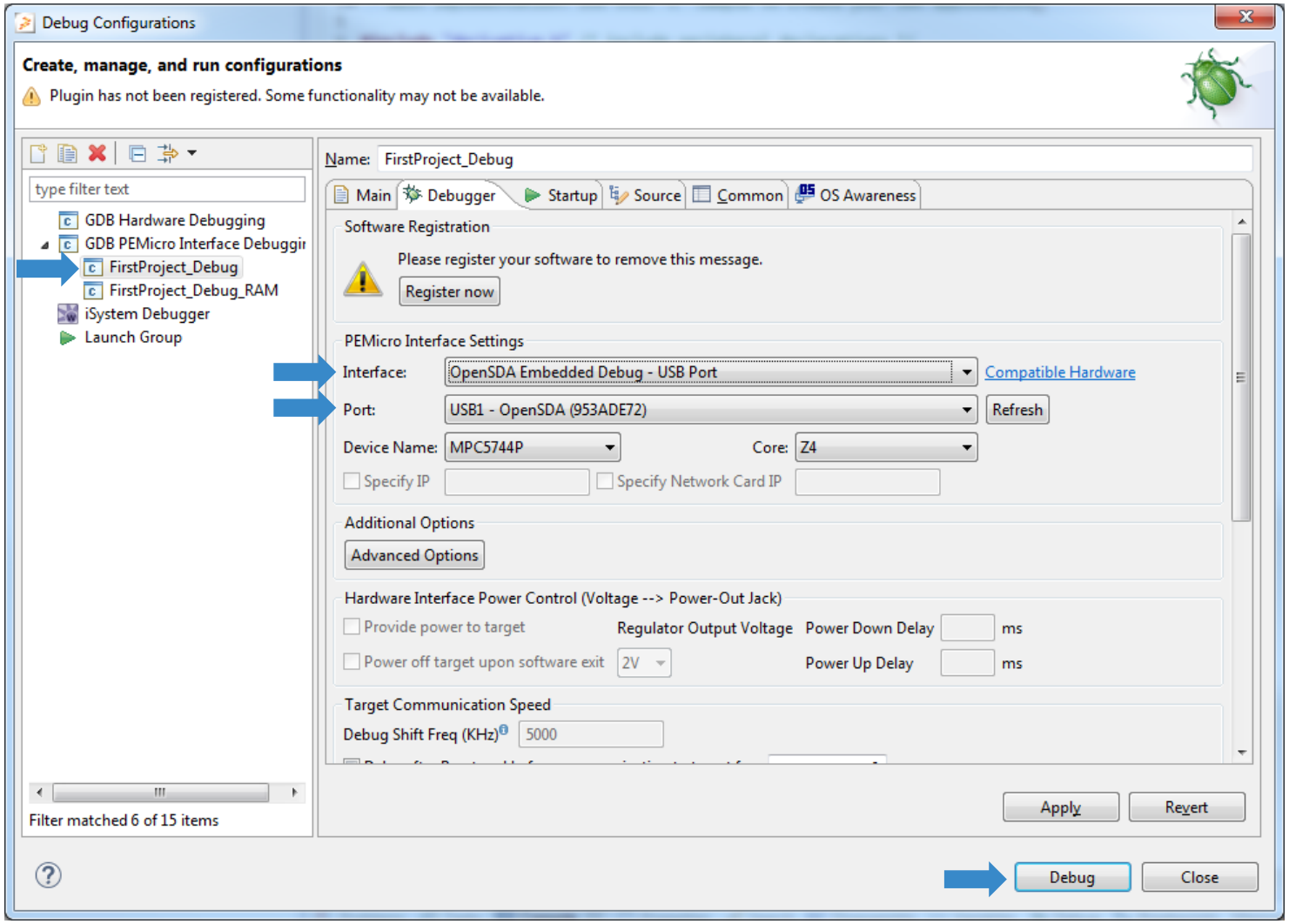
Debug a Project

- Connect a debugger to both, the board and the PC
  - For DEVKIT-MPC5744P, OpenSDA works as a debug adapter, so no standalone debugger is required
  - Connect USB to PC and microUSB port of DEVKIT-MPC5744P
- Click on arrow in the  icon
- And Open Debug Configurations…



Debug a Project

- Select Project:
  - Example: FirstProject_Debug
- Select Interface:
  - Example: OpenSDA for DEVKIT-MPC5744P
- Click on Debug to start debugging

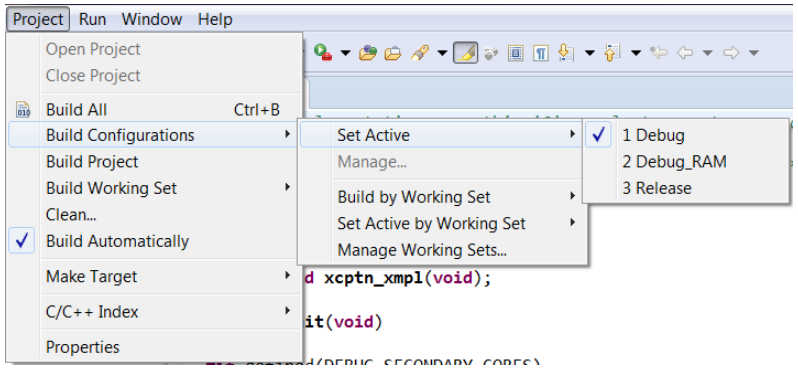


Debug a Project from RAM

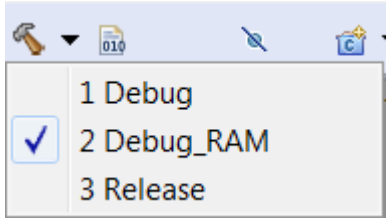
- Firstly, Configure a project to debug from RAM

  Follow one of the Steps:

  1. Project – Build Configurations – Set Active – Debug_RAM

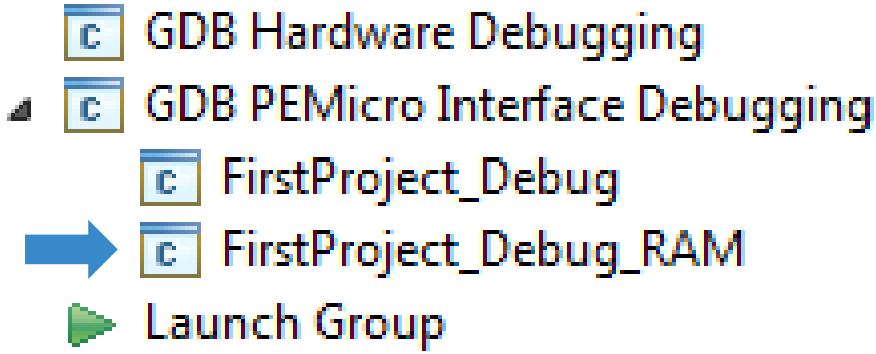


  2. Select Debug_RAM by clicking Down Arrow next to hammer



- Repeat above for all related projects.
- Follow the steps shown on “Build a Project” Page

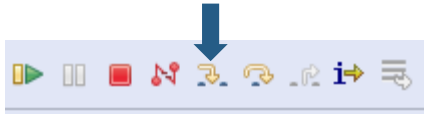
- Lastly, to debug from RAM select the RAM related session while debugging



- Follow the Steps shown on Debug a Project pages

Debug Basics: Step, Run, Suspend, Resume

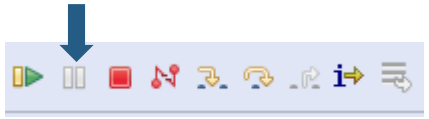
- Step Into (F5)



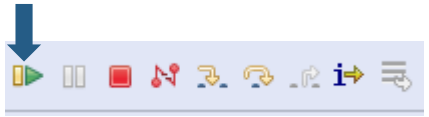
- Step Over (F6)

- Run

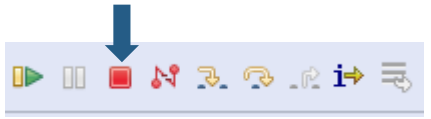
- Suspend



- Resume (F8)

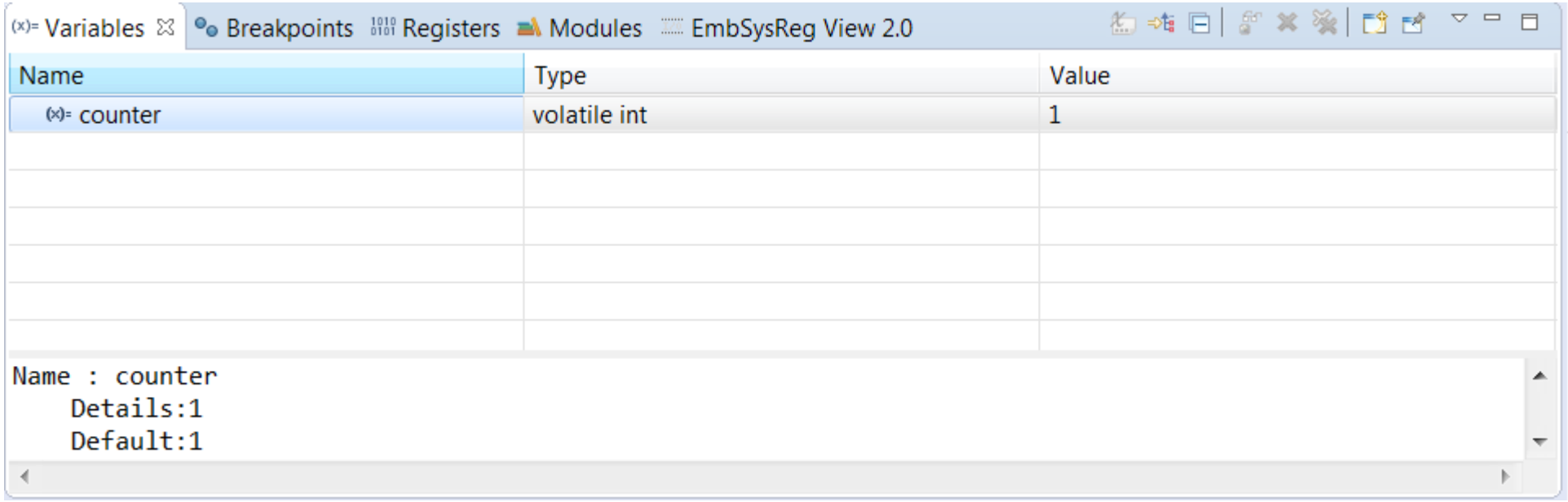


- Terminate (Ctrl+F2)



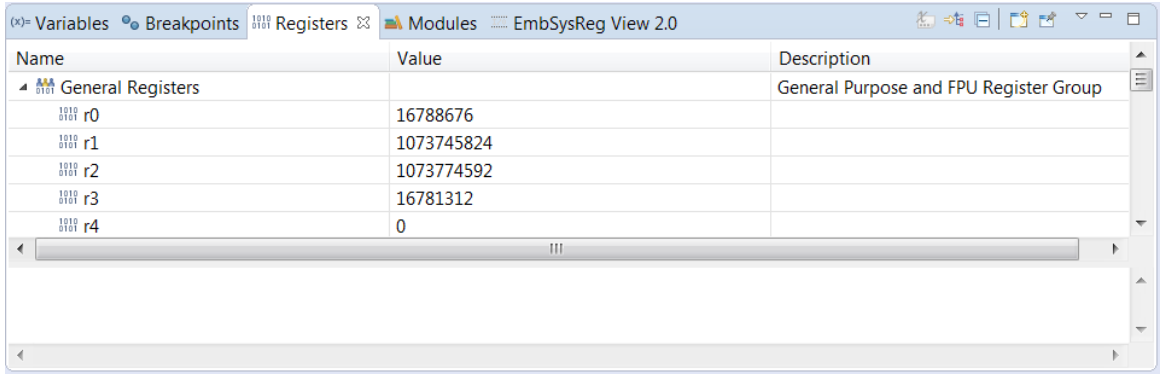
Debug Basics: View & Alter Variables

- View variables in “Variables” tab.
- Click on a value to allow typing in a different value.

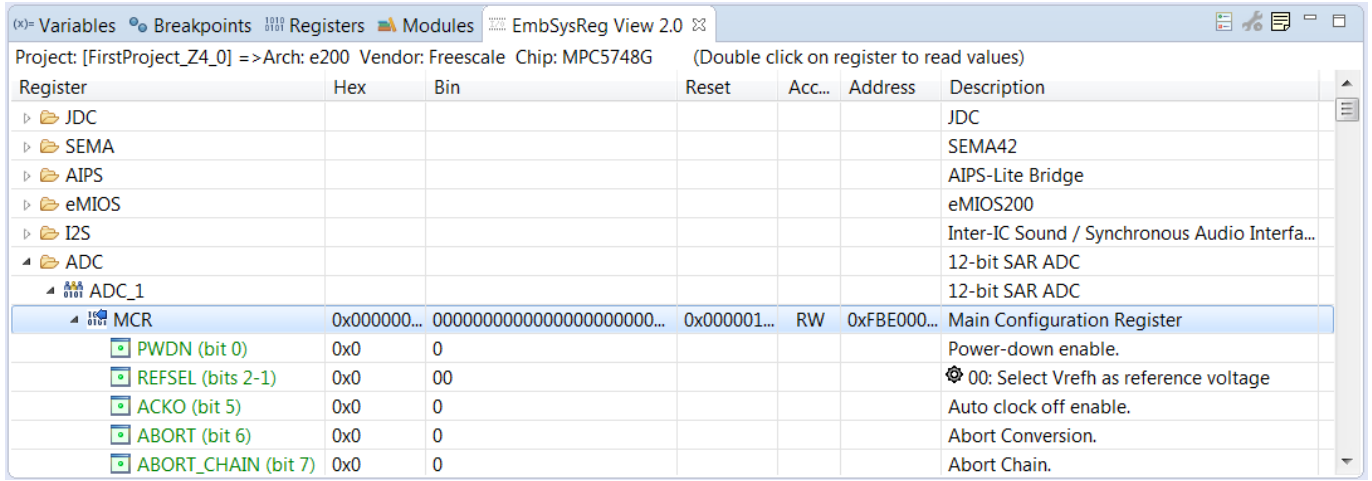


Debug Basics: View & Alter Registers

- View CPU registers in the “Registers” tab
- Click on a value to allow typing in a different value

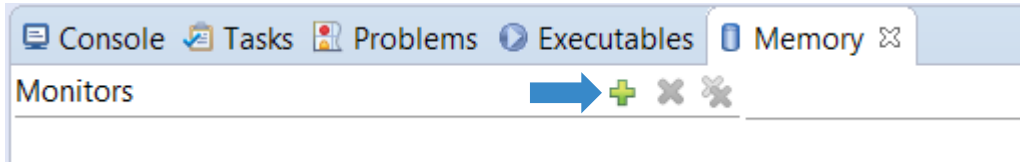


- View peripheral registers in the EmbSysReg tab



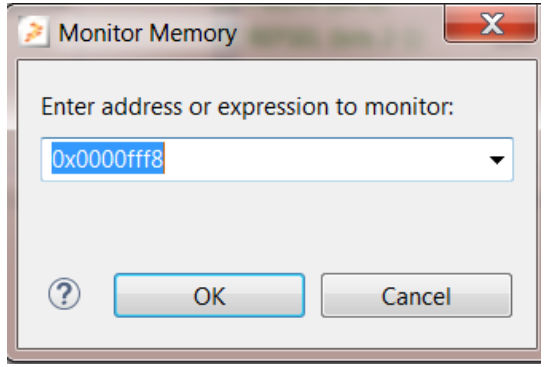
Debug Basics: View Memory

- Add Memory Monitor
  - Click on + icon

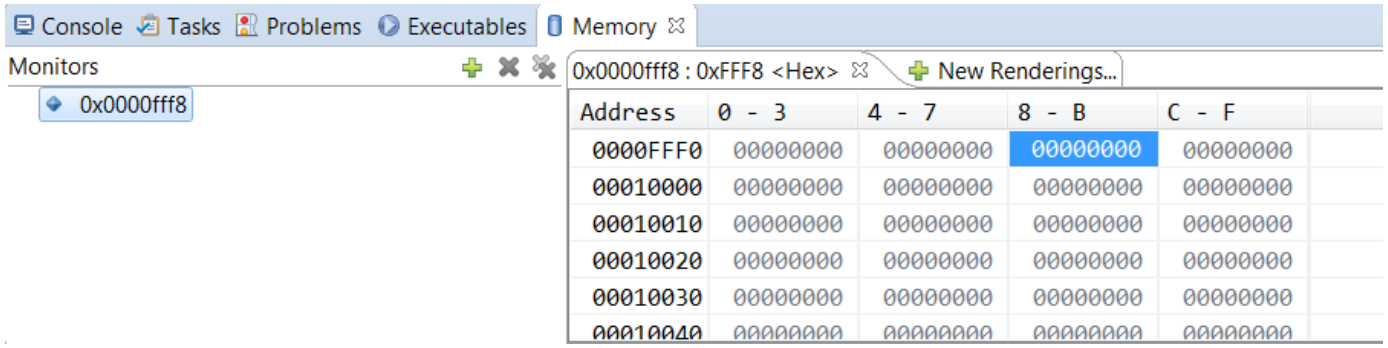


- Select Base Address

  Example : 0x0000fff8

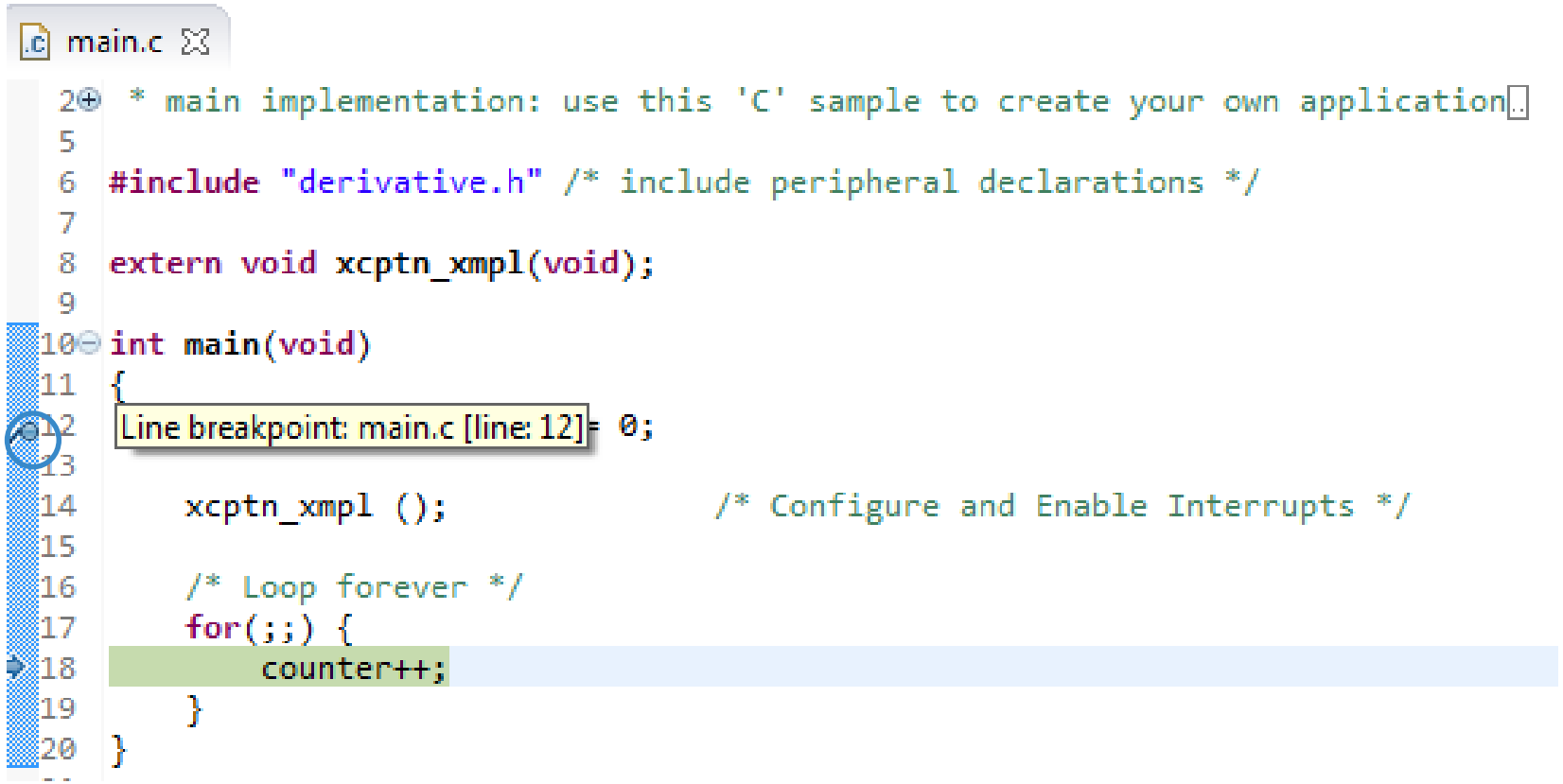


- View Memory



Debug Basics: Breakpoints

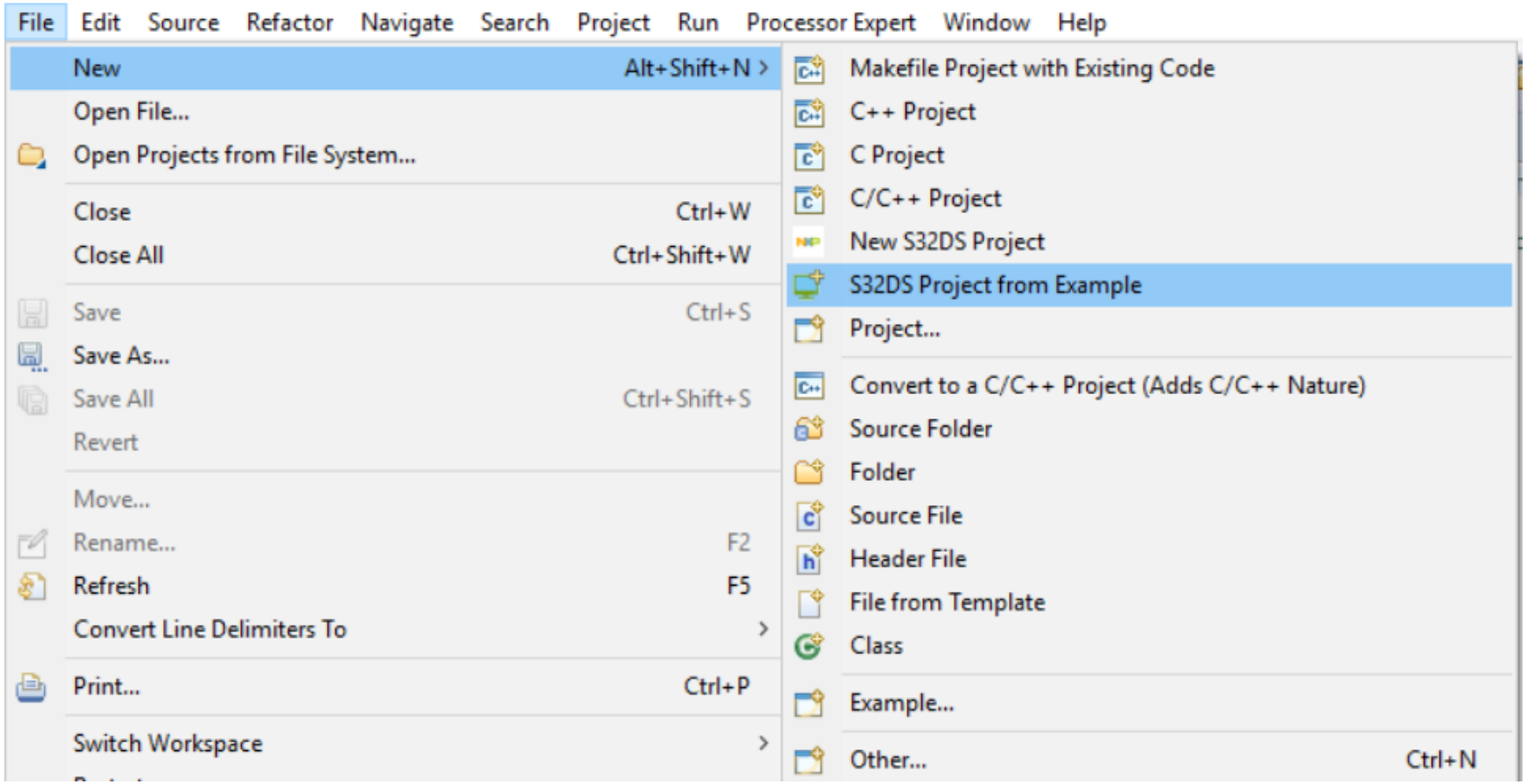
- Add Breakpoint: Point mouse pointer at circled area and Double Click there
  - Light blue dot will pop up that represents debugger breakpoint



MAKING PROJECTS FROM BUILT-IN EXAMPLES

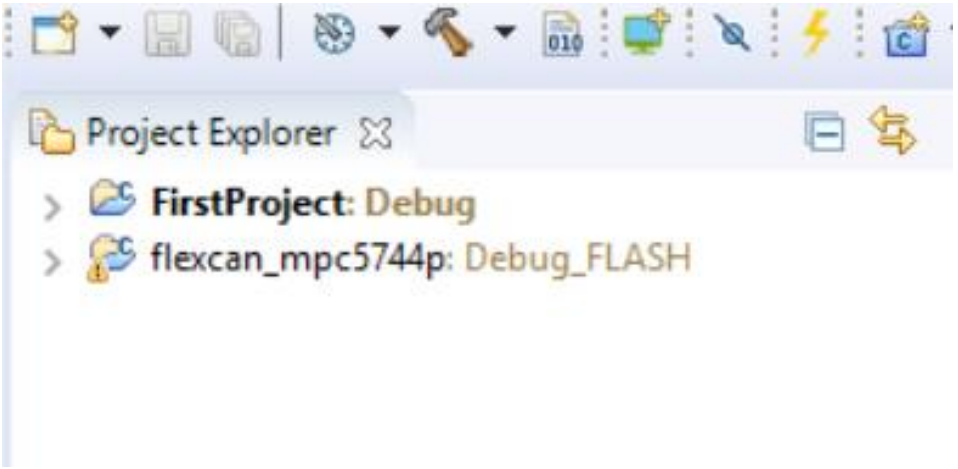
Step-1

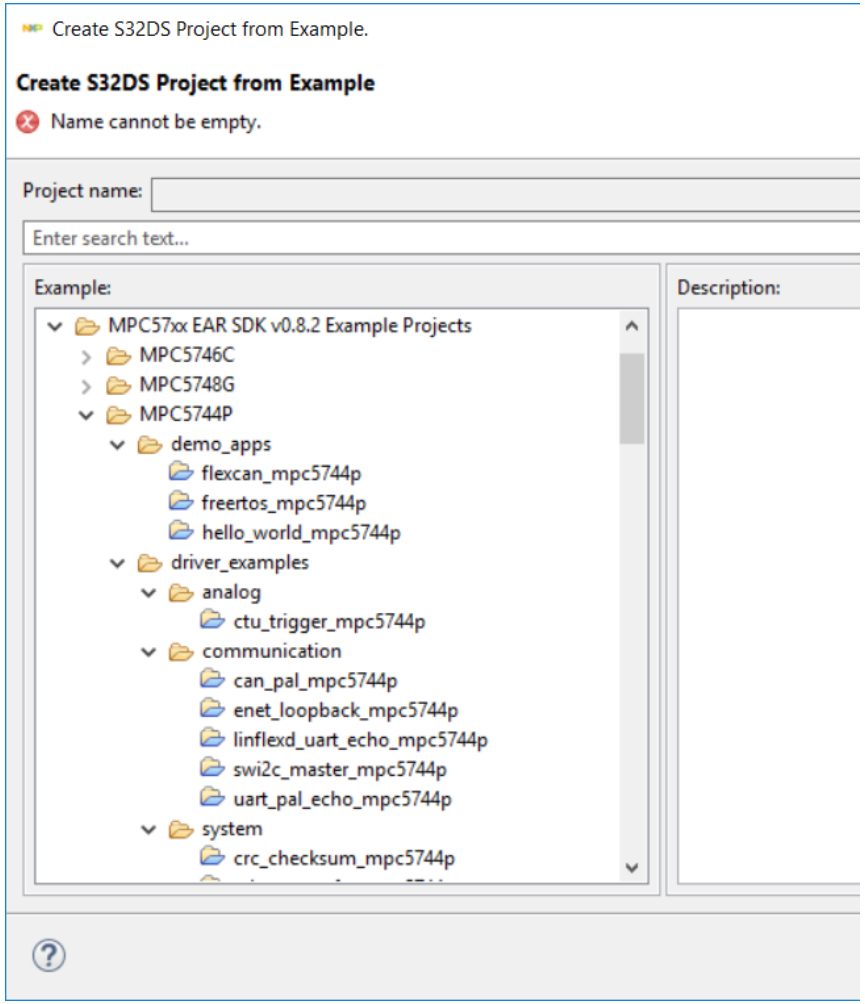
- Go to: File – New – New S32DS Project from Example



Step-2

- Select the built-in project of your choice
- Click on Finish
- Project will be copied to the active workspace as shown below

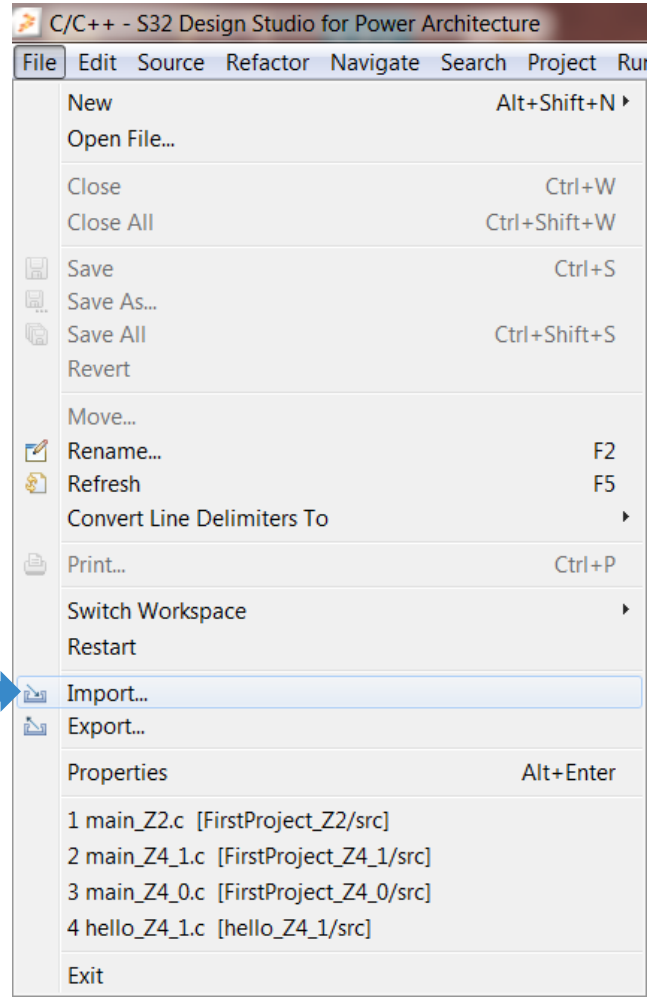




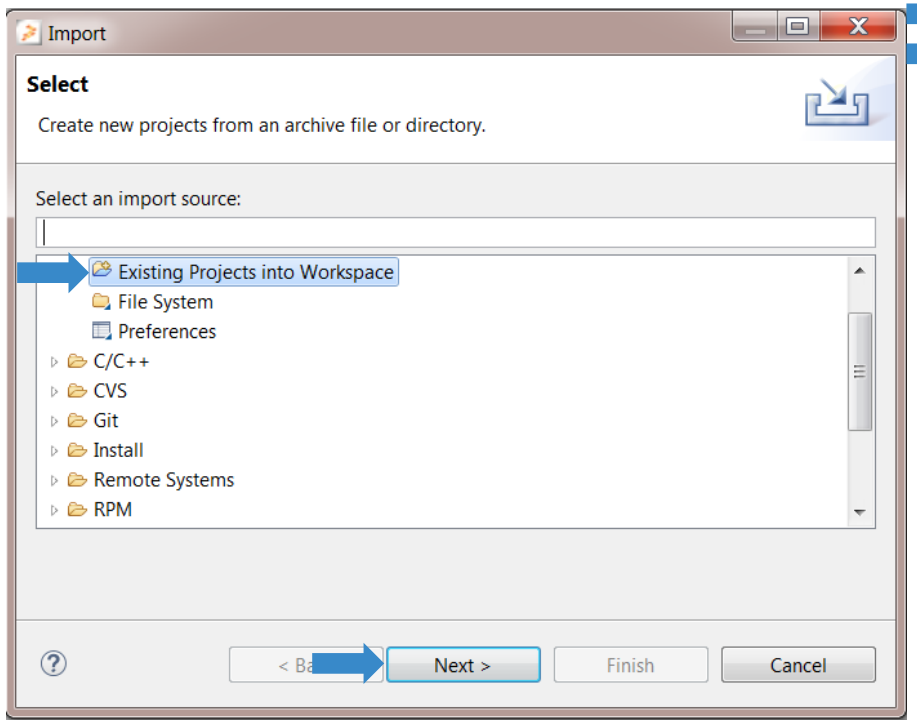
IMPORTING PROJECTS

Step-1

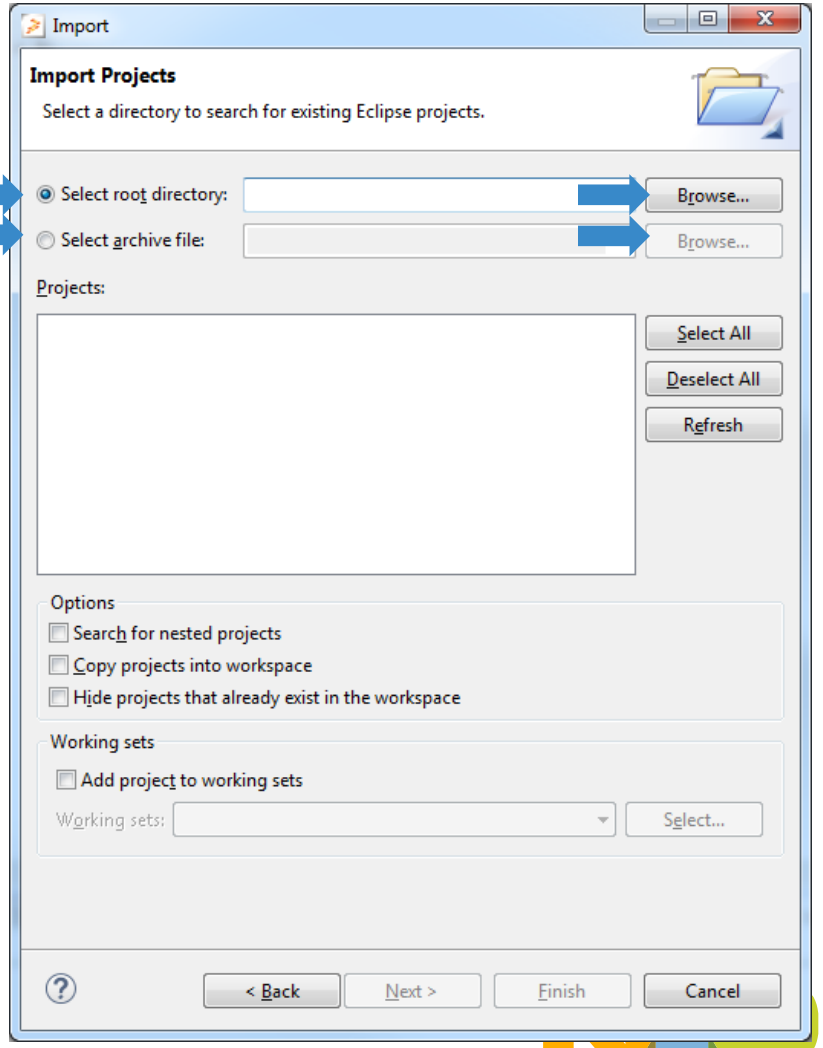
- Go to: File – Import



- Click on: “Existing Projects into Workspace” – Hit Next

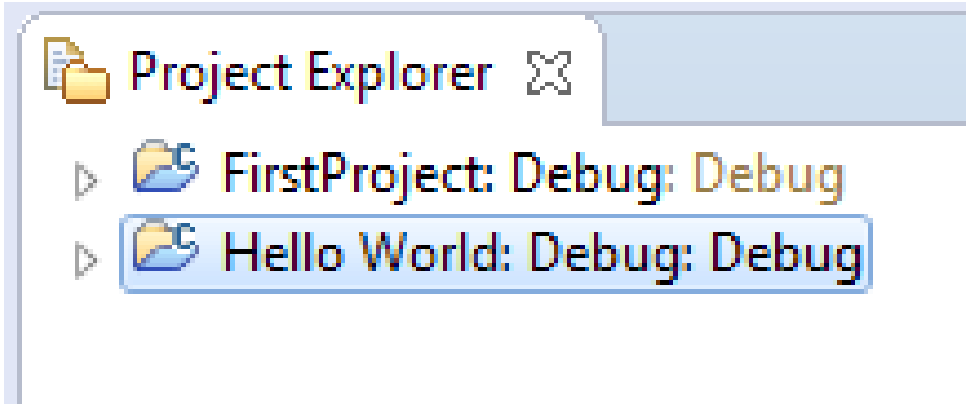


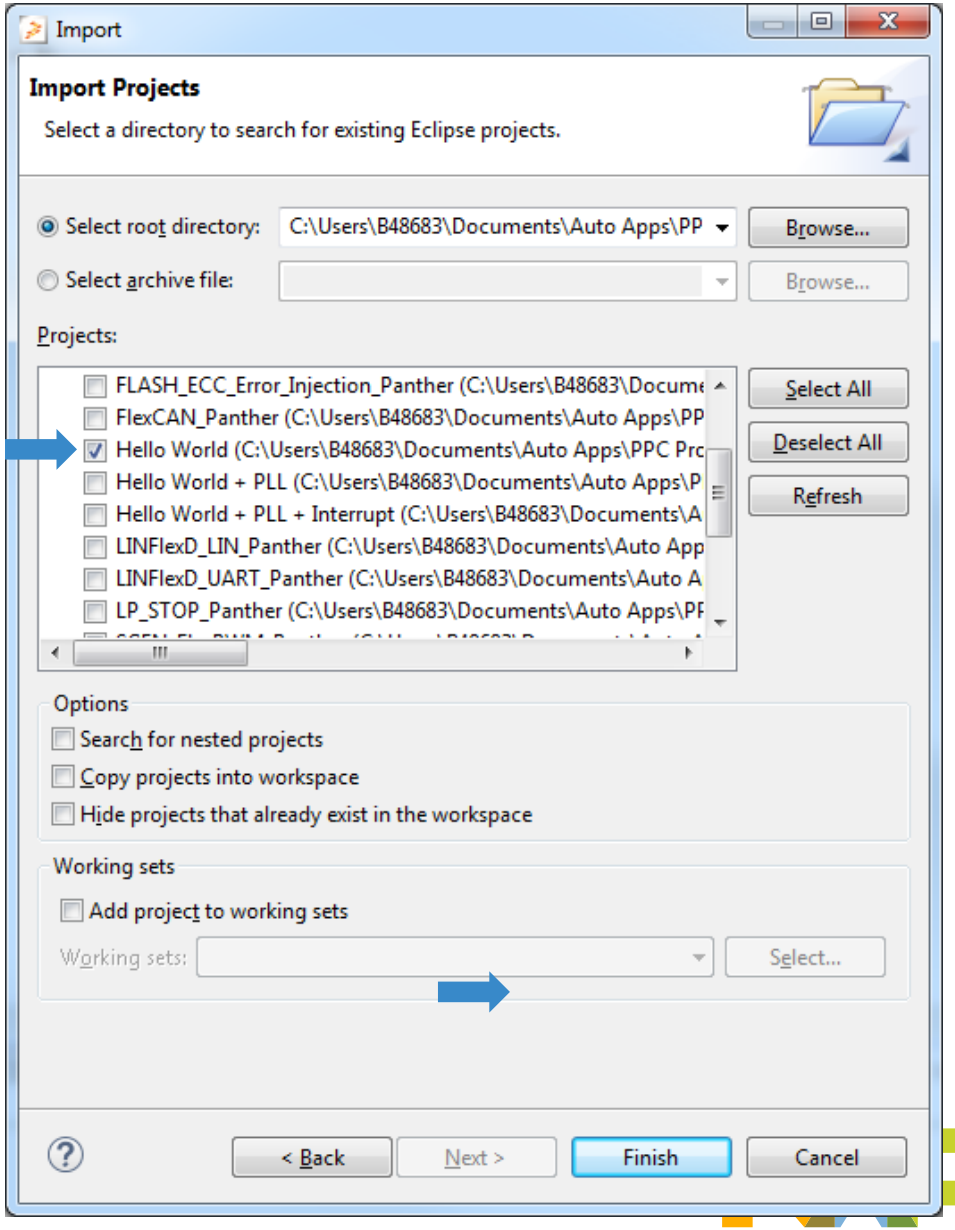
- Click on: Browse & Select Example Folder



Step-2

- Select the Project
- Click on Finish to Import a Project into Workspace





MORE INFORMATION……

- For more information about S32DS go to

  Start – All Programs – NXP S32 Design Studio – S32 Design Studio for power Architecture *[version]* – Quick Start/Documentation

- Also Visit www.nxp.com/community to post questions about S32DS

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