

MPC5748G-LCEVB SOFTWARE INTEGRATION GUIDE (SWIG)

Ultra-Reliable MCUs for Industrial and Automotive Applications

www.nxp.com/MPC5748G-LCEVB



EXTERNAL USE



SECURE CONNECTIONS
FOR A SMARTER WORLD

S32 DESIGN STUDIO IDE FOR POWER ARCHITECTURE

www.nxp.com/S32DS

- To develop an application one need an Integrated Development Environment (IDE)
- S32 Design Studio IDE is the solution to the need
- This document provides step wise tutoring on “How to use S32 Design Studio IDE for Power Architecture” to build an application

Contents

- S32 Design 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

Supported Devices

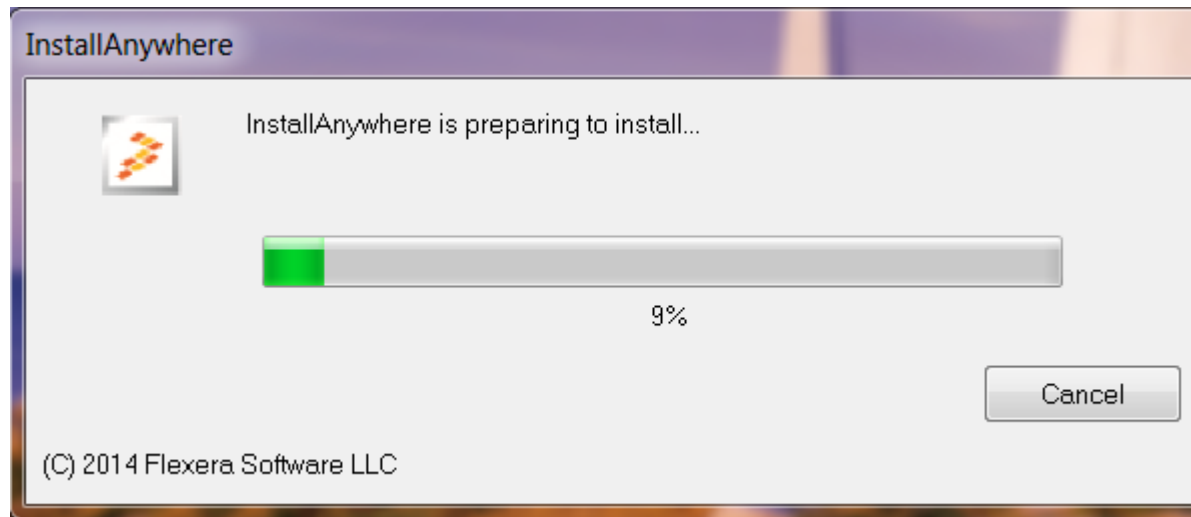
- MPC560xB/C/D Family
- MPC560xE Family
- MPC560xP Family
- MPC560xS Family
- MPC564xA Family
- MPC564xB Family
- MPC564xC Family
- MPC564xL Family
- MPC567xR Family
- MPC574xB/C Family
- MPC574xG Family
- MPC577xK Family
- MPC574xP Family
- MPC574xR Family
- MPC5777C
- MPC5777M
- S32R274

INSTALLING S32 DESIGN STUDIO IDE FOR POWER ARCHITECTURE



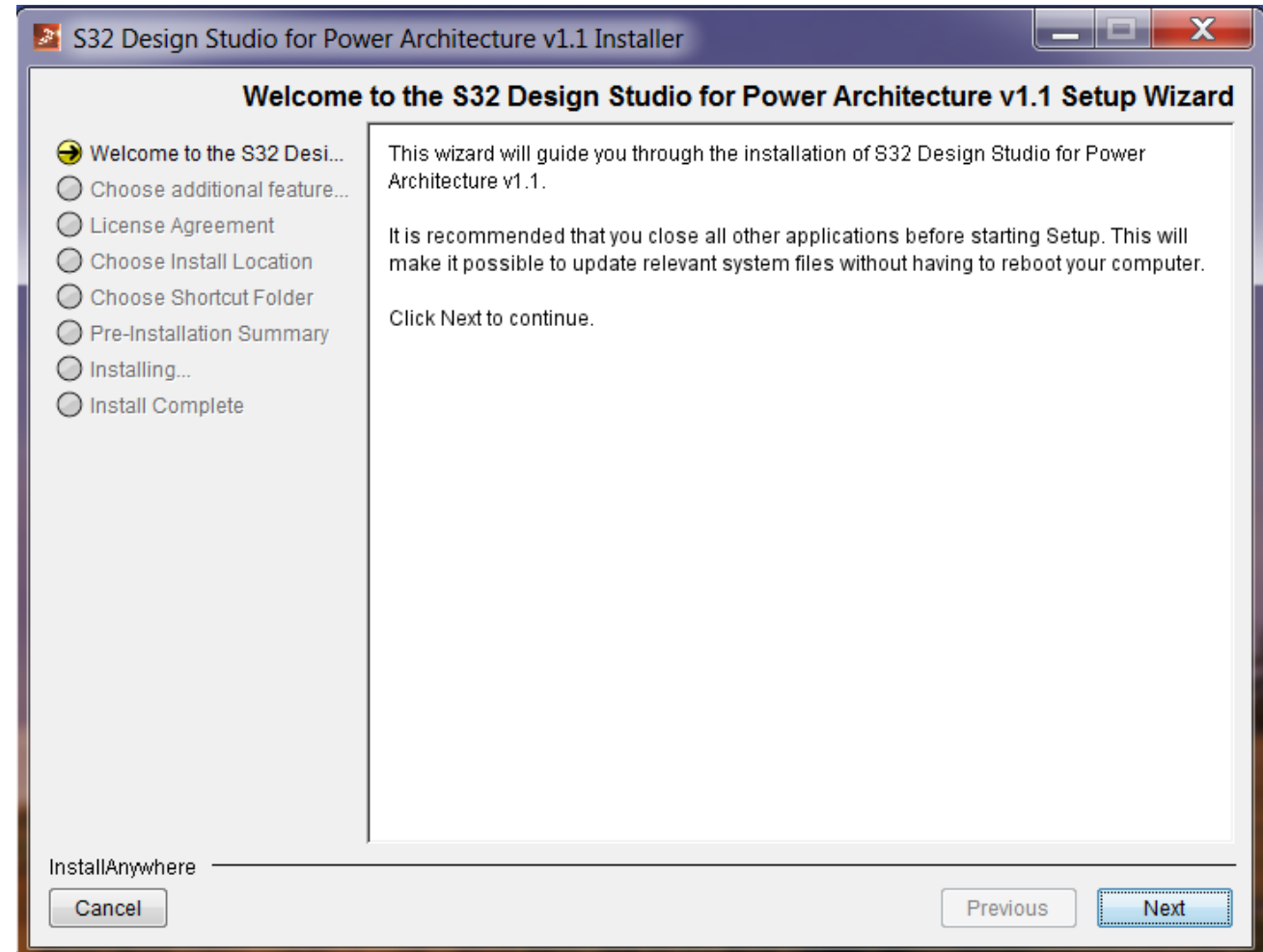
Step-1

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



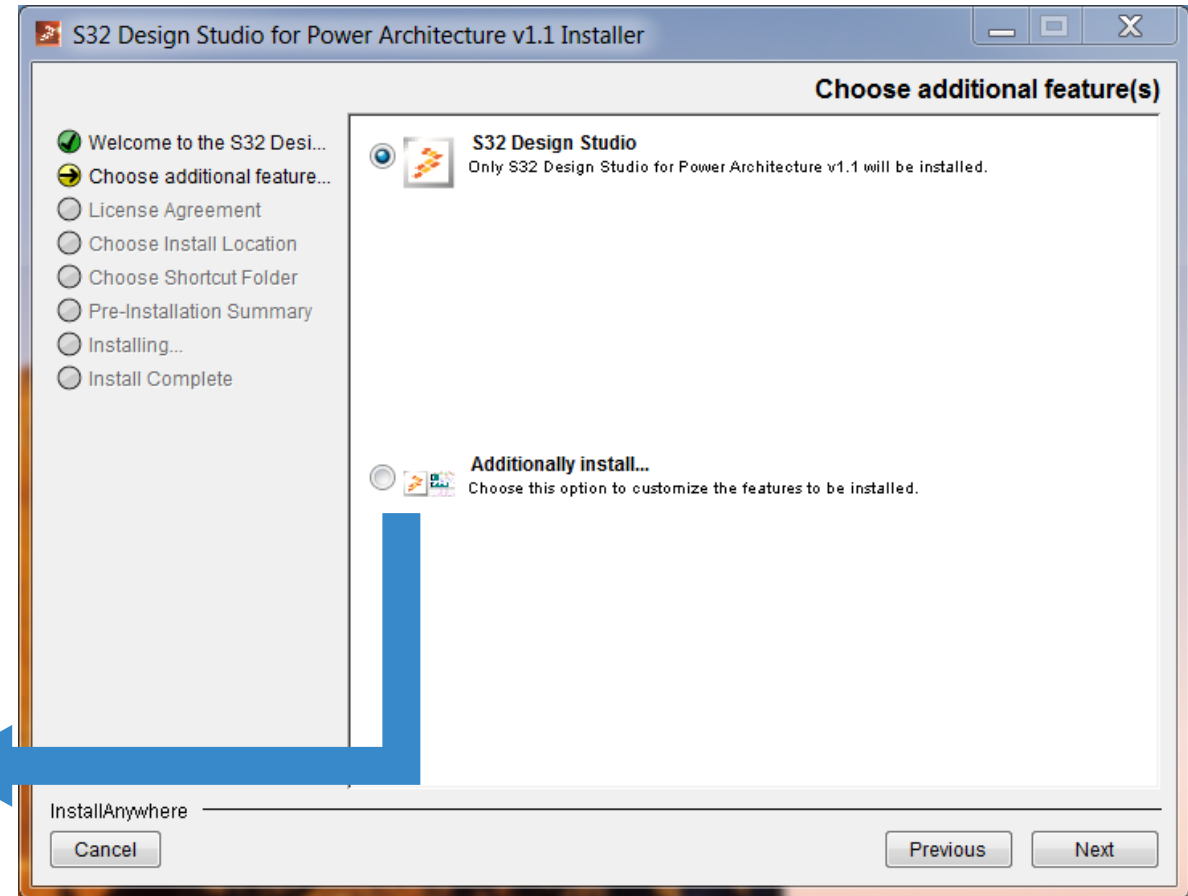
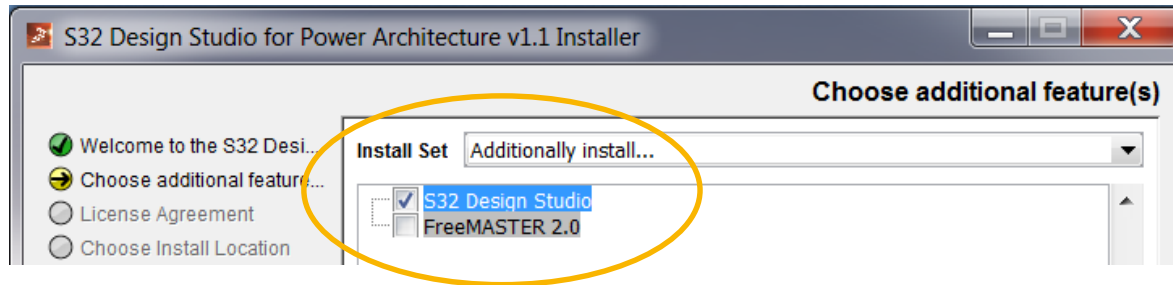
Step-2

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



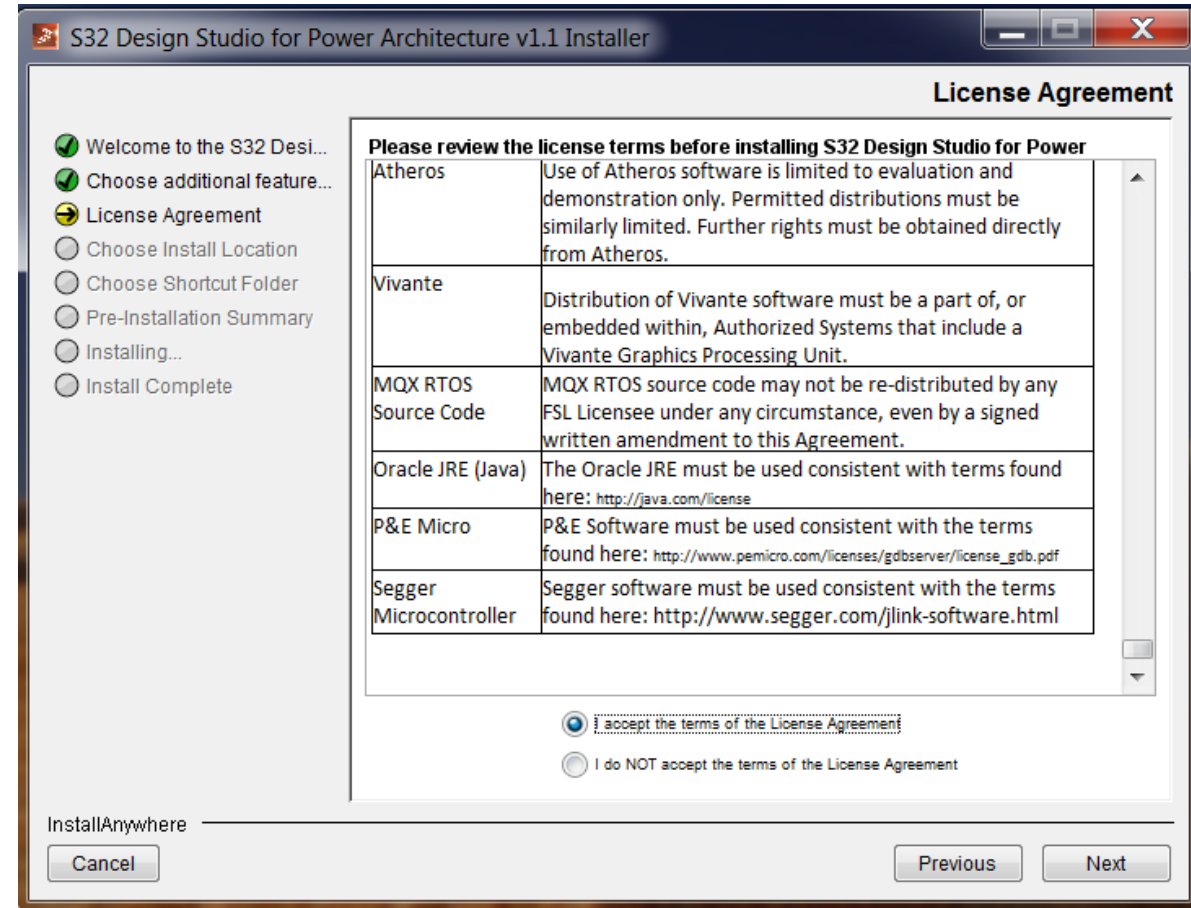
Step-3

- 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



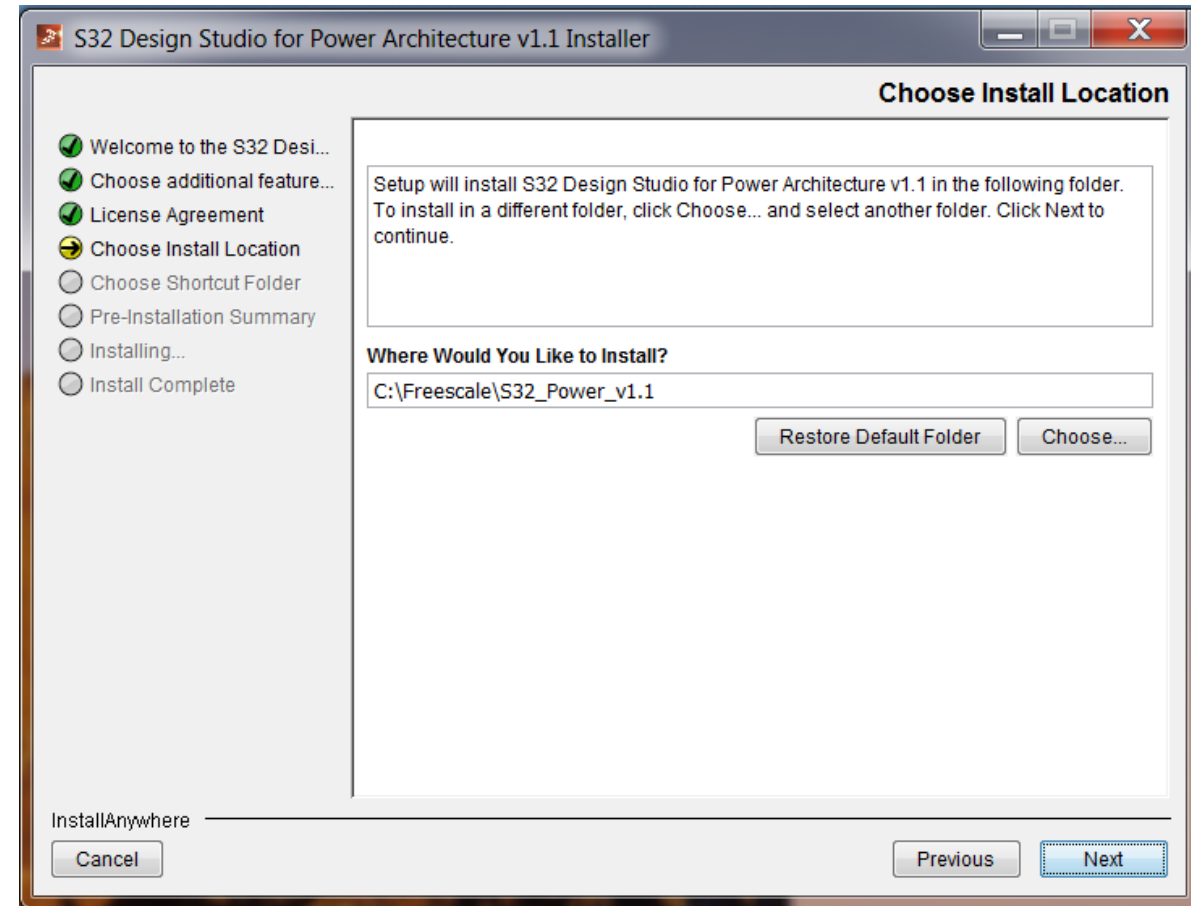
Step-4

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



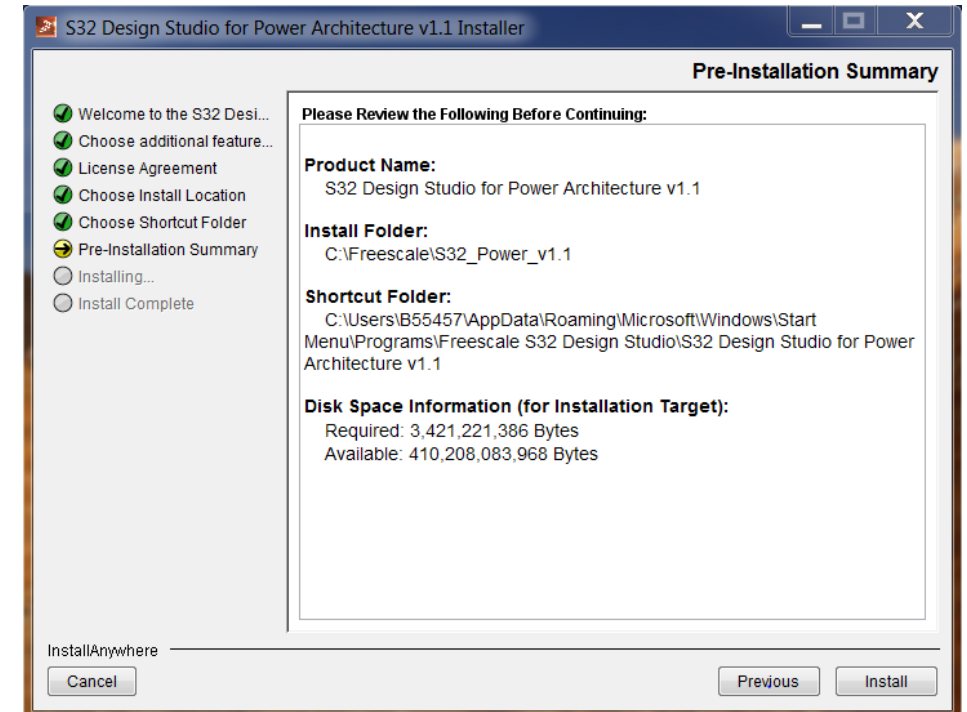
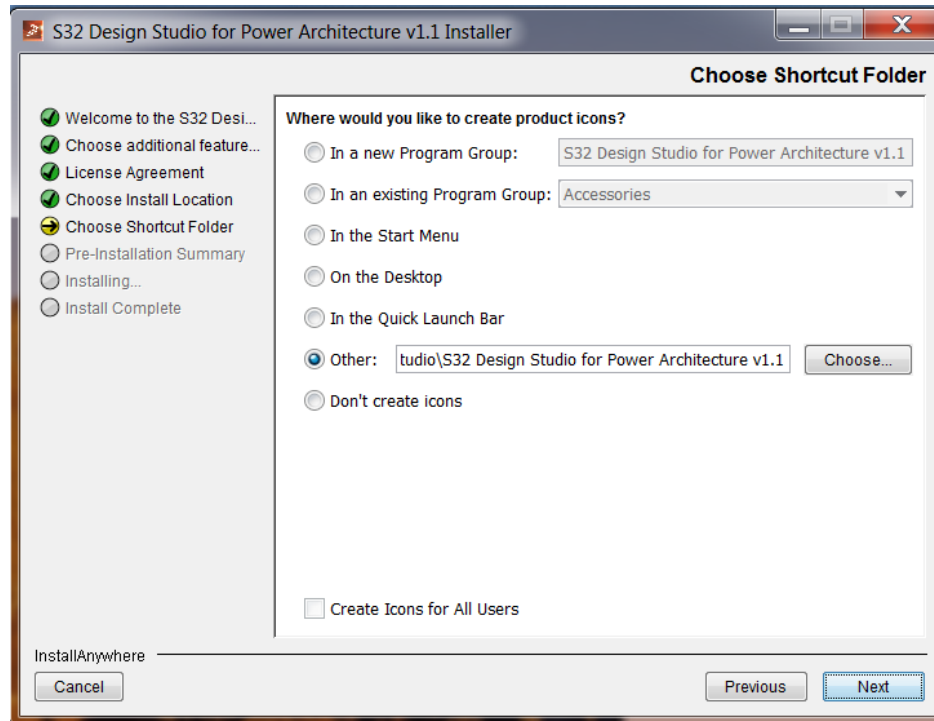
Step-4

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



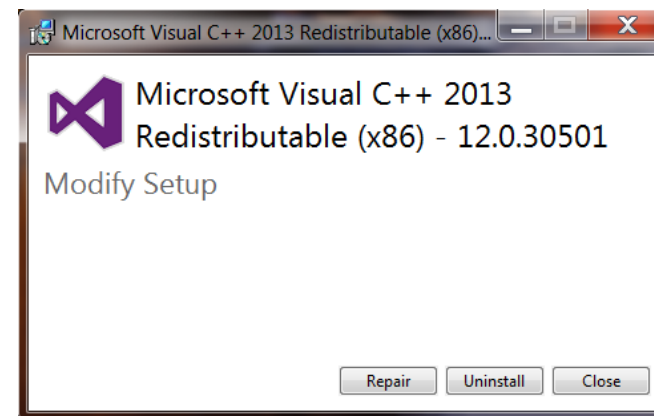
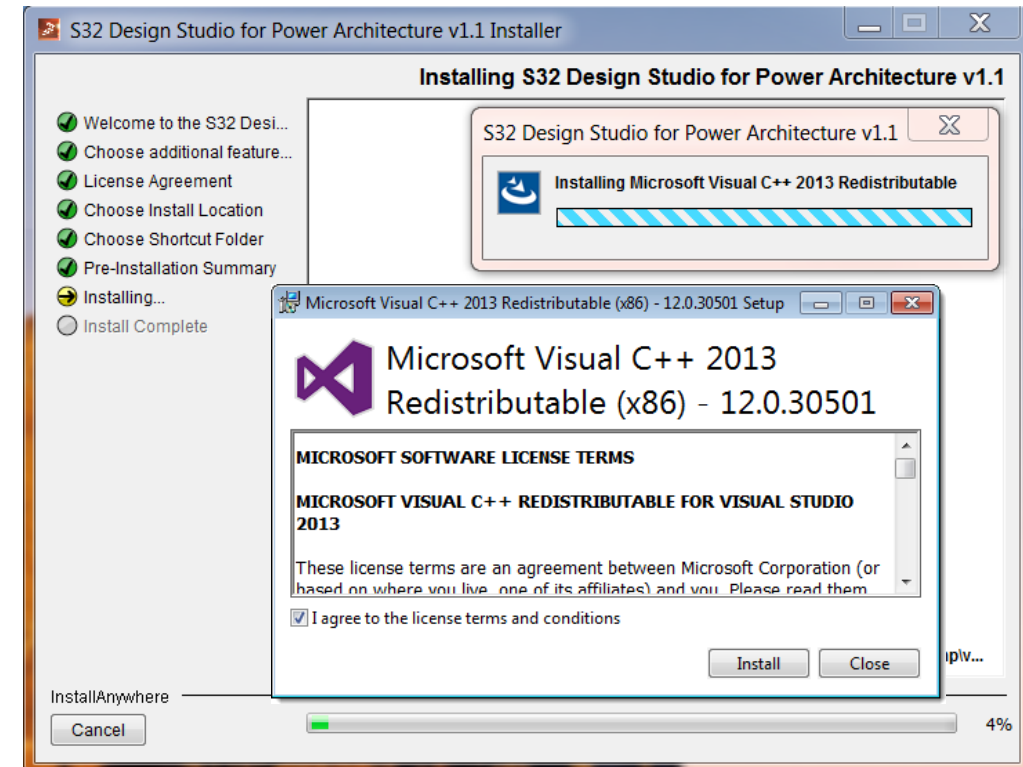
Step-5

- 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



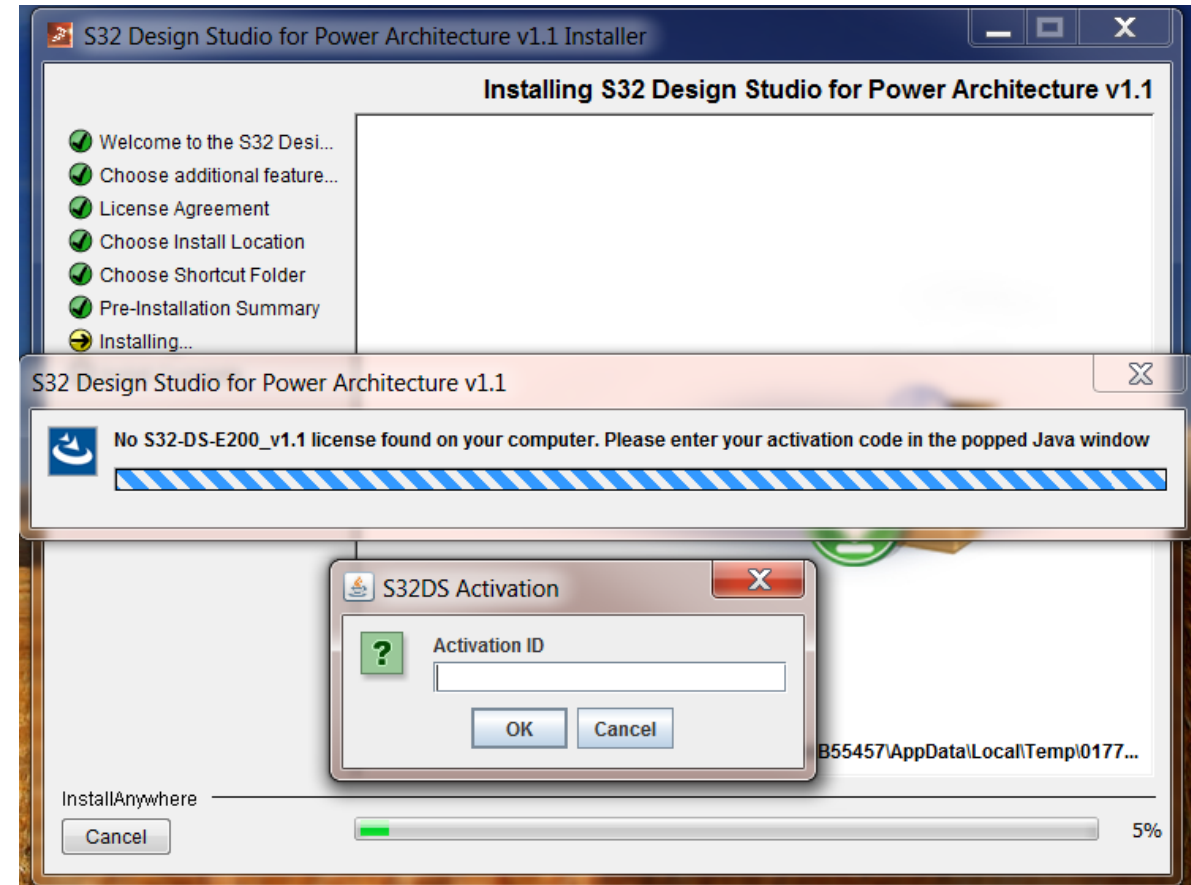
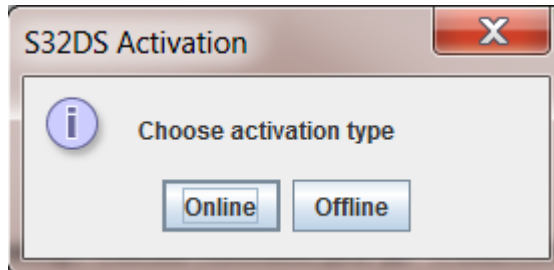
Step-7

- 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



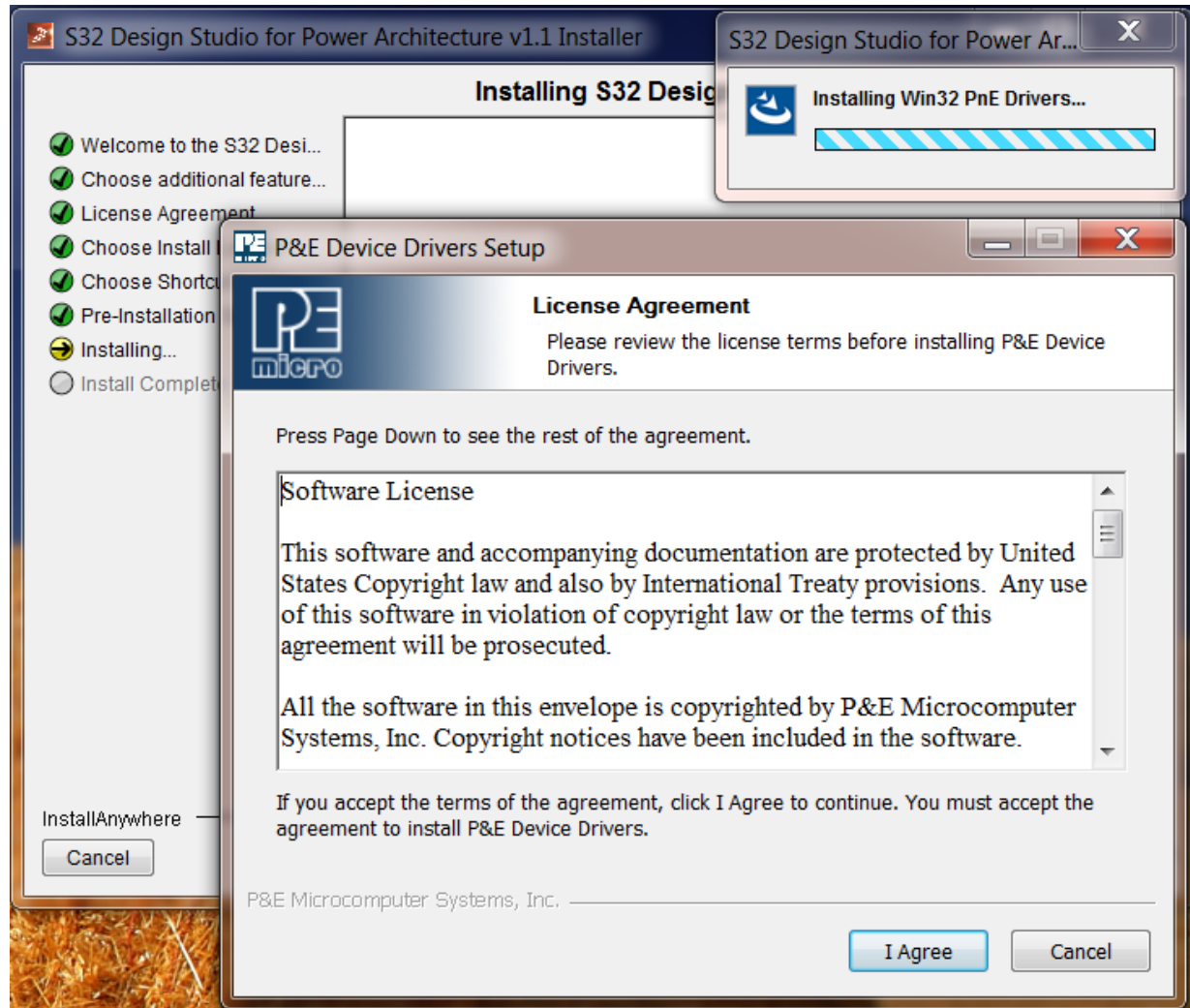
Step-8

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



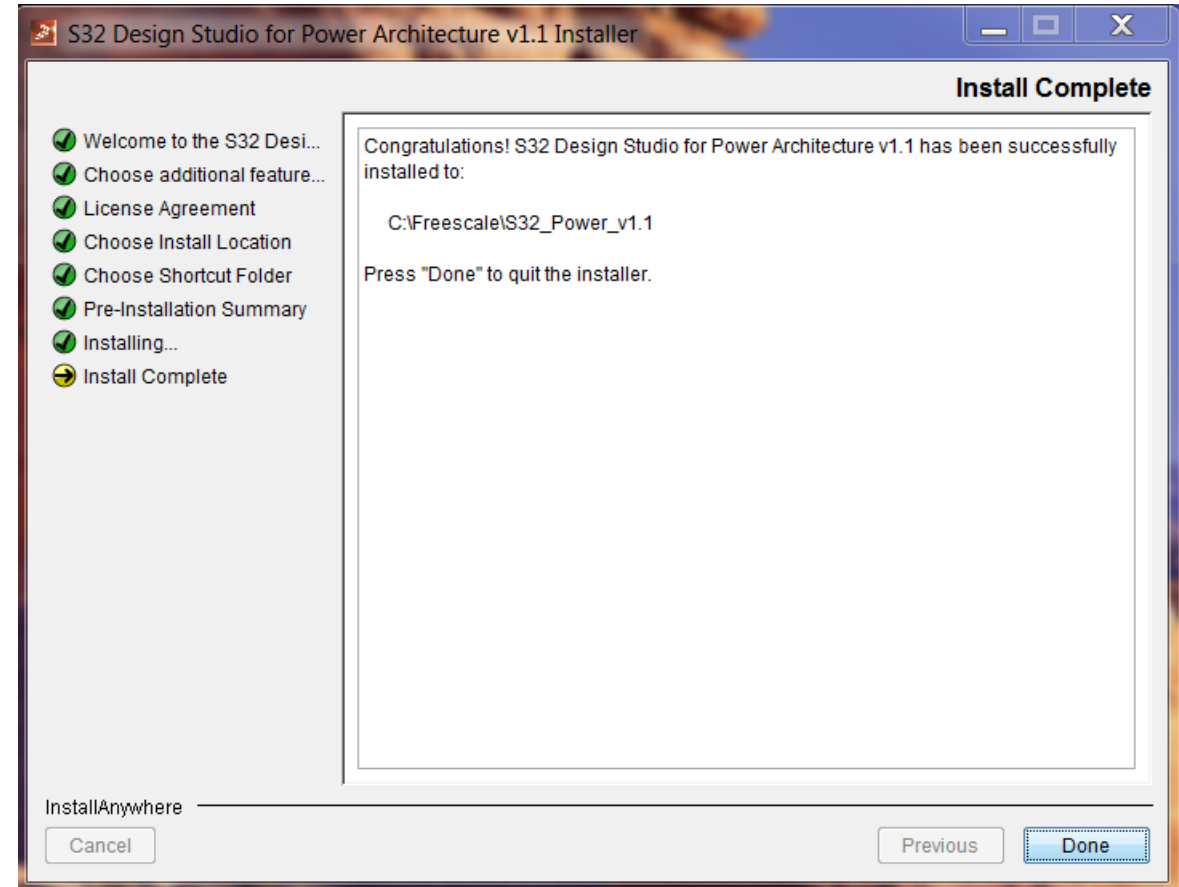
Step-9

- 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.



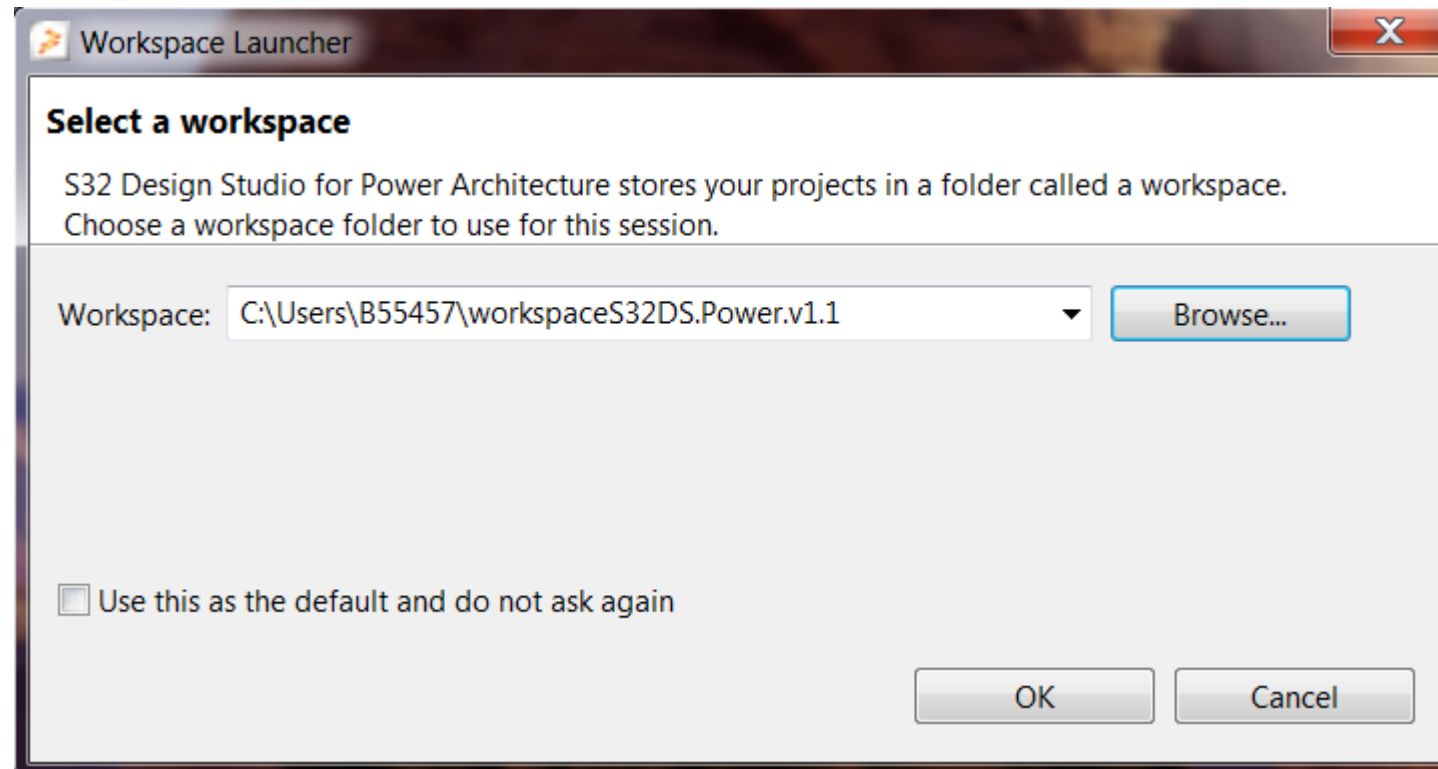
GETTING STARTED WITH A NEW PROJECT



Create a new project

1 of 5

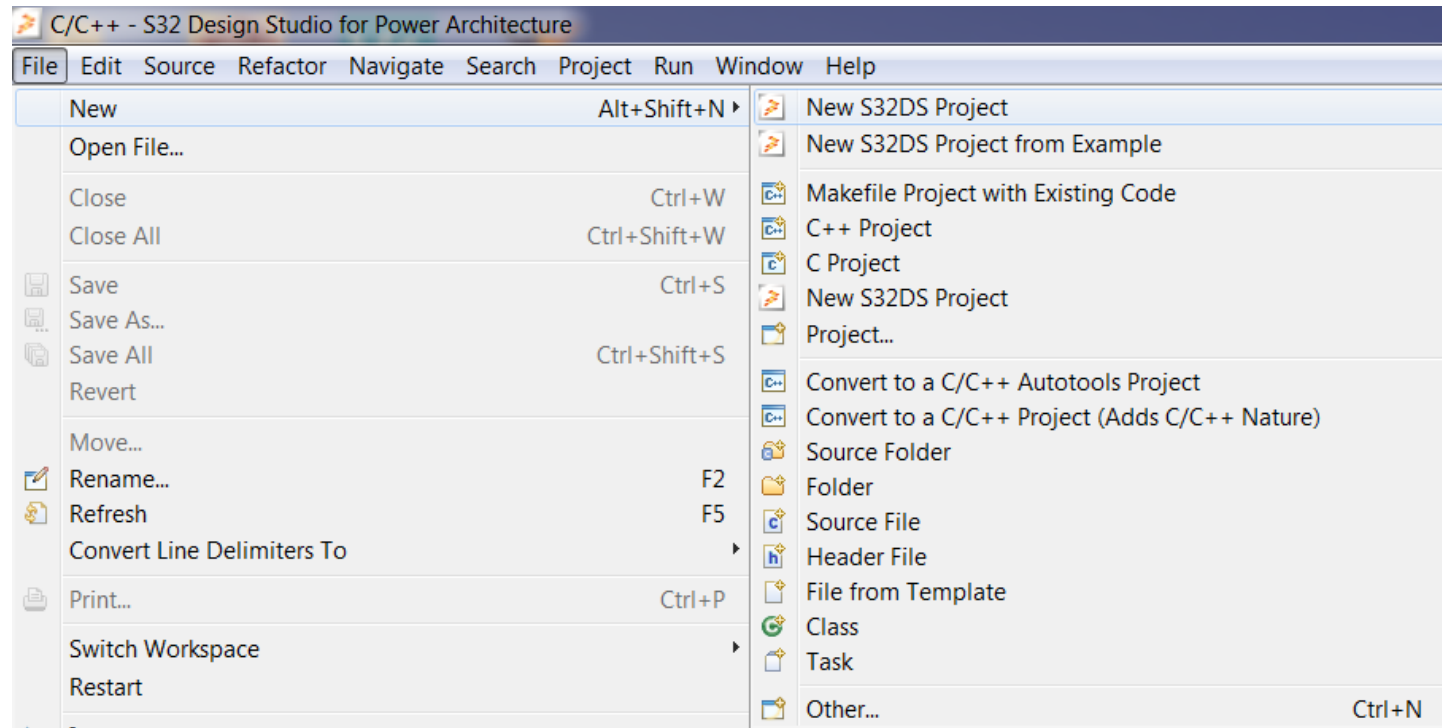
- Start program: Click on “S32 Design Studio for Power Architecture vx.x” icon
- Select workspace:
 - Choose default or specify new one
 - Suggestion: Uncheck the box “Use this as the default and do not ask again”
 - Click **OK**



Create a new project

2 of 5

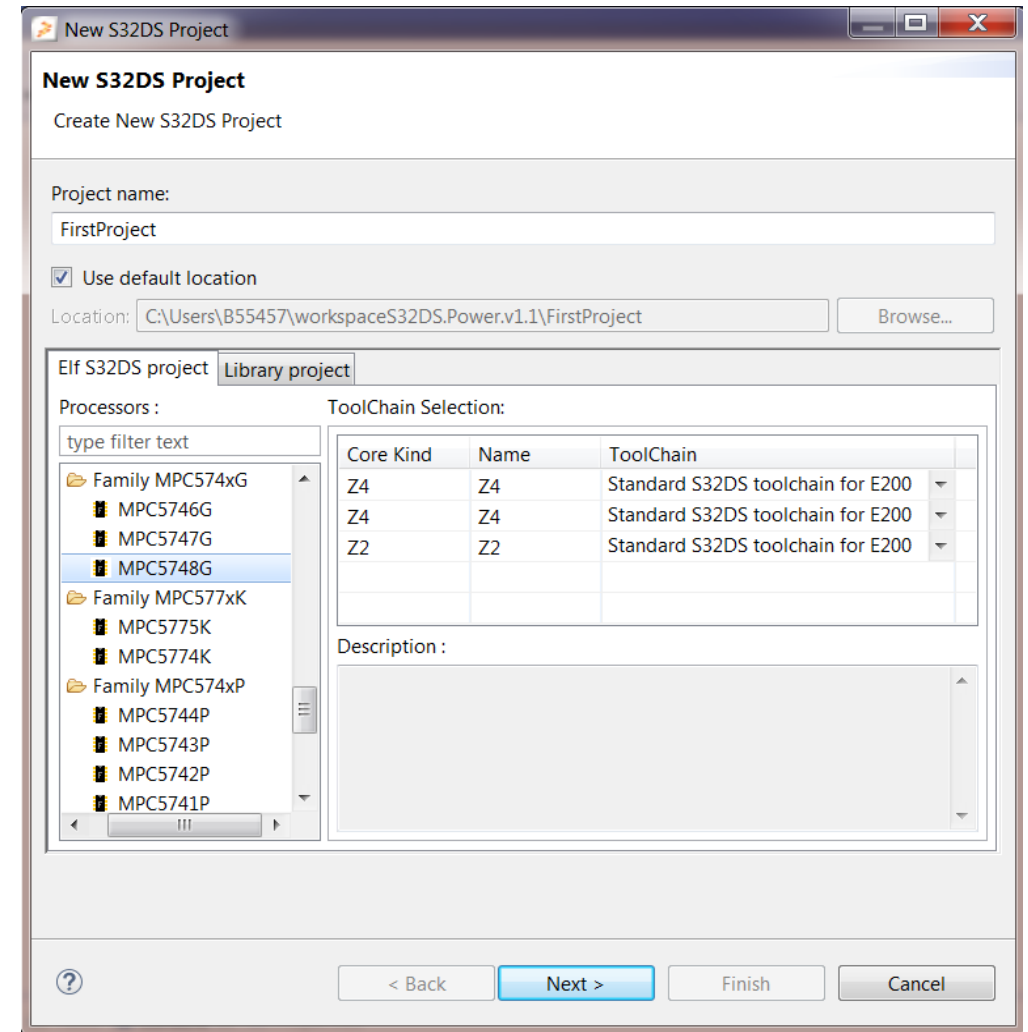
- Go to: File – New – New S32DS Project



Create a new project

3 of 5

- Project Name:
 - Example: FirstProject
- Project Type:
 - Recommended: use Elf S32DS Project
- Select Controller:
 - Example: MPC5748G



Create a new project

4 of 5

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

The screenshot shows the 'New S32DS Project' dialog box for the MPC5748G processor. The dialog is titled 'New S32DS Project for MPC5748G' and includes a subtitle 'Select required cores and parameters for them.' It features three columns for configuring different cores: 'FirstProject_Z4_0', 'FirstProject_Z4_1', and 'FirstProject_Z2'.

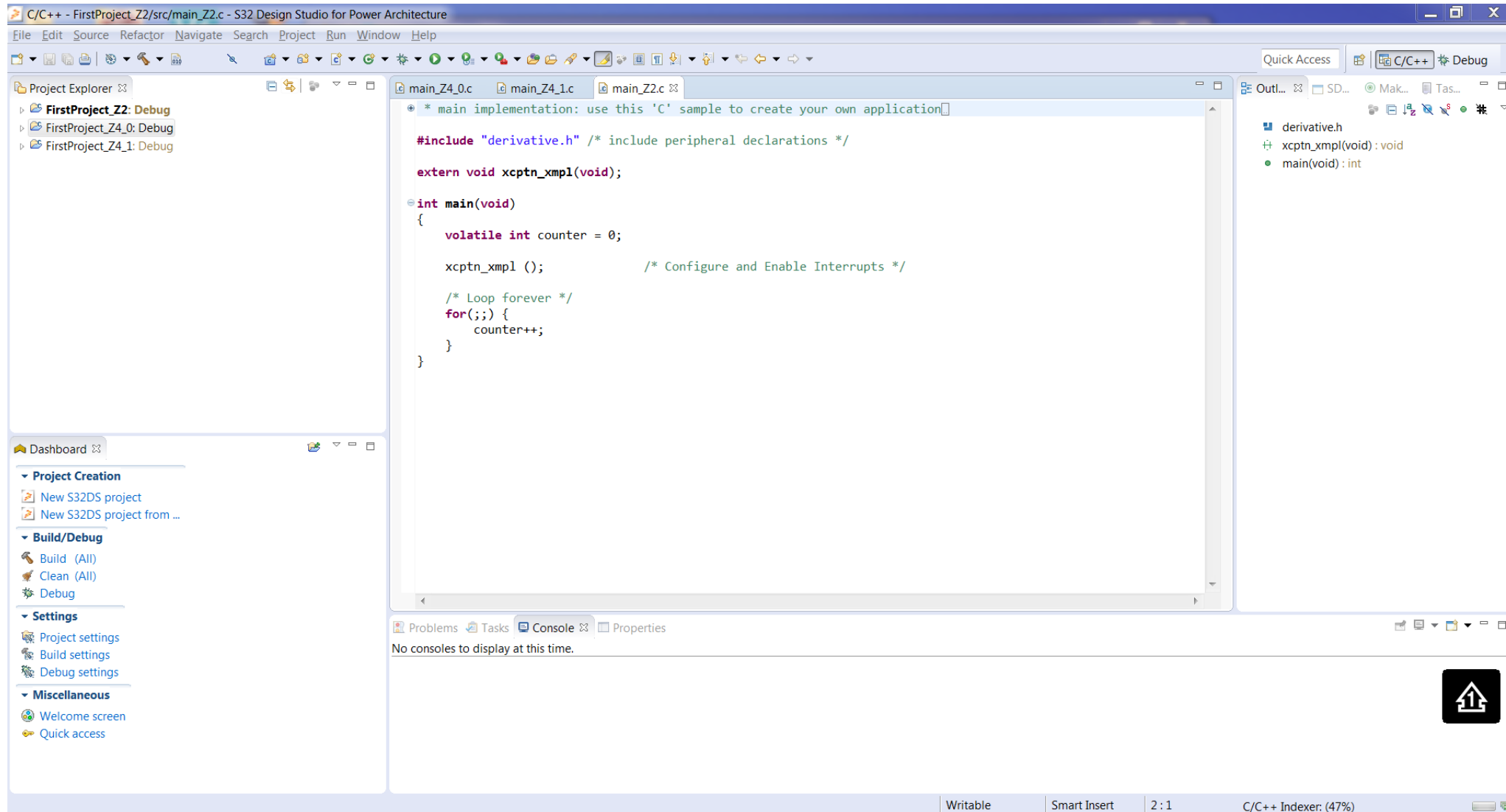
Parameter	FirstProject_Z4_0	FirstProject_Z4_1	FirstProject_Z2
Project Name	FirstProject_Z4_0	FirstProject_Z4_1	FirstProject_Z2
Core	<input checked="" type="checkbox"/> Z4	<input checked="" type="checkbox"/> Z4	<input checked="" type="checkbox"/> Z2
FLASH Start Address	0x1000000	0x11d0000	0x13a0000
FLASH Size, KB	1856	1856	1856
Unused FLASH, KB	64		
RAM Start Address	0x40000000	0x40040000	0x40080000
RAM Size, KB	256	256	256
Unused RAM, KB	0		
Language	C	C	C
SDKs			
Library	EWL	EWL	EWL
Debugger	PE Micro GDB server		

At the bottom of the dialog, there are four buttons: '< Back', 'Next >', 'Finish' (highlighted in blue), and 'Cancel'. A help icon (?) is also present in the bottom left corner.

Create a new project

5 of 5

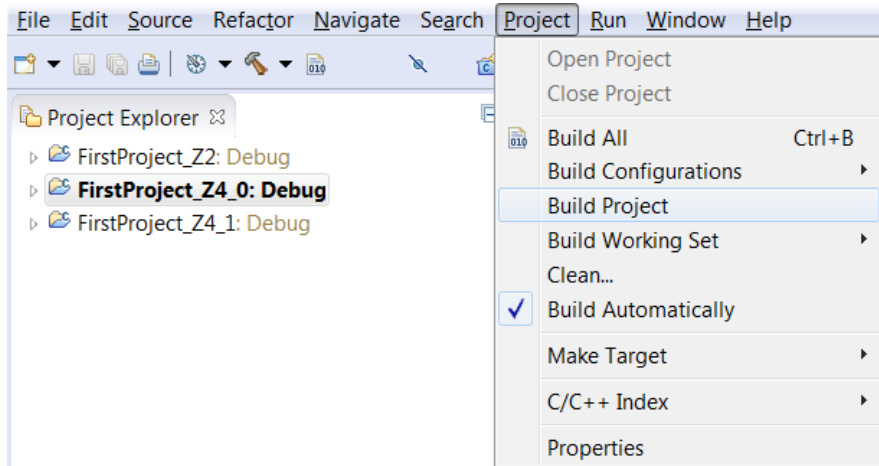
- 3 Projects will be created for 3 different cores of MPC5748G



Build a Project

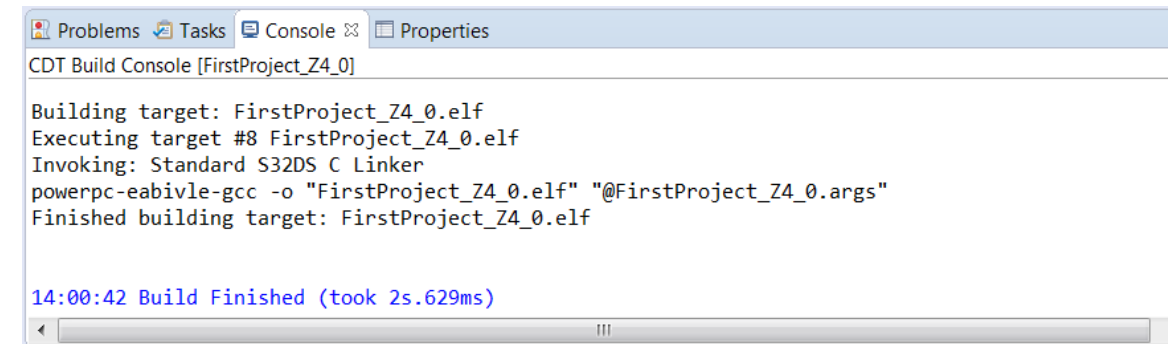
- To build a project follow one of the methods below:
- If project is built successfully, following message will be displayed on the Console

1. Project – Build Project




2. Click on hammer symbol to build that project

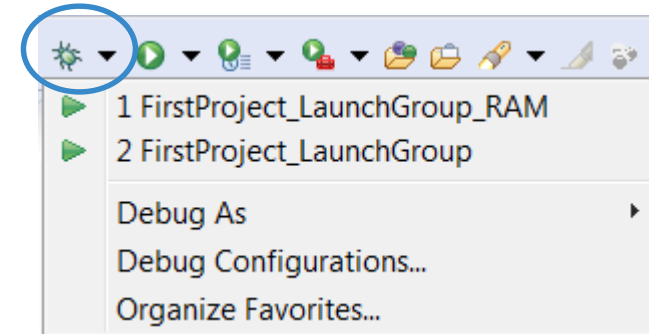
 - Click on page symbol to build all projects



Debug a Project

1 of 2

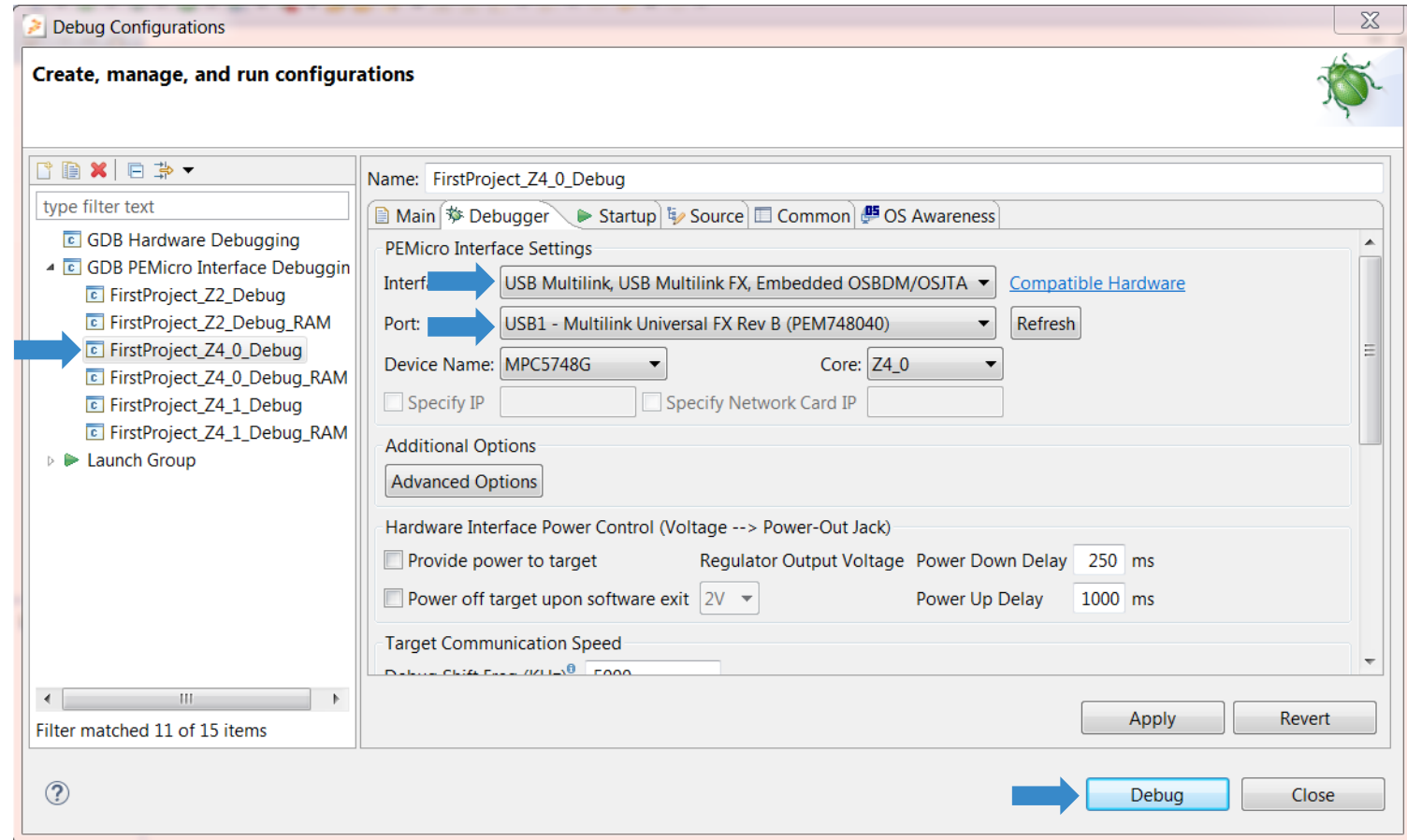
- Connect a debugger to both, the board and the PC
- Click on arrow in the  icon
- And Open [Debug Configurations...](#)



Debug a Project

2 of 2

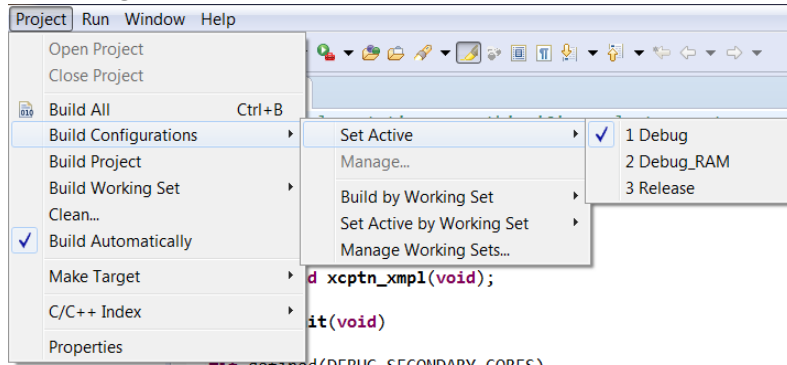
- Select Project:
 - Example:
FirstProject_Z4_0_Debug
- Select Interface:
 - Example: USB Multilink for MPC5748G-LCEVB
- Port:
 - The comport where device is connected
- Click on **Debug** to start debugging



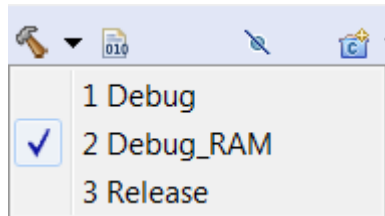
Debug a Project from RAM

- Firstly, Configure a project to debug from RAM
Follow one of the Steps:

1. Project – Build Configurations – Set Active – Debug_RAM

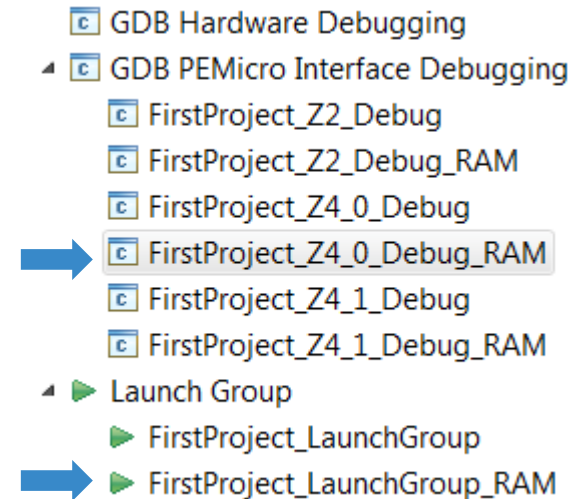


2. Select Debug_RAM by clicking Down Arrow next to hammer



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

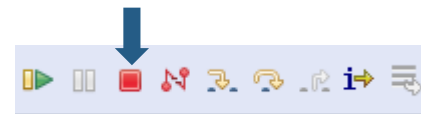
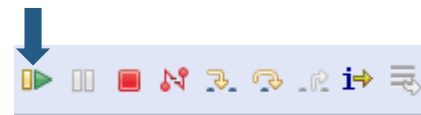
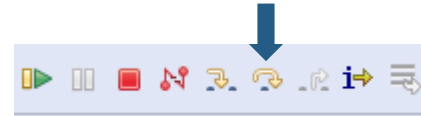
- Lastly, to debug from RAM select the RAM related session while debugging



- Follow the Steps shown on Debug a Project pages

Debug Basics: Step, Run, Suspend, Resume

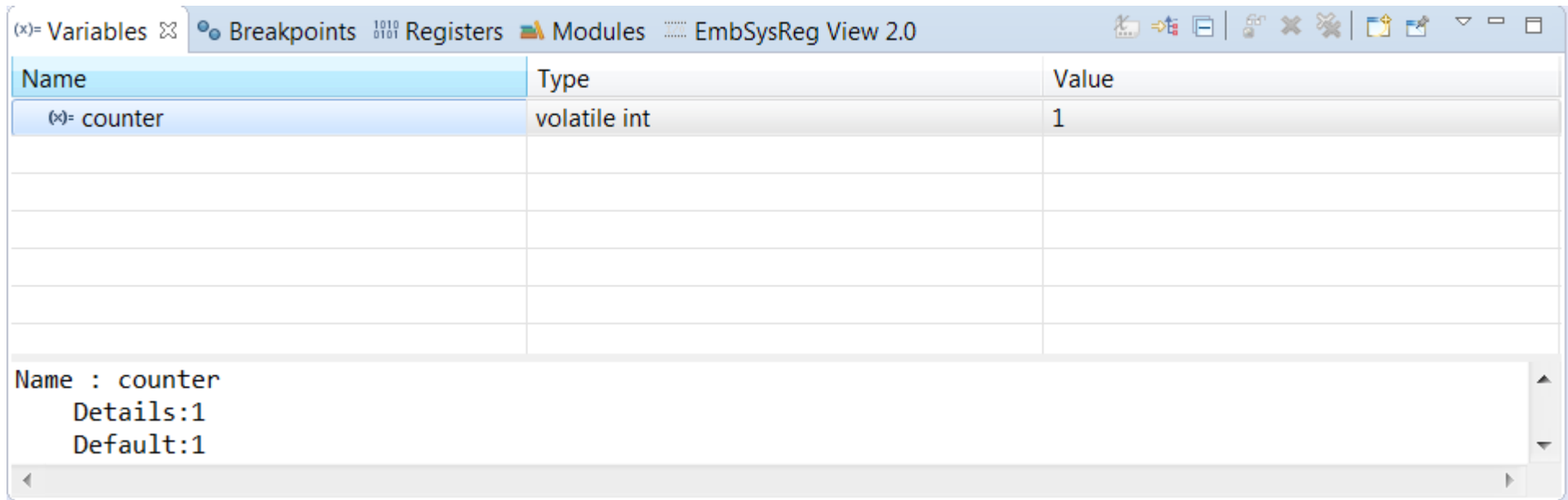
- Step Into (F5)
- Step Over (F6)
- Run
- Suspend
- Resume (F8)
- Terminate (Ctrl+F2)



Debug Basics: View & Alter Variables

1 of 2

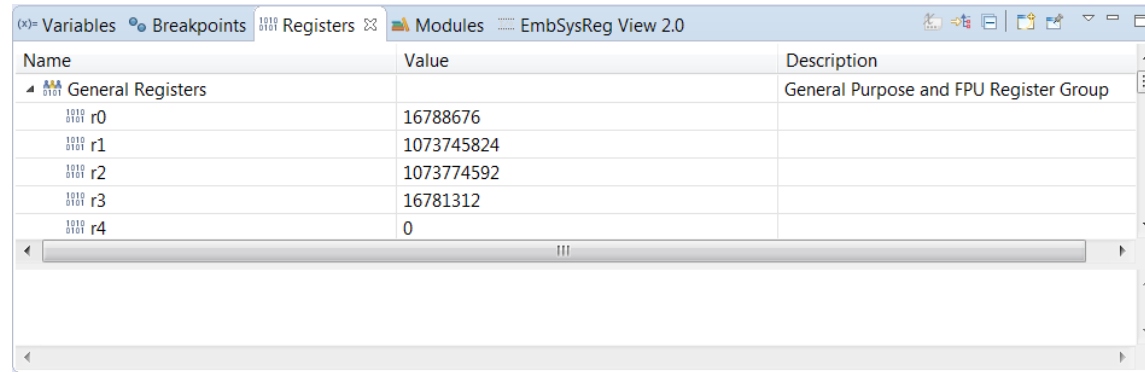
- View variables in “Variables” tab.
- Click on a value to allow typing in a different value.



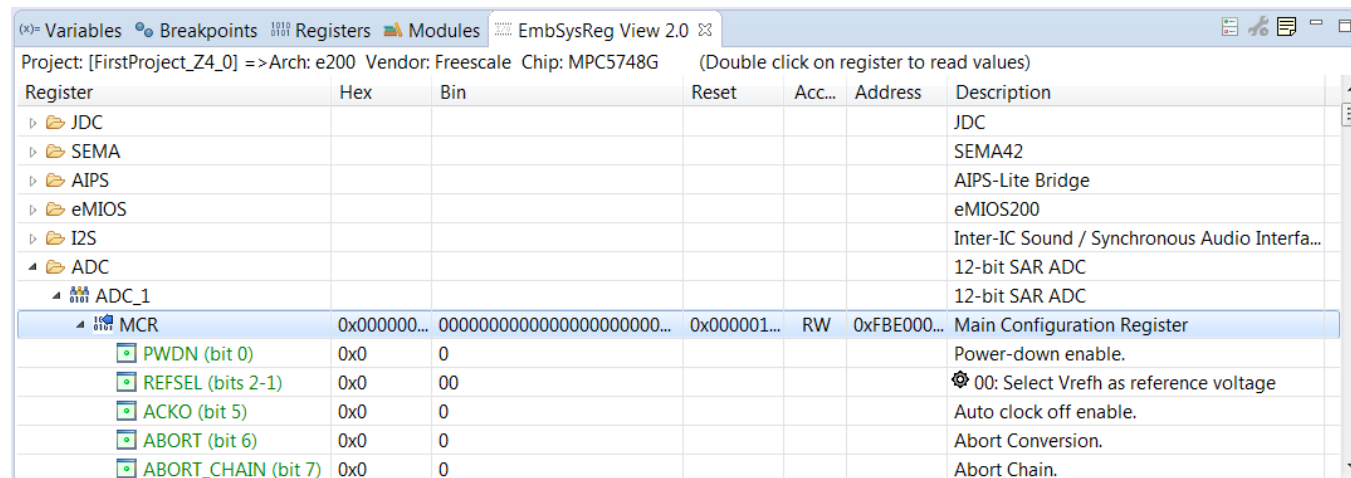
Debug Basics: View & Alter Registers

2 of 2


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

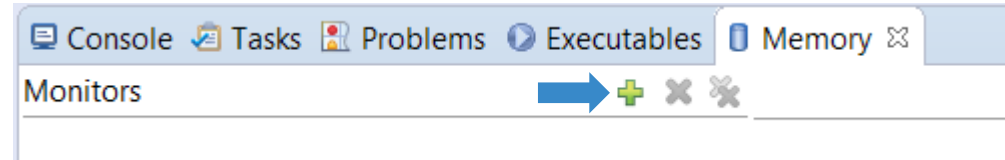


- View peripheral registers in the EmbSysReg tab

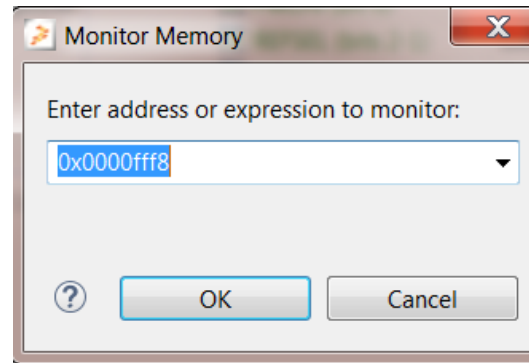


Debug Basics: View Memory

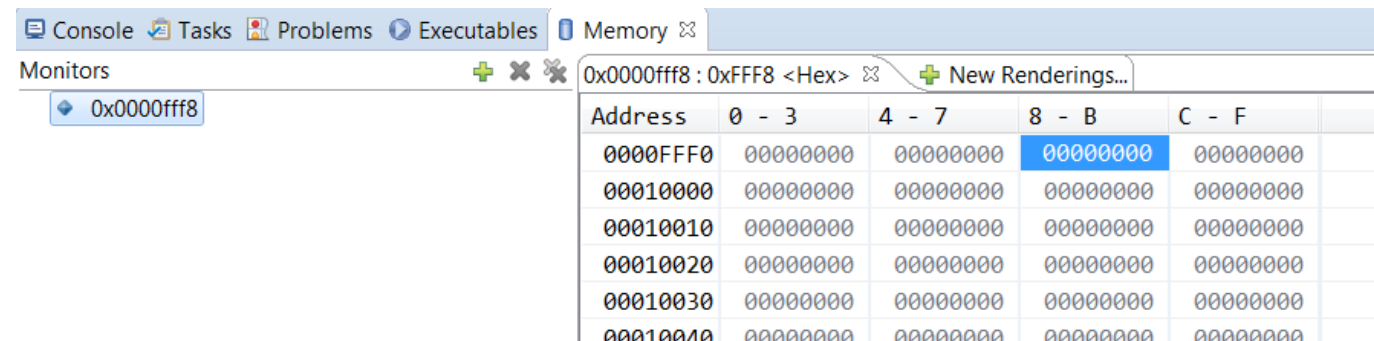
- Add Memory Monitor
 - Click on  icon



- Select Base Address
Example : 0x0000fff8

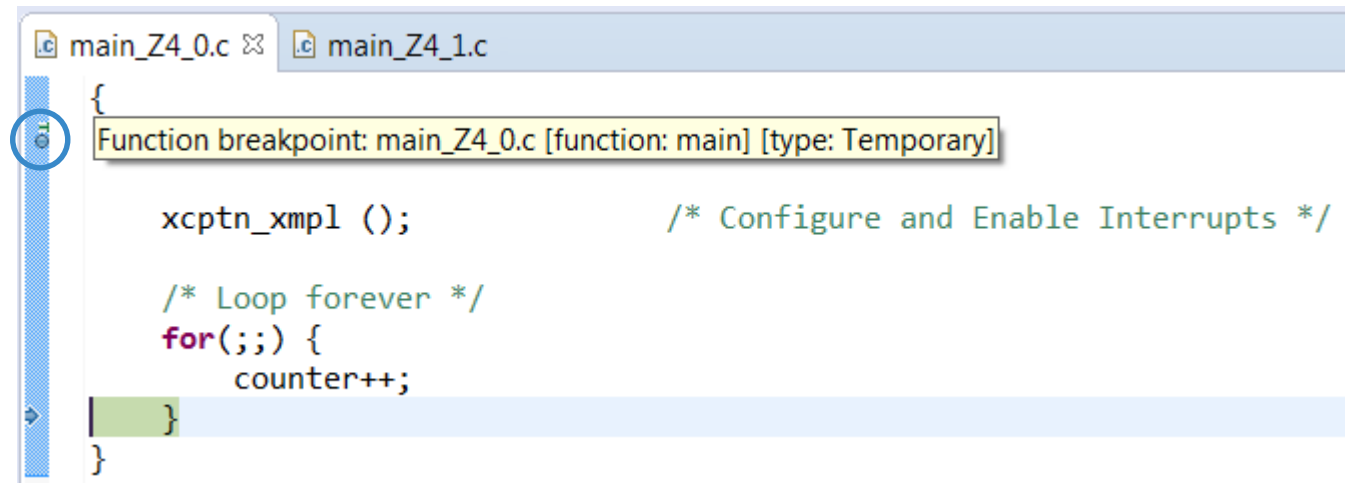


- View Memory



Debug Basics: Breakpoints

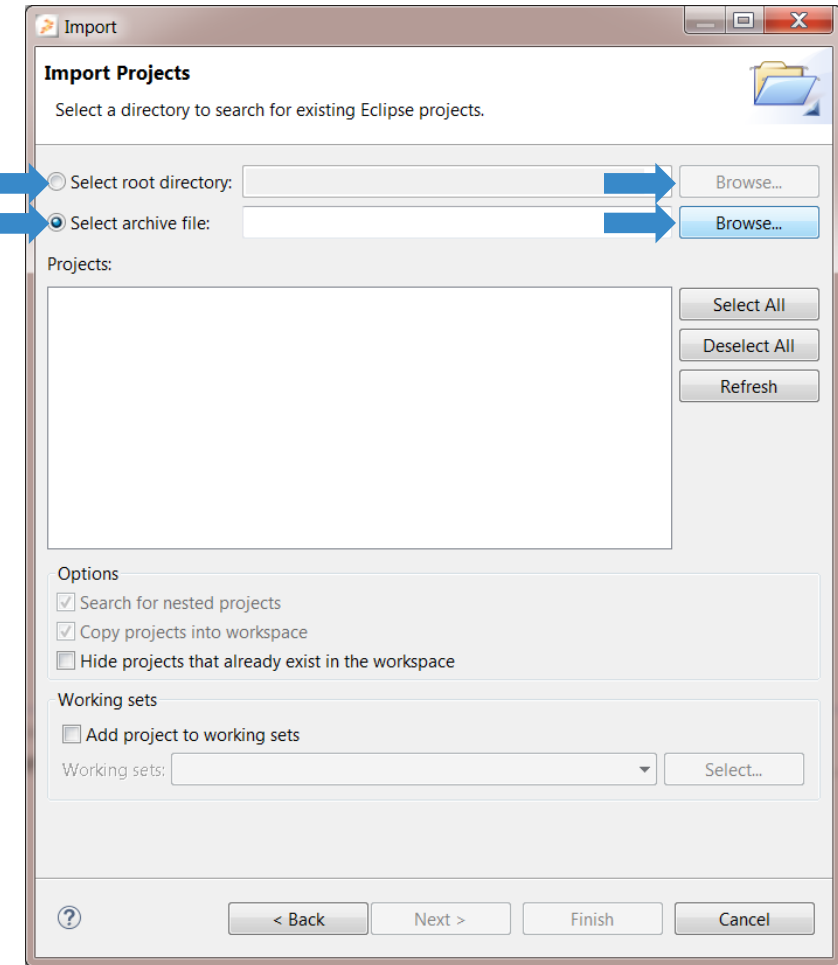
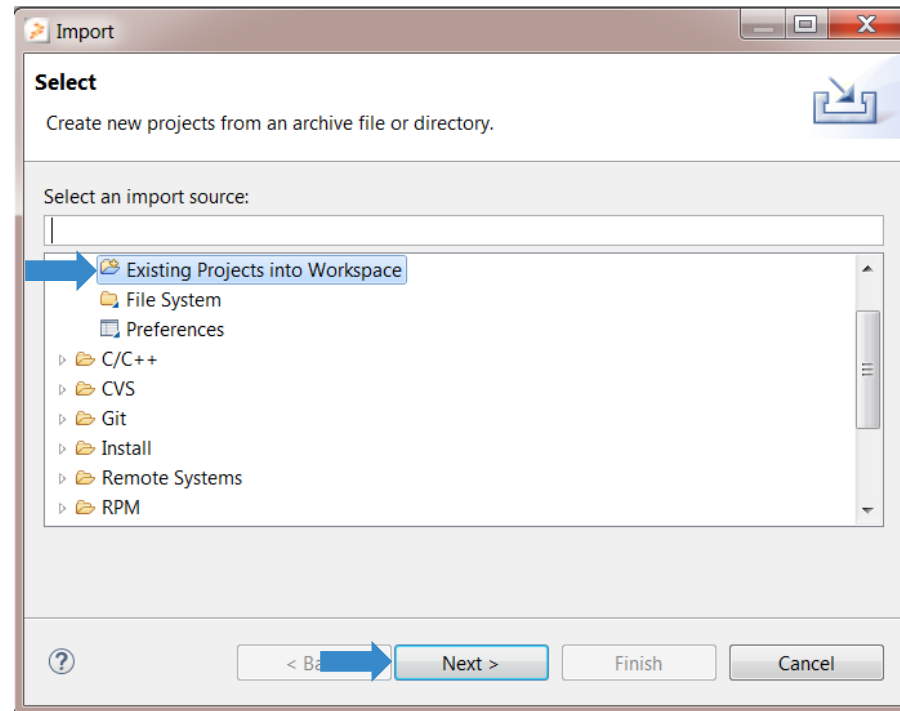
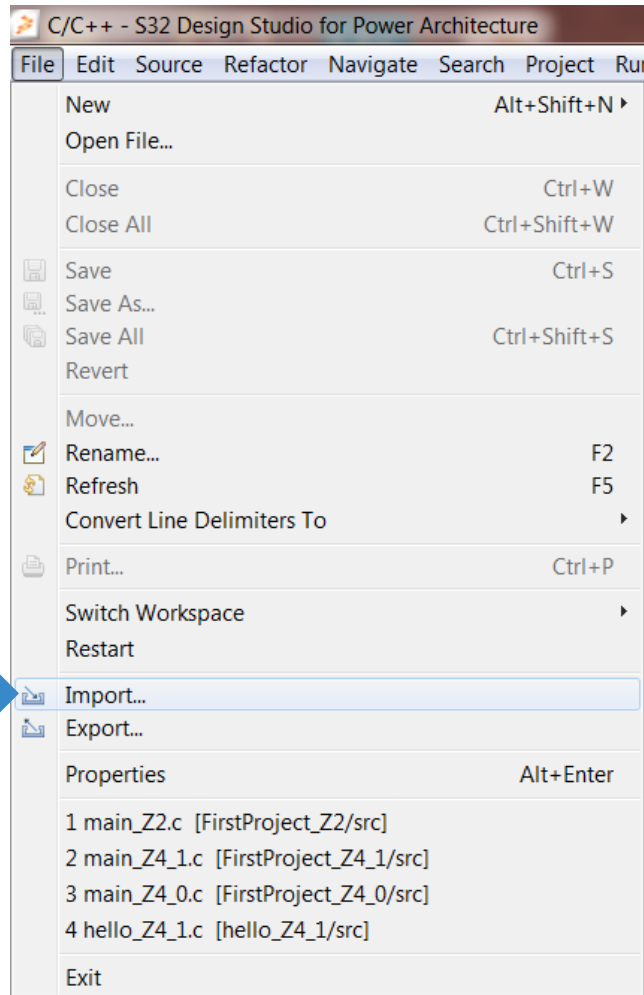
- Add Breakpoint: Point mouse pointer at circled area and Double Click there
 - Light blue dot will pop up that represents debugger breakpoint



IMPORTING PROJECTS

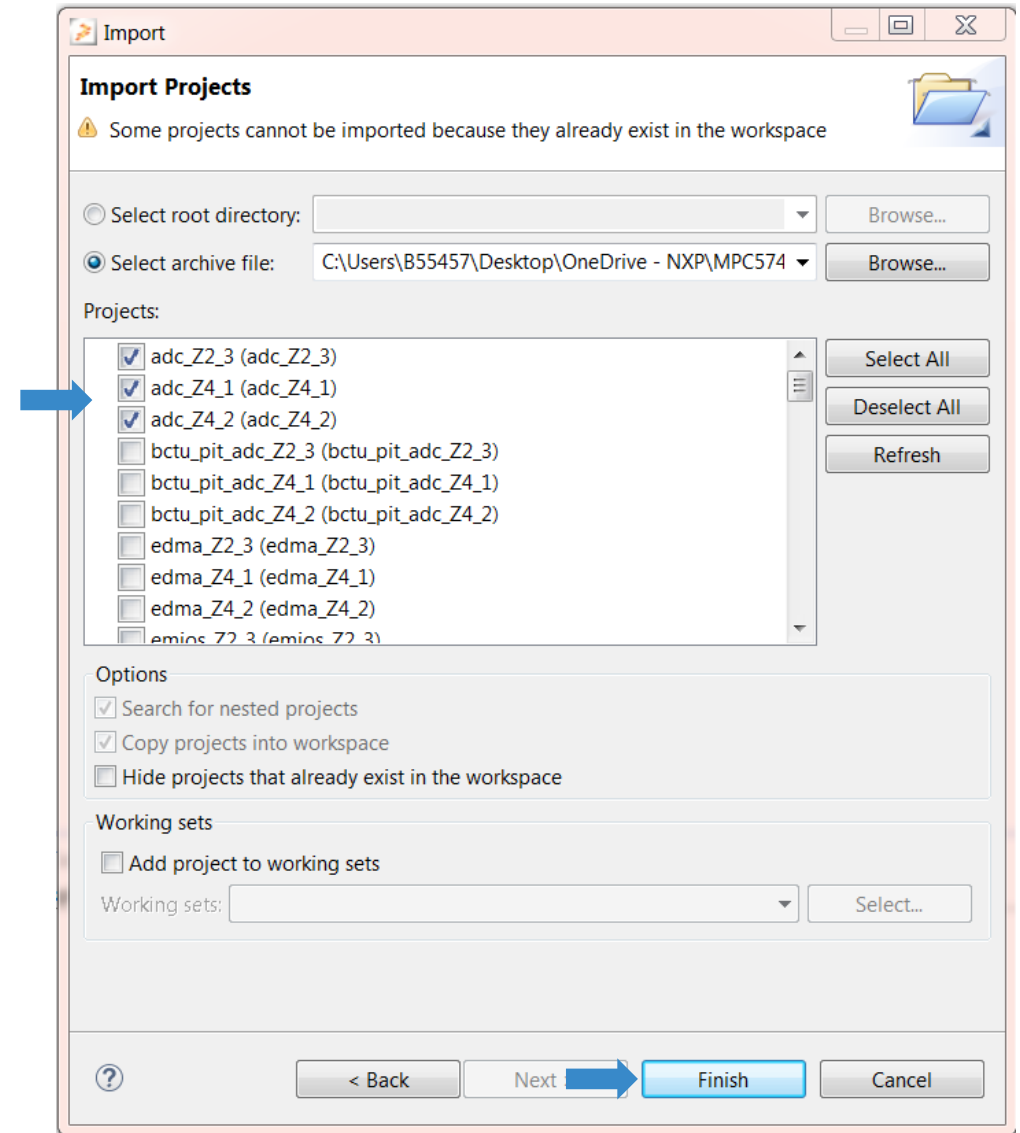
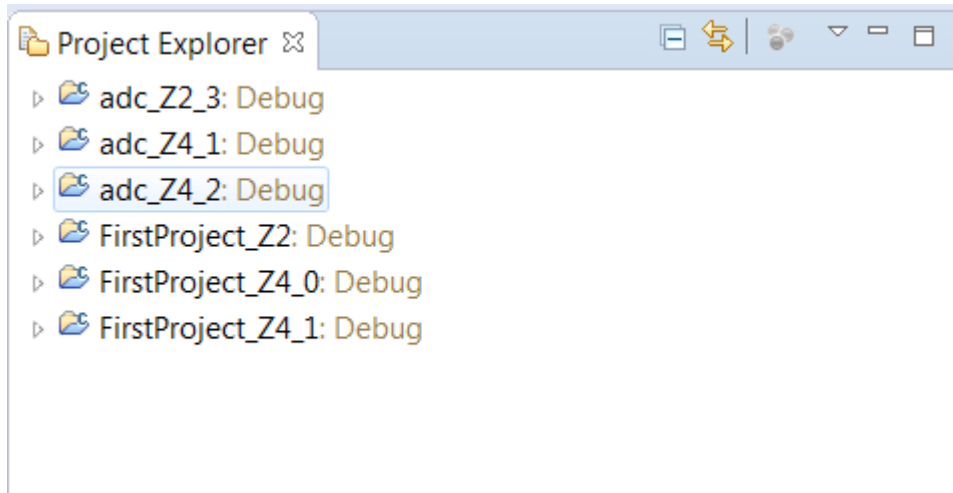
Step-1

- 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 S32 Design Studio IDE for Power Architecture go to [Start – All Programs – Freescale S32 Design Studio – S32 Design Studio for power Architecture vx.x – Quick Start/Documentation](#)
- Also Visit www.nxp.com/community to post questions about S32 Design Studio



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