GW-MPC5748G RDB

SOFTWARE INTEGRATION GUIDE (SWIG)

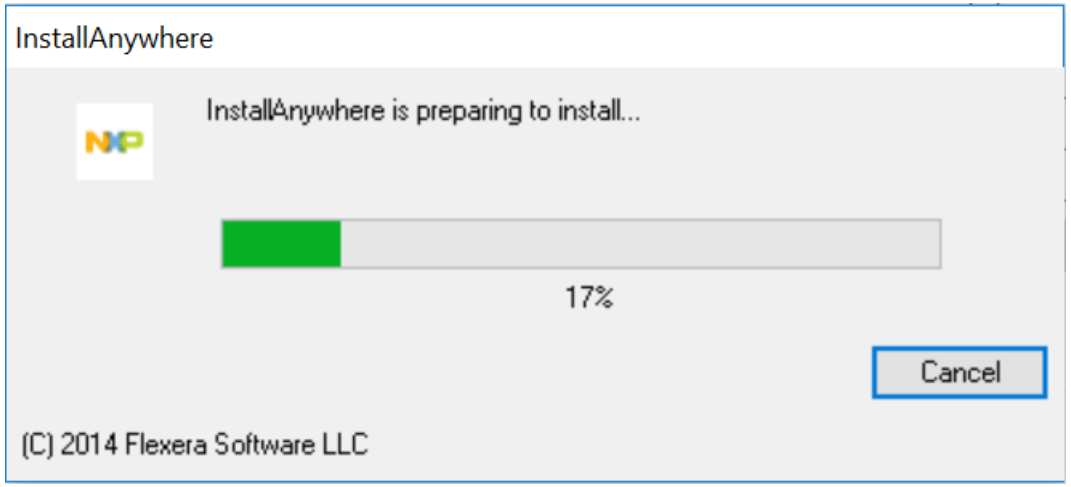
Ultra-Reliable MCUs for Industrial and Automotive Applications

Contents

INSTALLING S32 DESIGN STUDIO IDE FOR POWER ARCHITECTURE

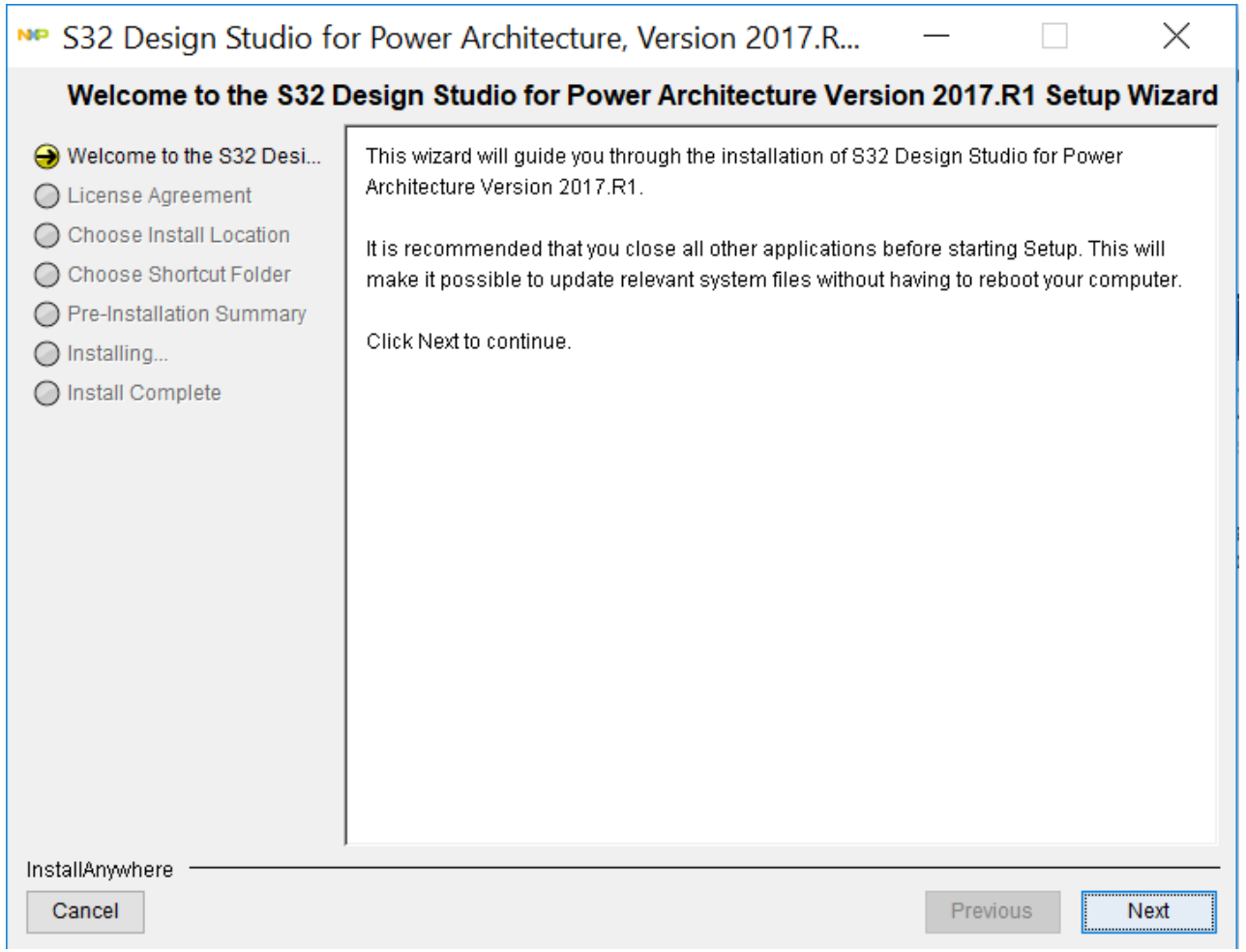
Step-1

- Go to https://www.nxp.com/support/developer-resources/run-time-software/s32-design-studio-ide/s32-design-studio-ide-for-power-architecture-based-mcus:S32DS-PA?tab=Design_Tools_Tab to download lastest version of S32 Design Studio IDE for Power Architecture
- Go into download folder, run the installation file
- The “preparing to install” dialogue box will appear



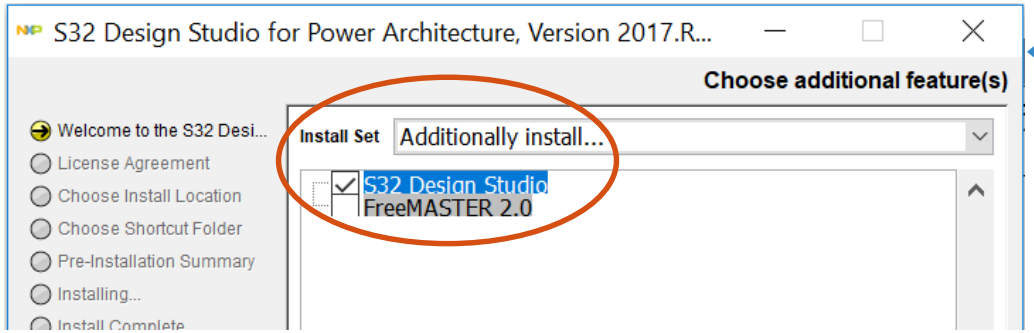
Step-2

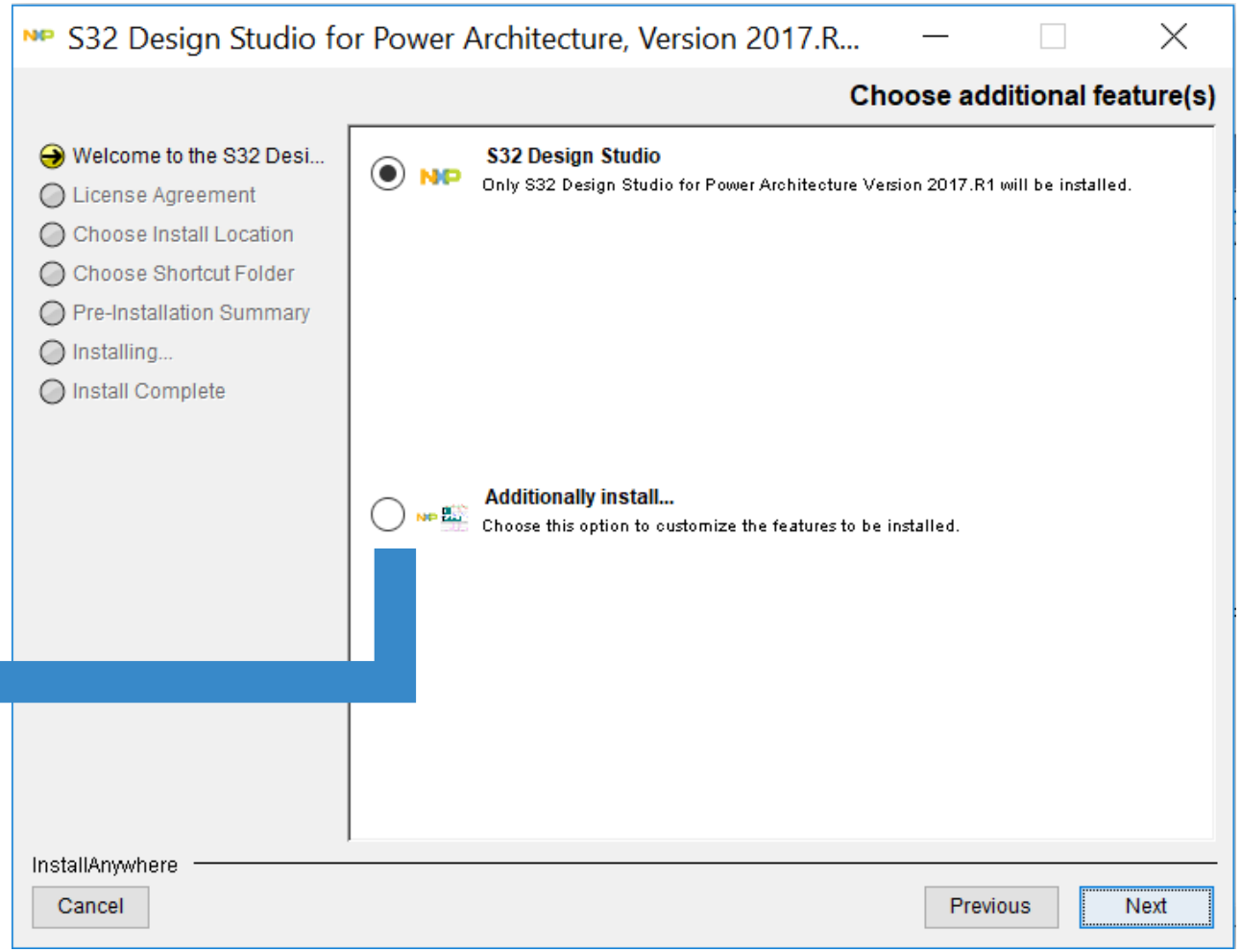
- An Installer welcome window will be displayed, click Next to continue



Step-3

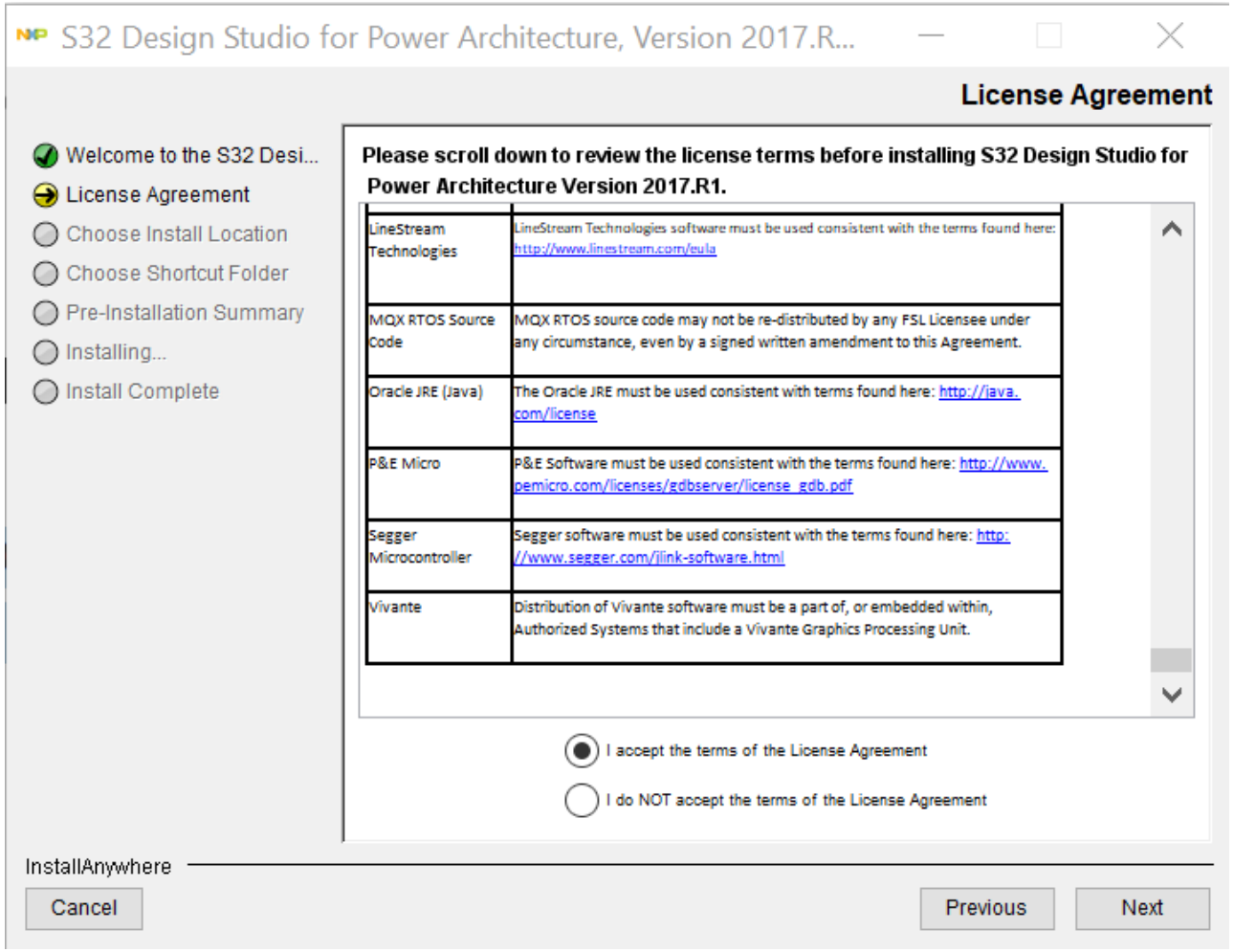
- Choose additional features
  - Selecting “S32 Design Studio” option will only install S32 Design Studio
  - Selecting “Additionally install…” will allow you to install other software too
- Click on Next





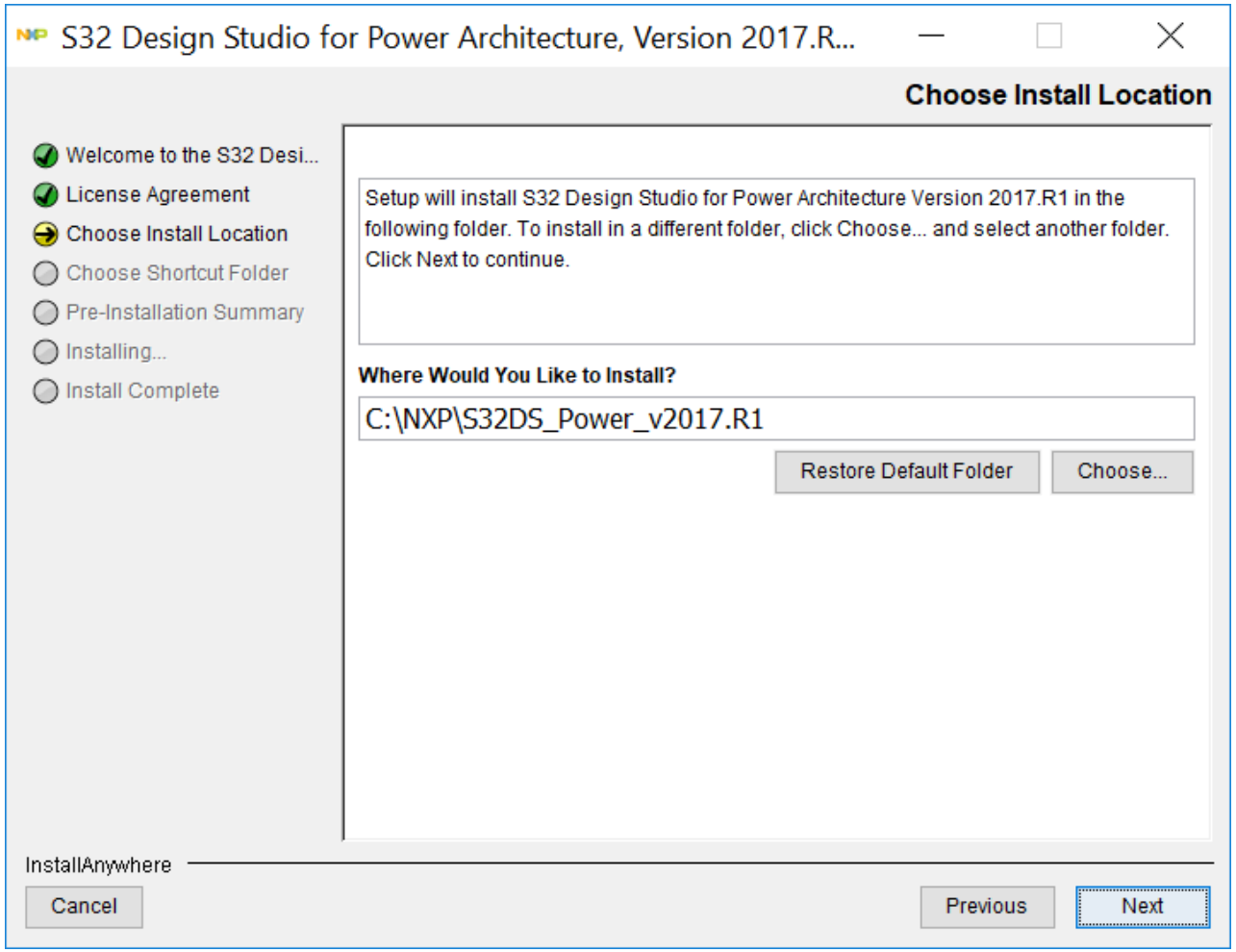
Step-4

- Read and scroll down the license agreement to end
- Select the radio button accepting the license agreement terms and click Next to continue



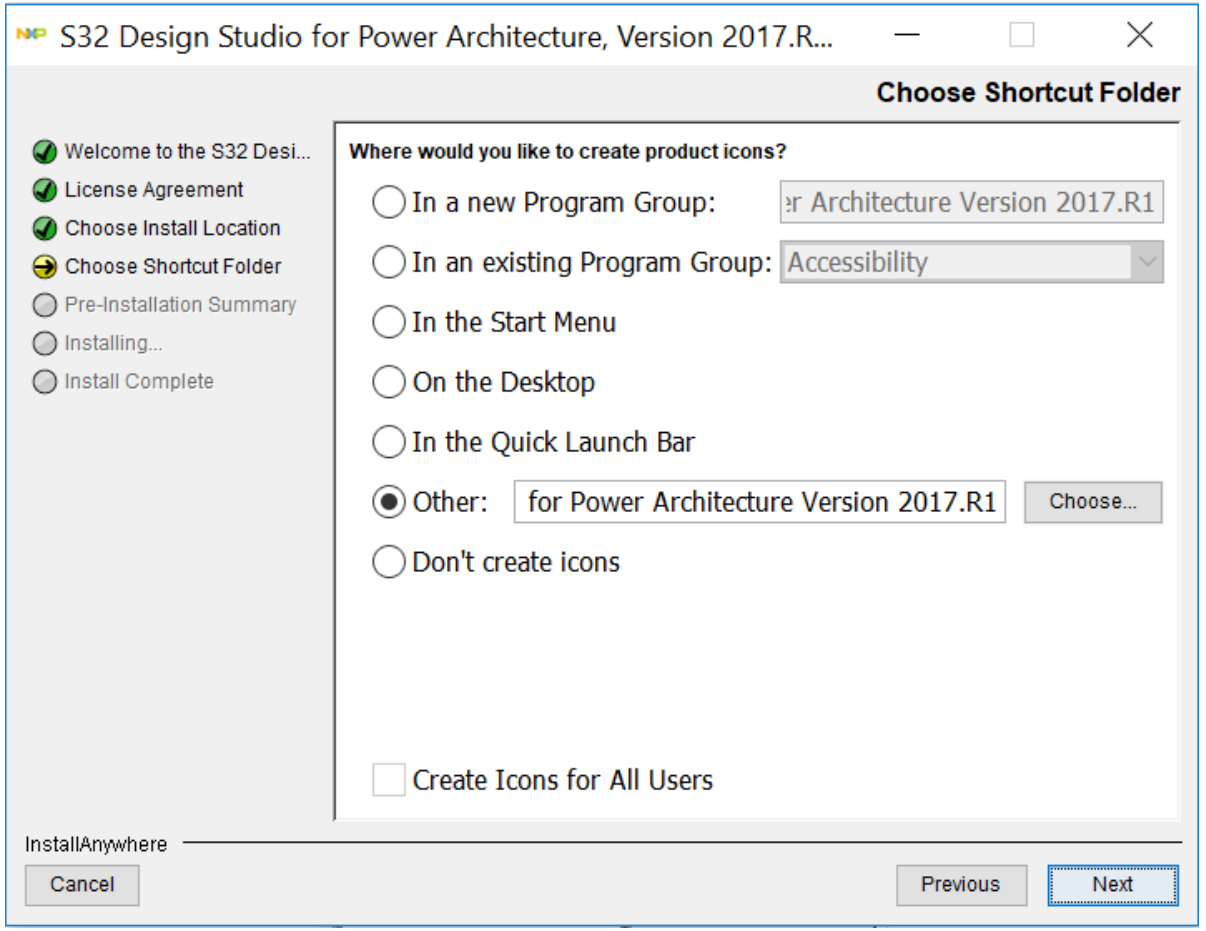
Step-5

- Click Next to choose the default installation location (Could be changed, but recommended to install into path without spaces)



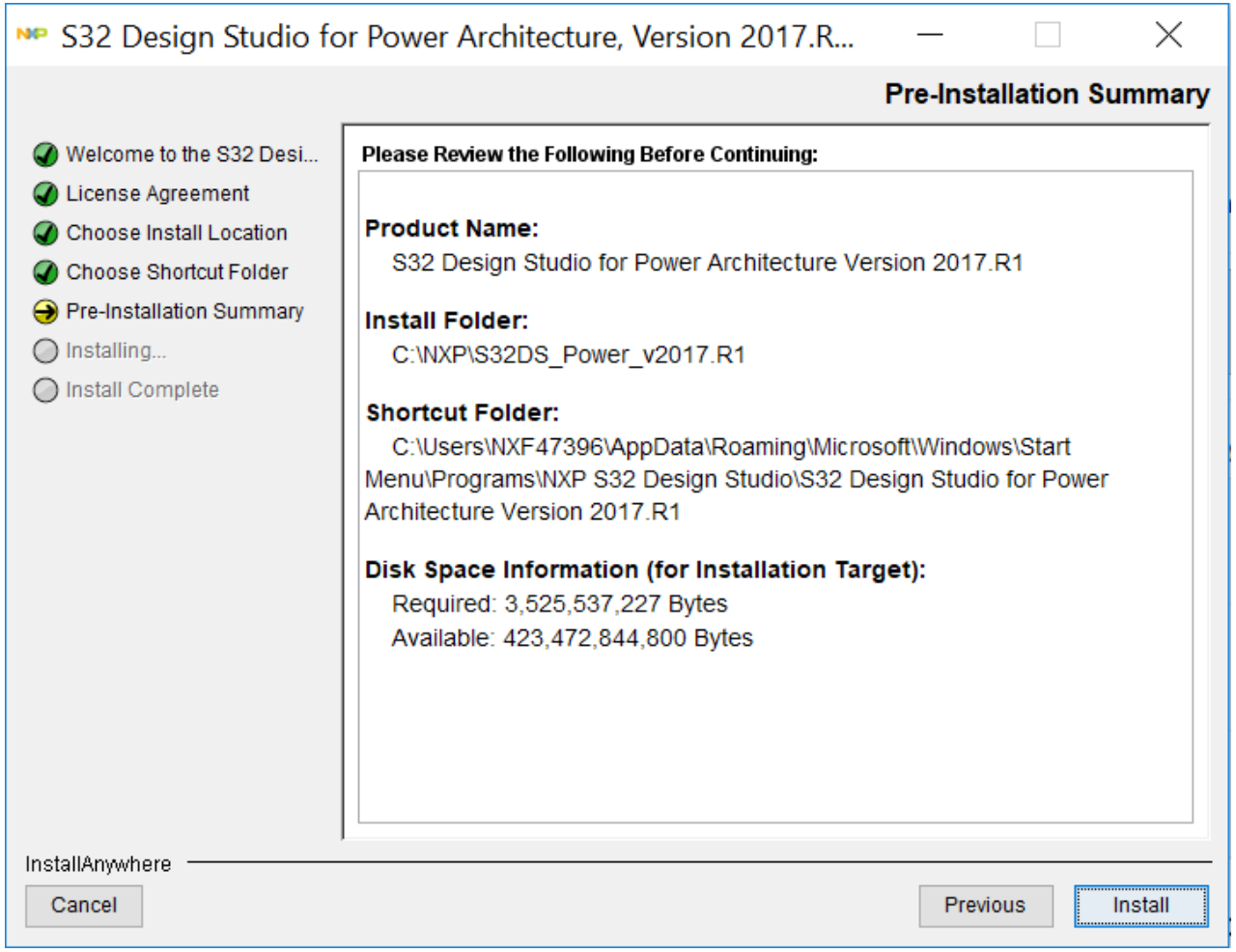
Step-6

- Select path where you want to generate a shortcut and click Next to continue



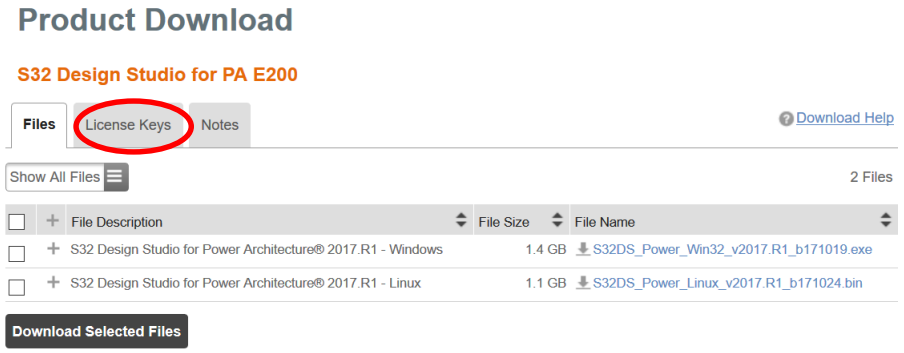
Step-7

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

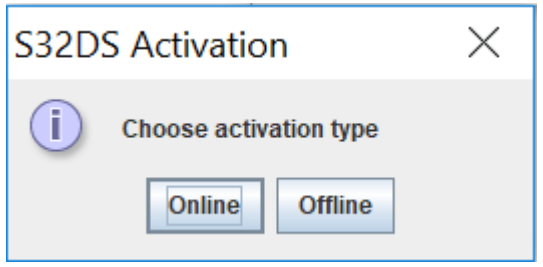


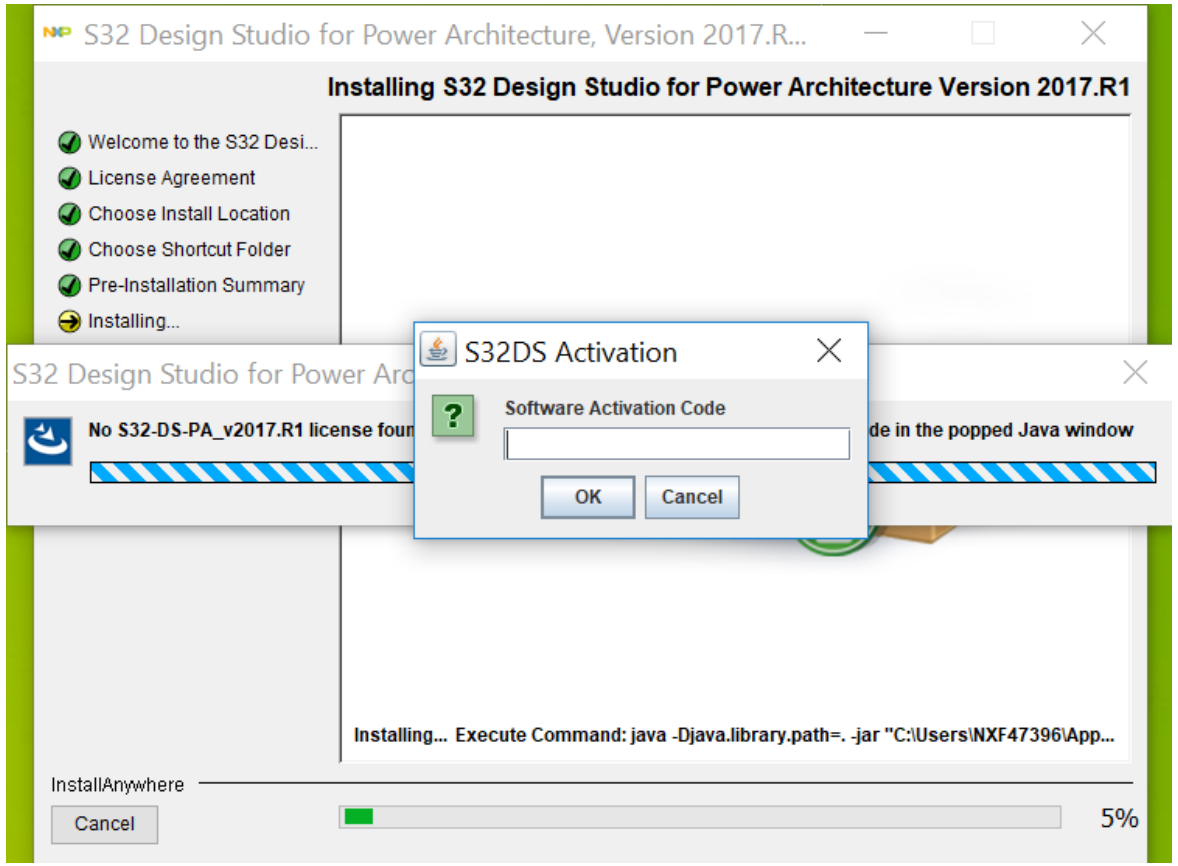
Step-8

- When asked for Software Activation Code, copy and paste from the download page



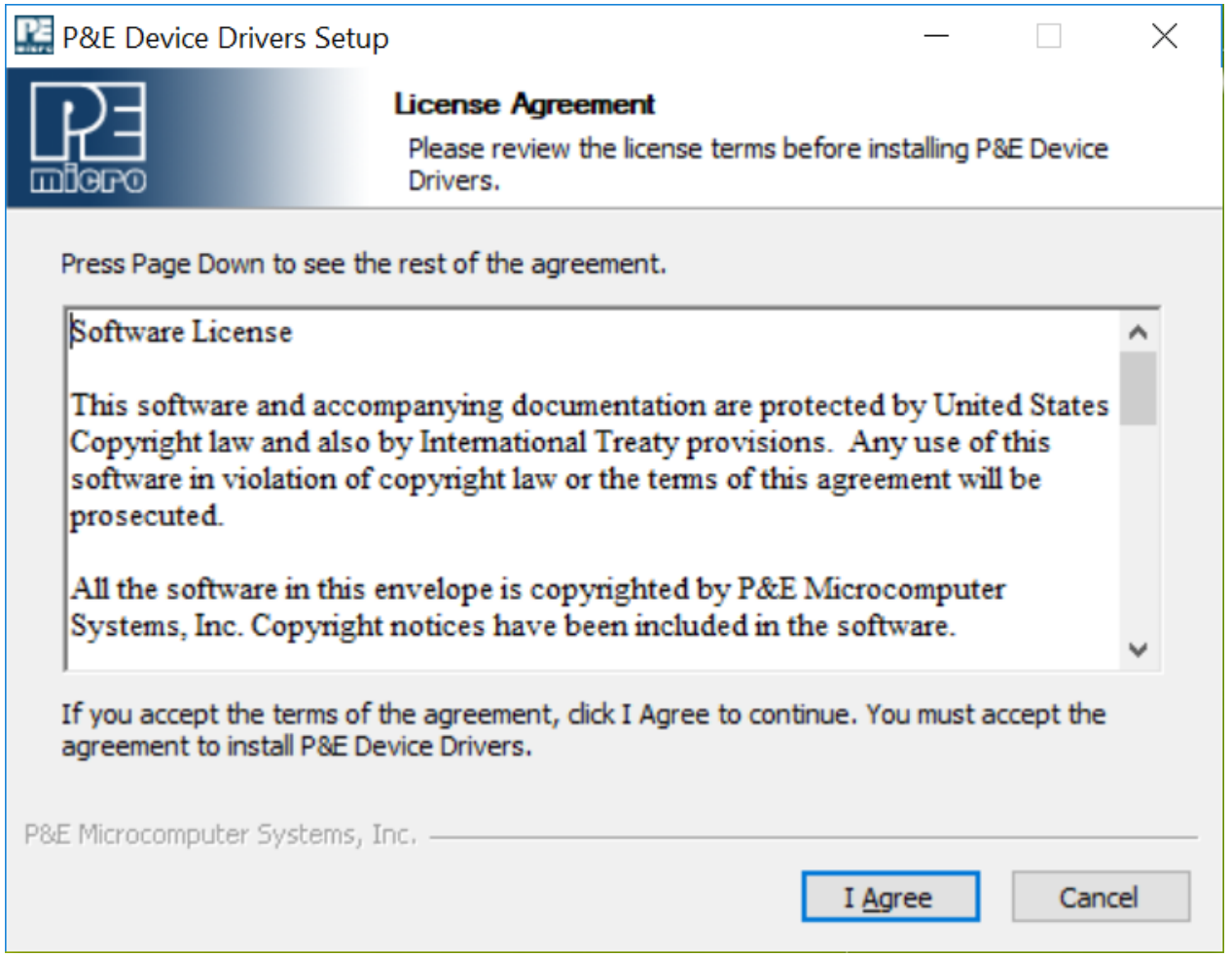
- Click OK
- In activation type window, click Online





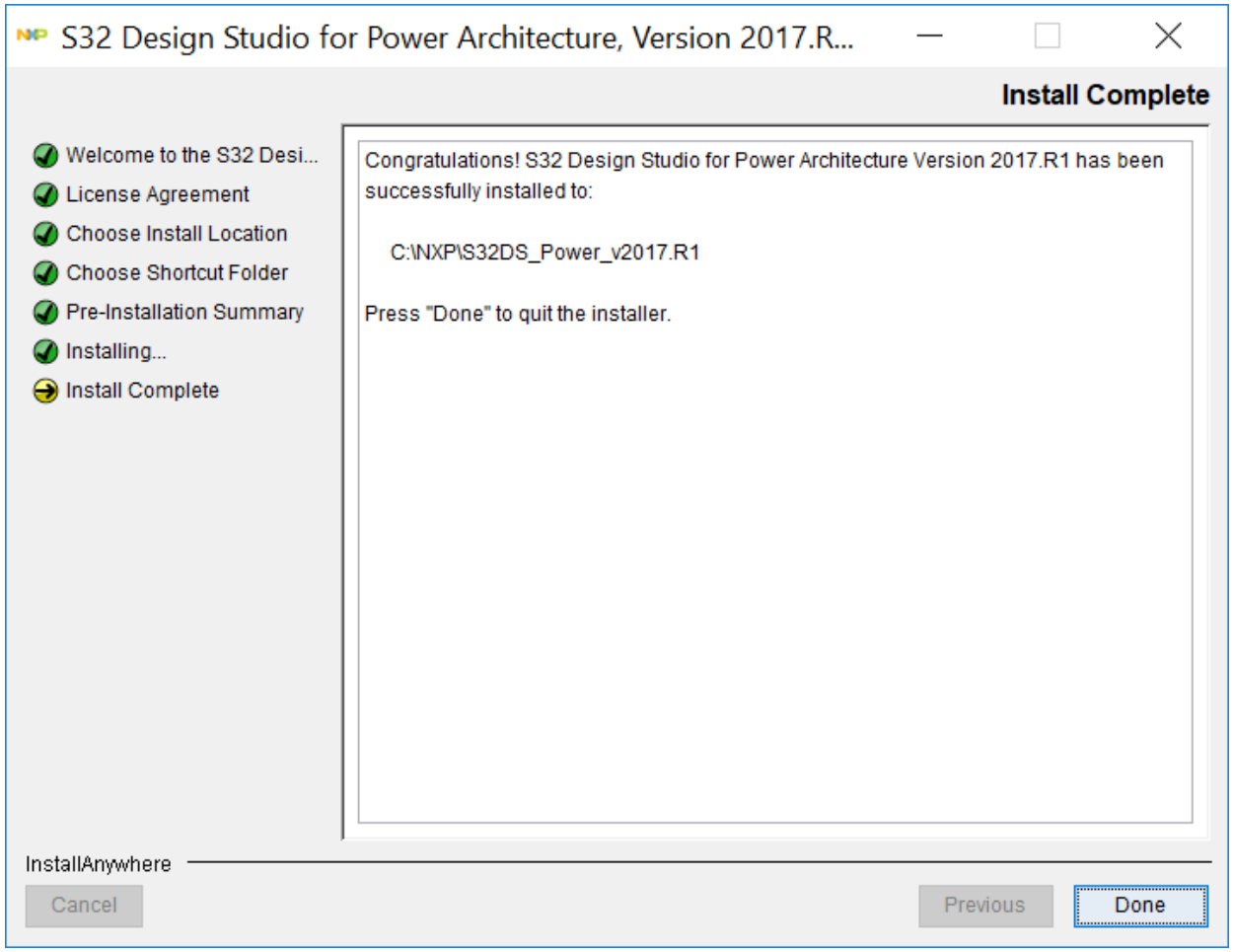
Step-9

- During the Installation it may ask you install P&E Device Drivers
- Read license agreement and click I agree
- Then select the Destination Folder and Click Install
- When the installation is done, click Close to close the P&E Device Driver Setup window



Step-10

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



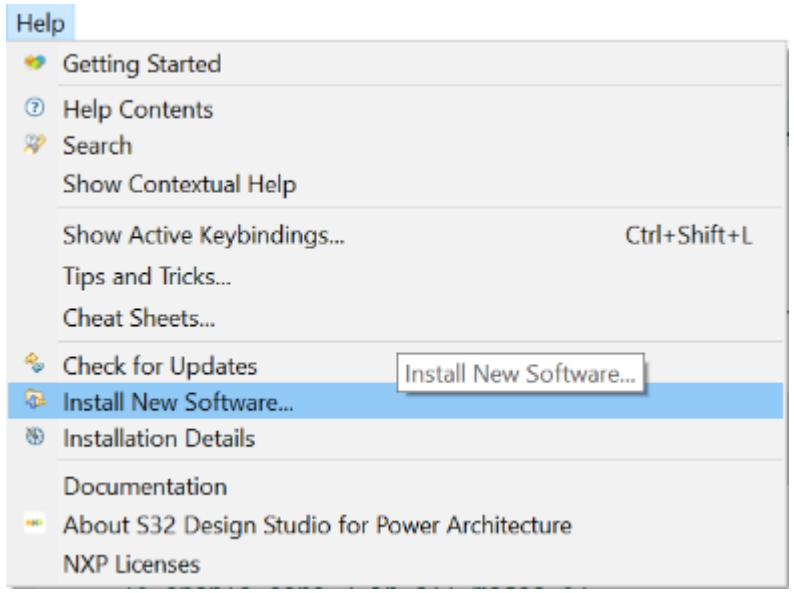
UPDATE SDK

Step-1

- Go to https://www.nxp.com/support/developer-resources/run-time-software/s32-design-studio-ide/s32-design-studio-ide-for-power-architecture-based-mcus:S32DS-PA?tab=Design_Tools_Tab to download SDK RTM 1.0.0
- If you already have SDK RTM 1.0.0, you can go directly to Step-2 without downloading

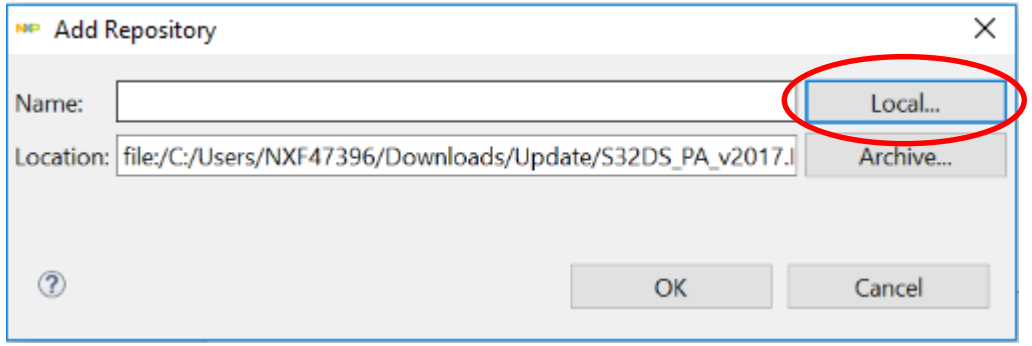
Step-2

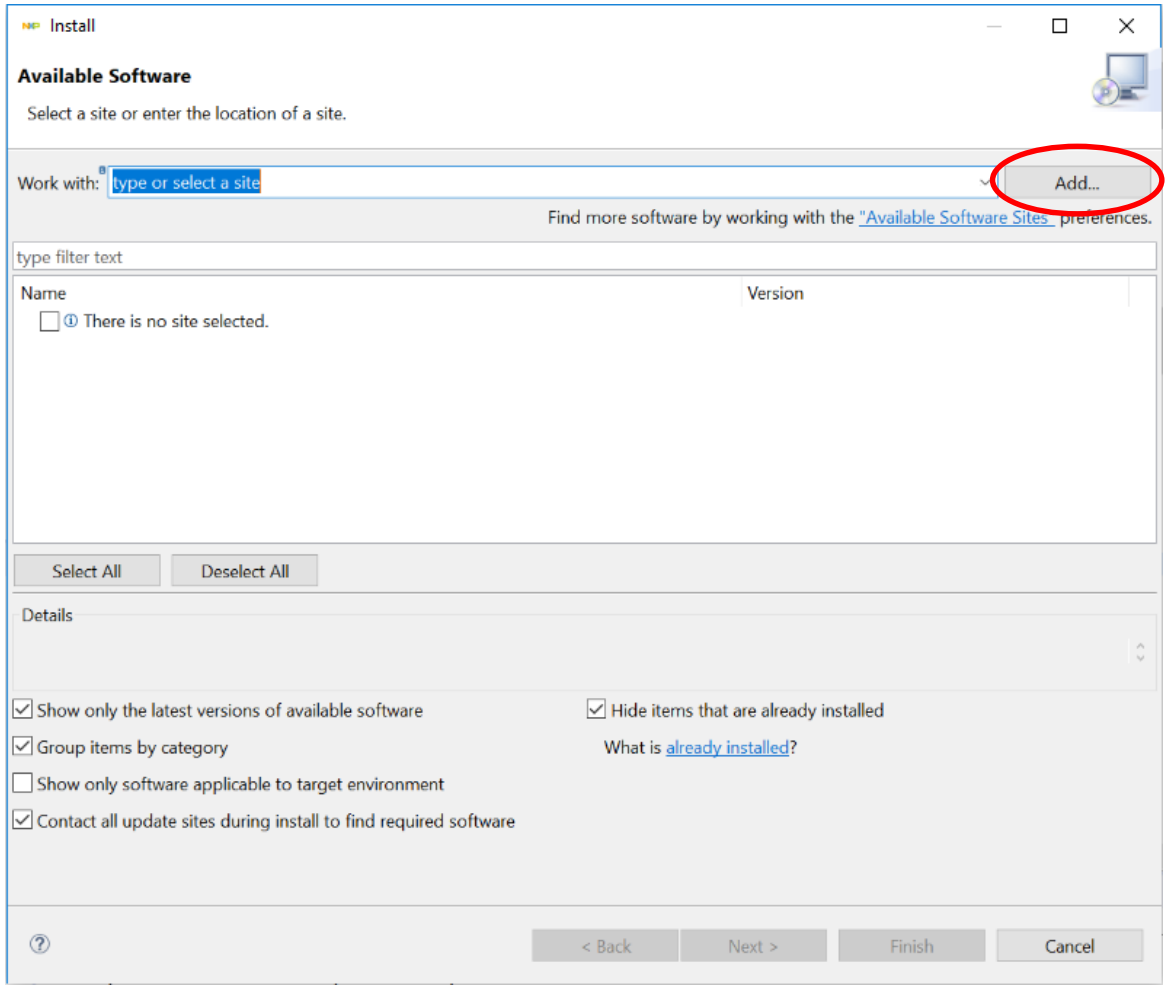
- Go to menu bar: Help — Install New Software



Step-3

- Click “Add…” to find the SDK which has been downloaded in Step-1
- Click “Local…” to add the paths of SDK
- Then click on “OK”

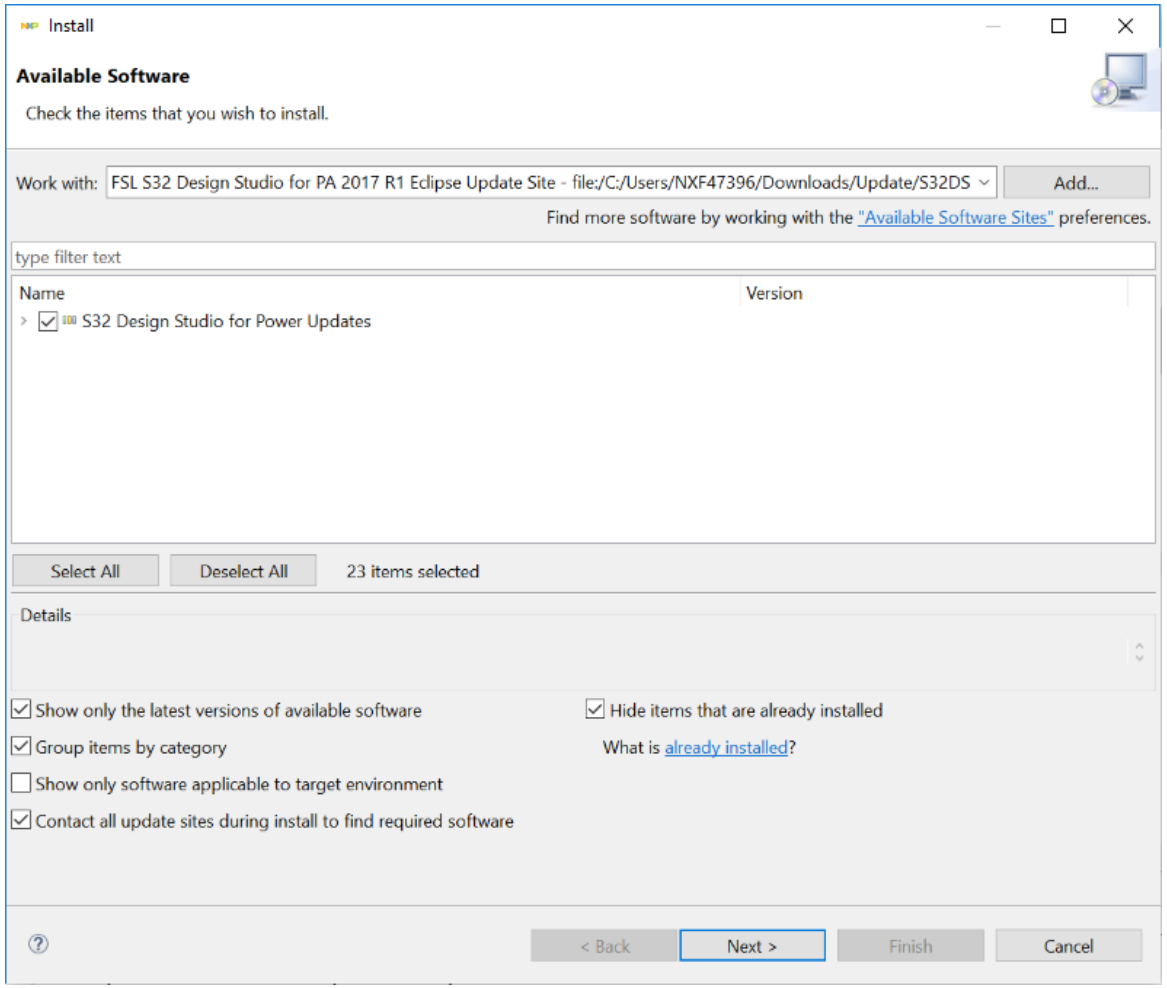




Step-4

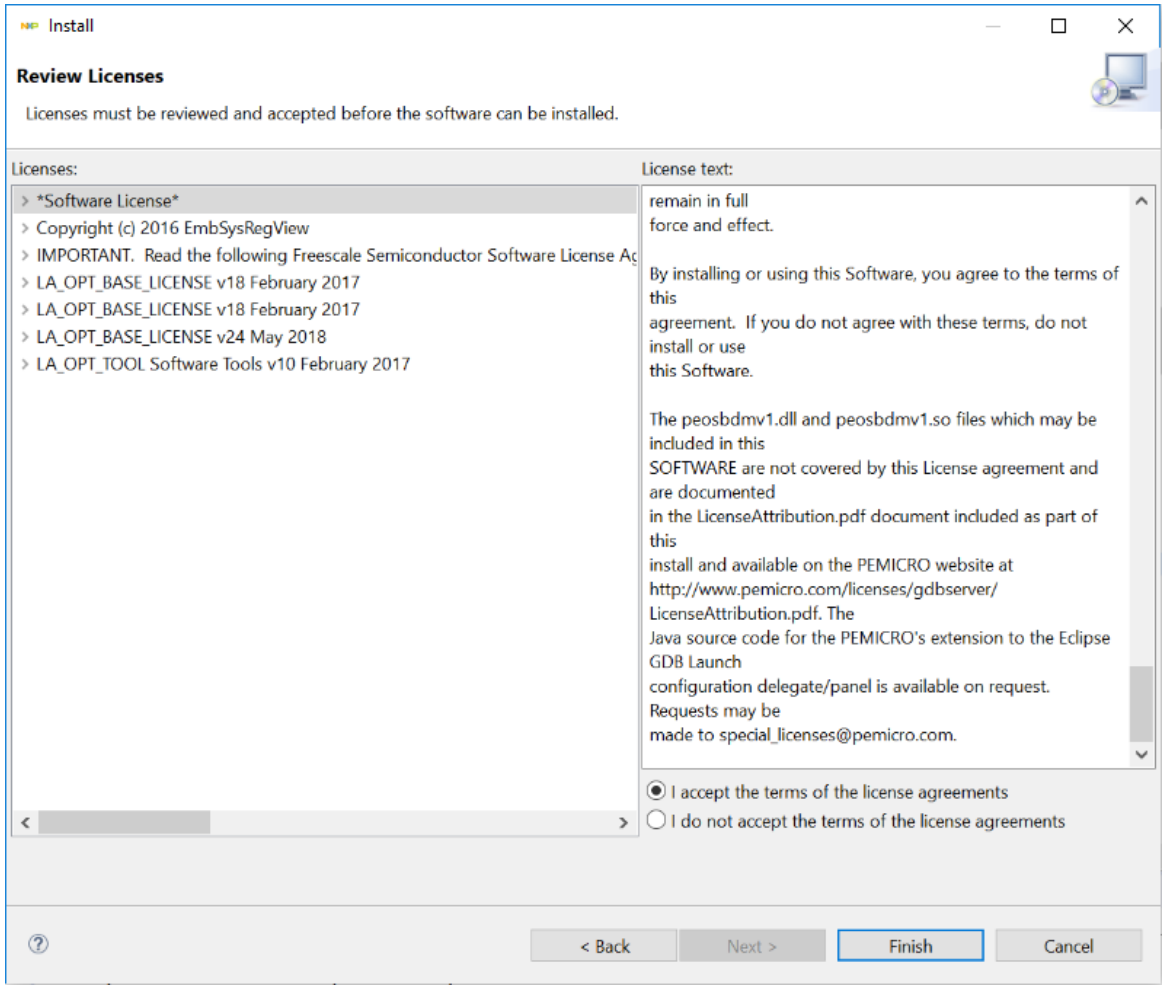
- Check the “S32 Design Studio for Power Updates”

- Then click on “Next” to start update



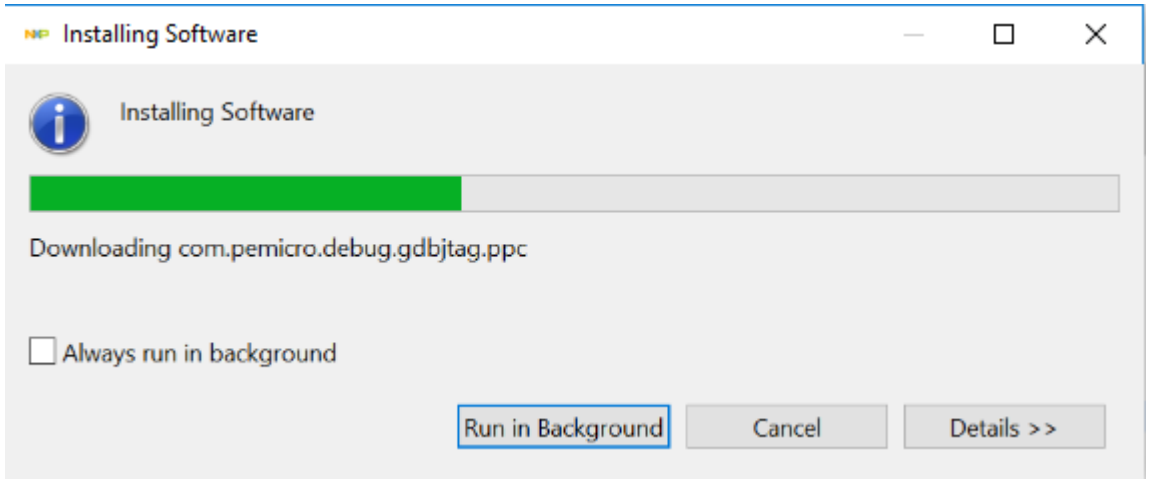
Step-5

- In “Install Details” window, Click on “Next”
- In “Review Licenses” window, read and accept license terms
- Click on “Finish”

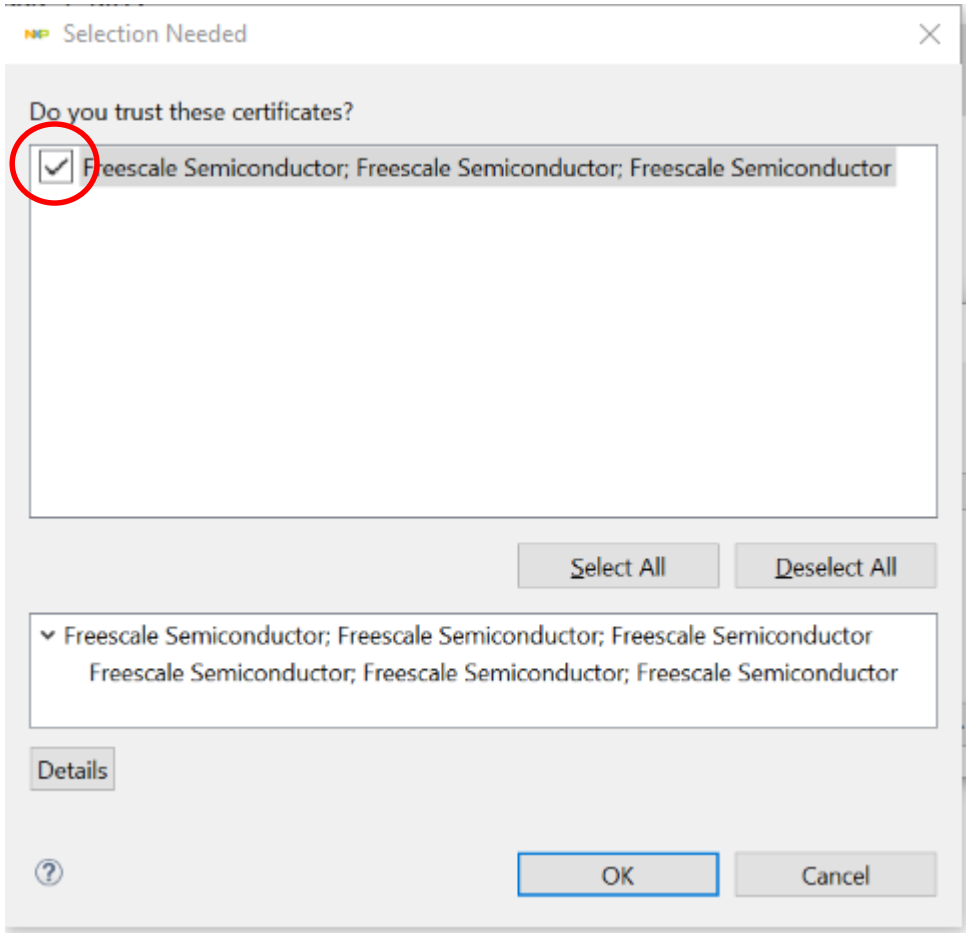


Step-6

- Wait for installation



- When asked “Do you trust these certificates”, check it and click on “OK”



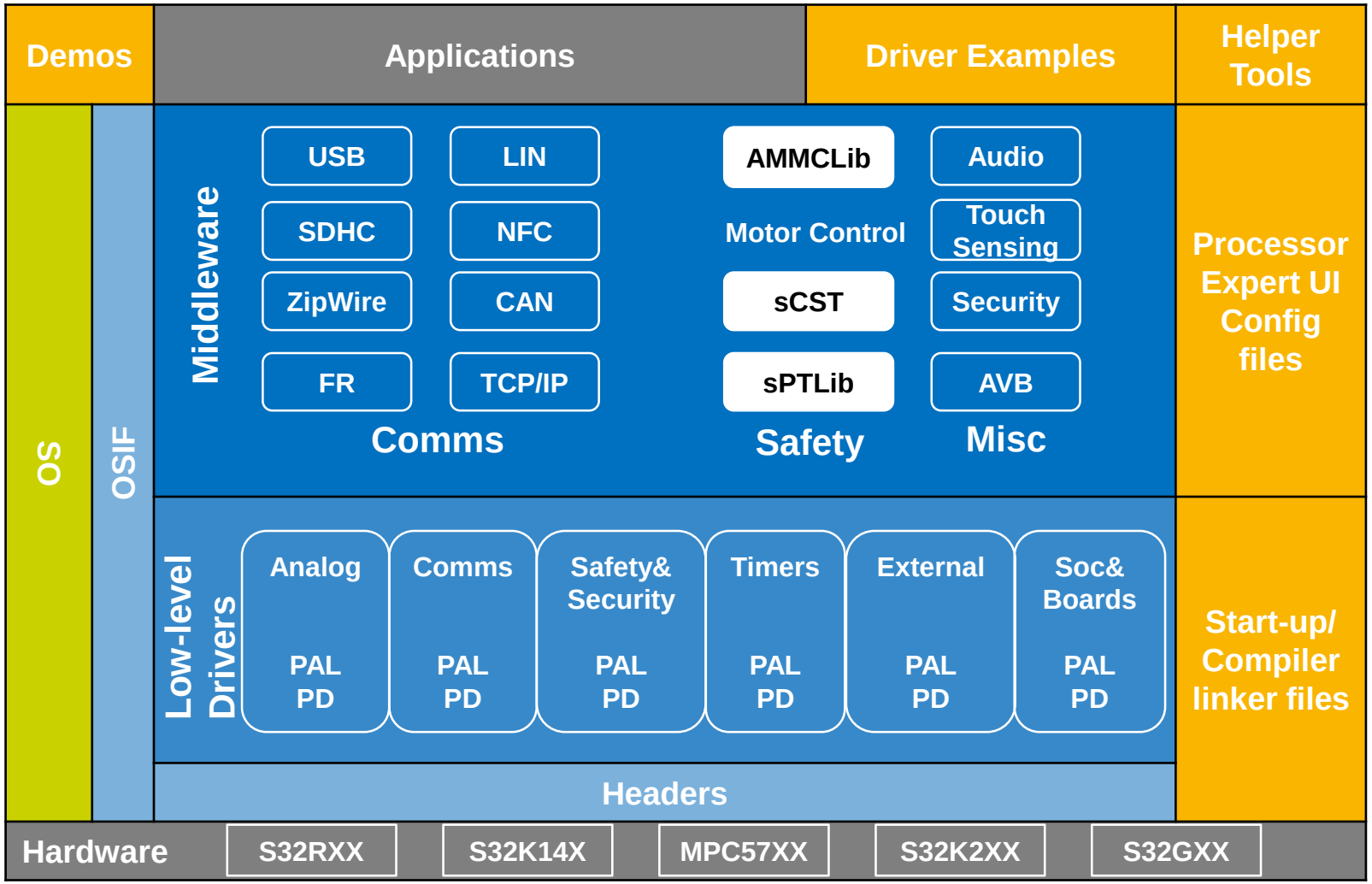
- When finished installation, restart S32DS

SDK OVERVIEW

S32 Software Development Kit (SDK)

- Non-Autosar Software package
- **Automotive Grade:** SPICE/CMMI compliant, MISRA 2012
- Graphical-based configuration
- Compatible with Eclipse & other IDEs
- Supports MPC574x family
- Supports multiple toolchains

S32 SDK – Architecture

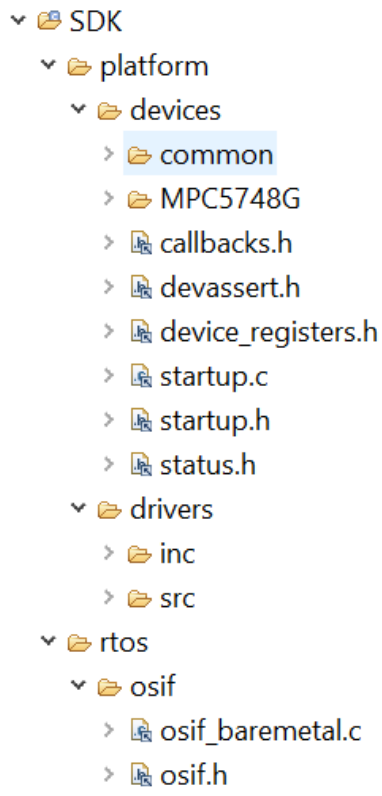


Features

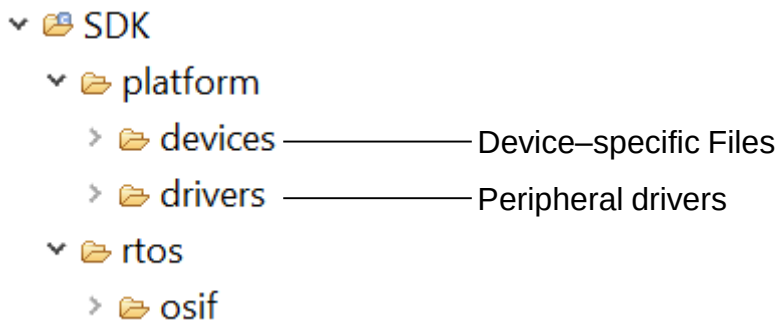
- Integrated **Non-Autosar SW Production-grade** software
- Graphical-based Configuration
- Layered Software Architecture
- Documented Source Code and Examples
- Integrated with S32 Design Studio and other IDEs
- FreeRTOS integration
- Multiple toolchains supported
- Several examples and demos

S32 SDK – File Structure

S32 SDK



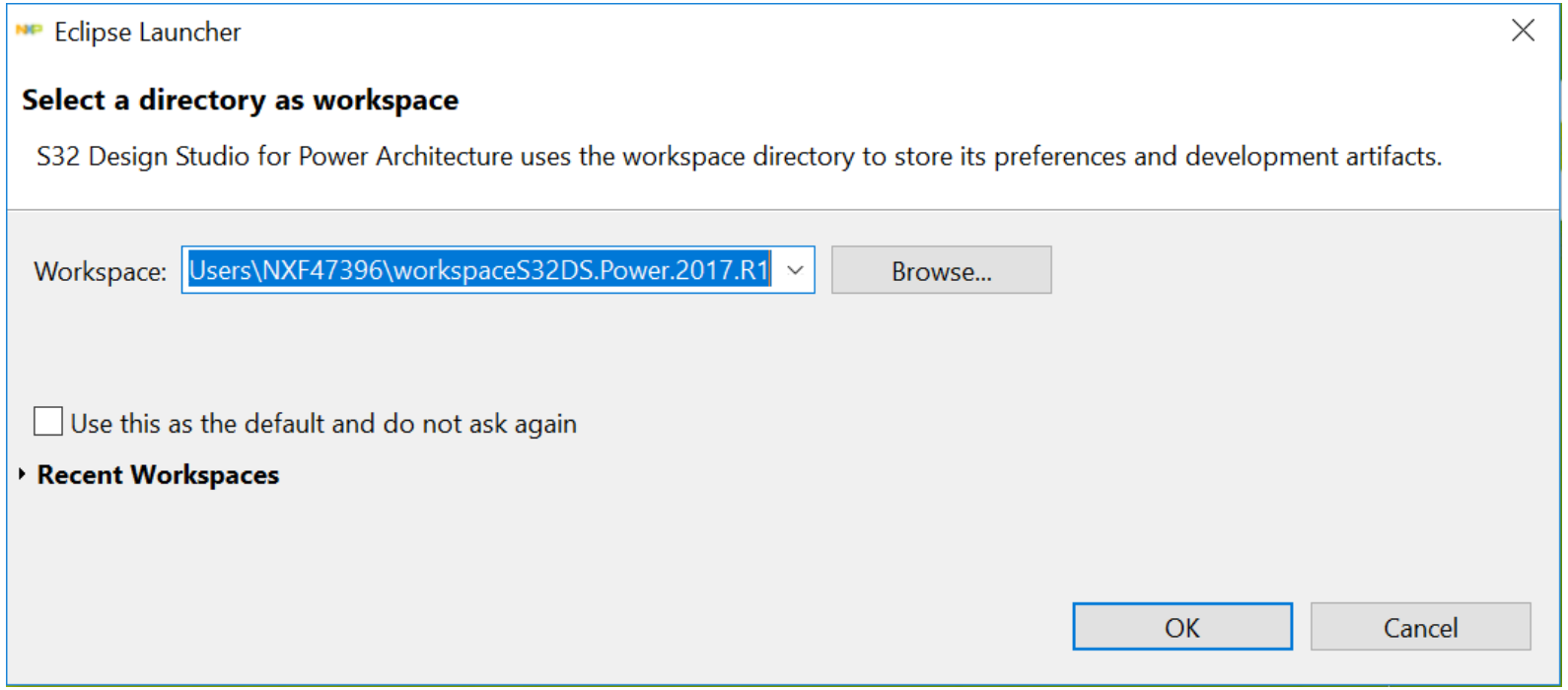
File Structure



CREATE A NEW PROJECT

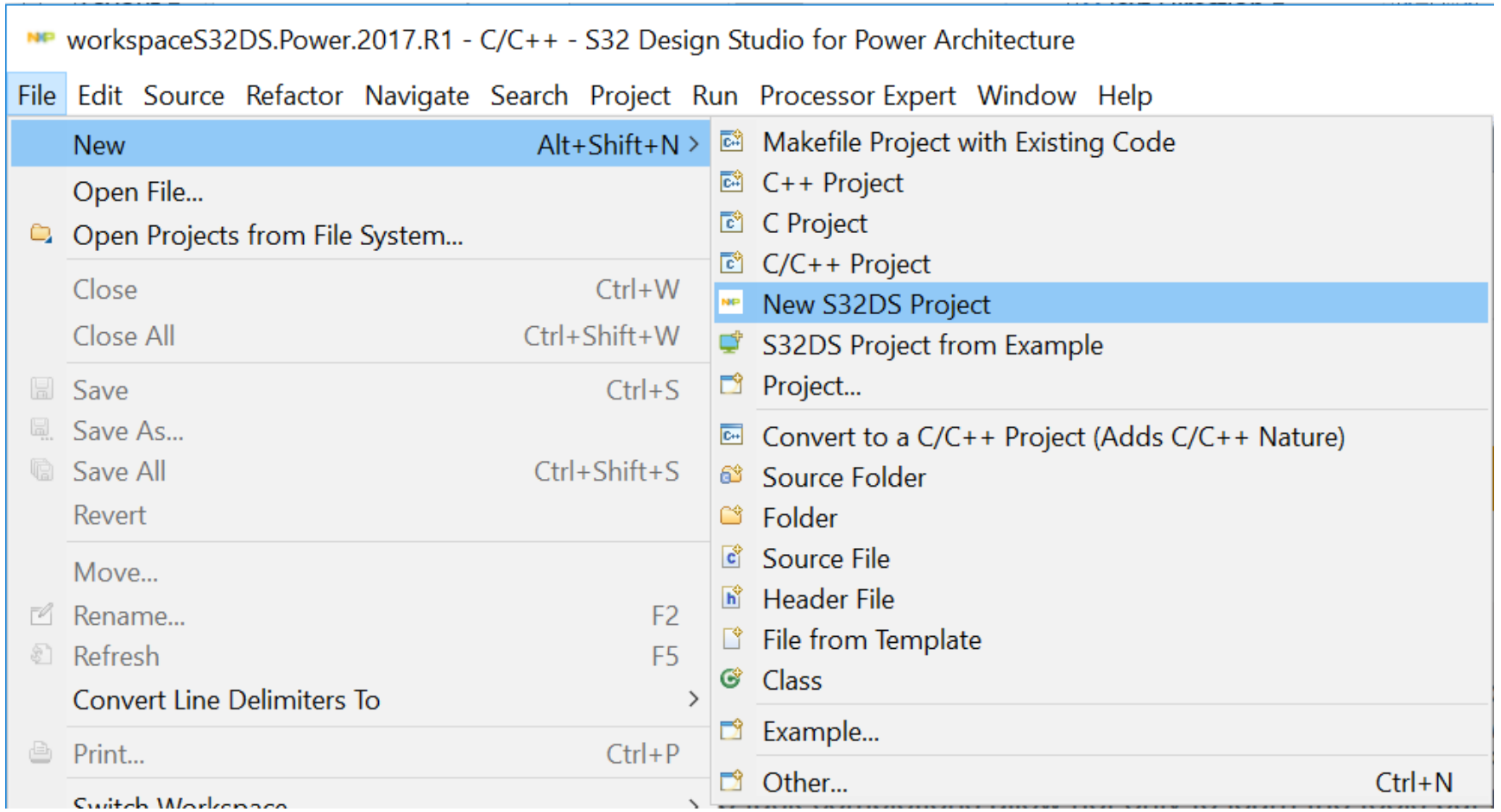
Step-1

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



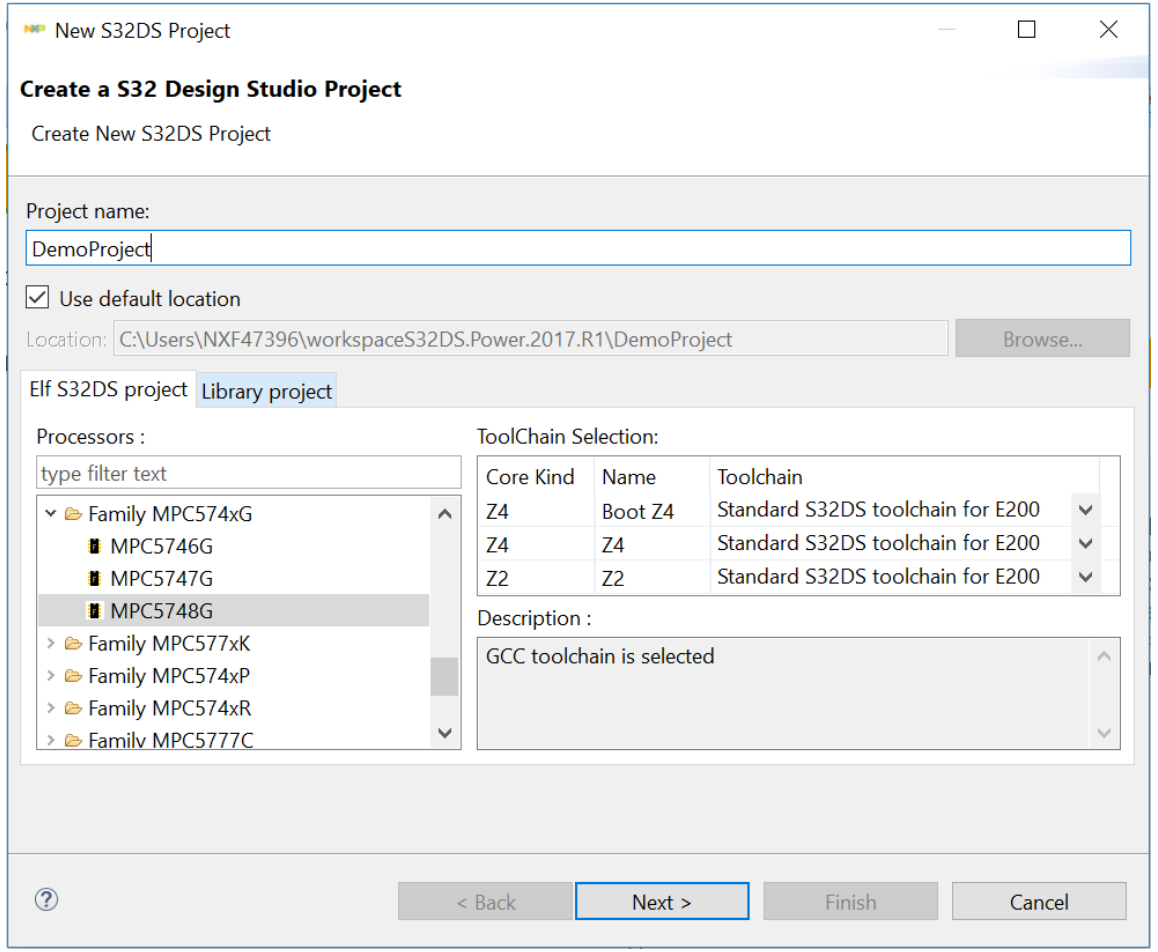
Step-2

- Go to menu bar: File — New — New S32DS Project



Step-3

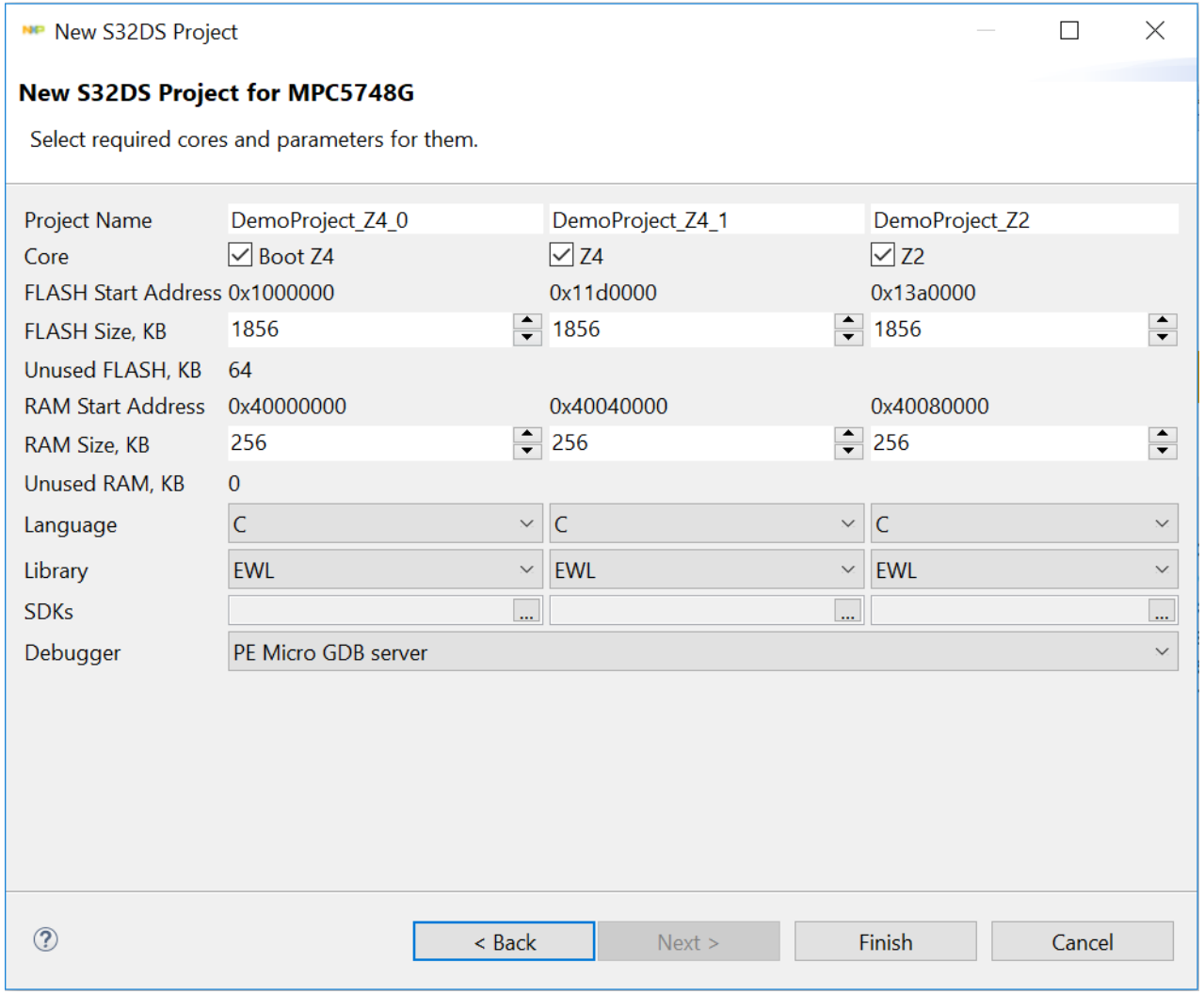
- Input Project Name:
  - Example: DemoProject
- Select Project Type:
  - Recommended: Use Elf S32DS Project
- Select Controller:
  - Example: MPC5748G
- Click Next



Step-4

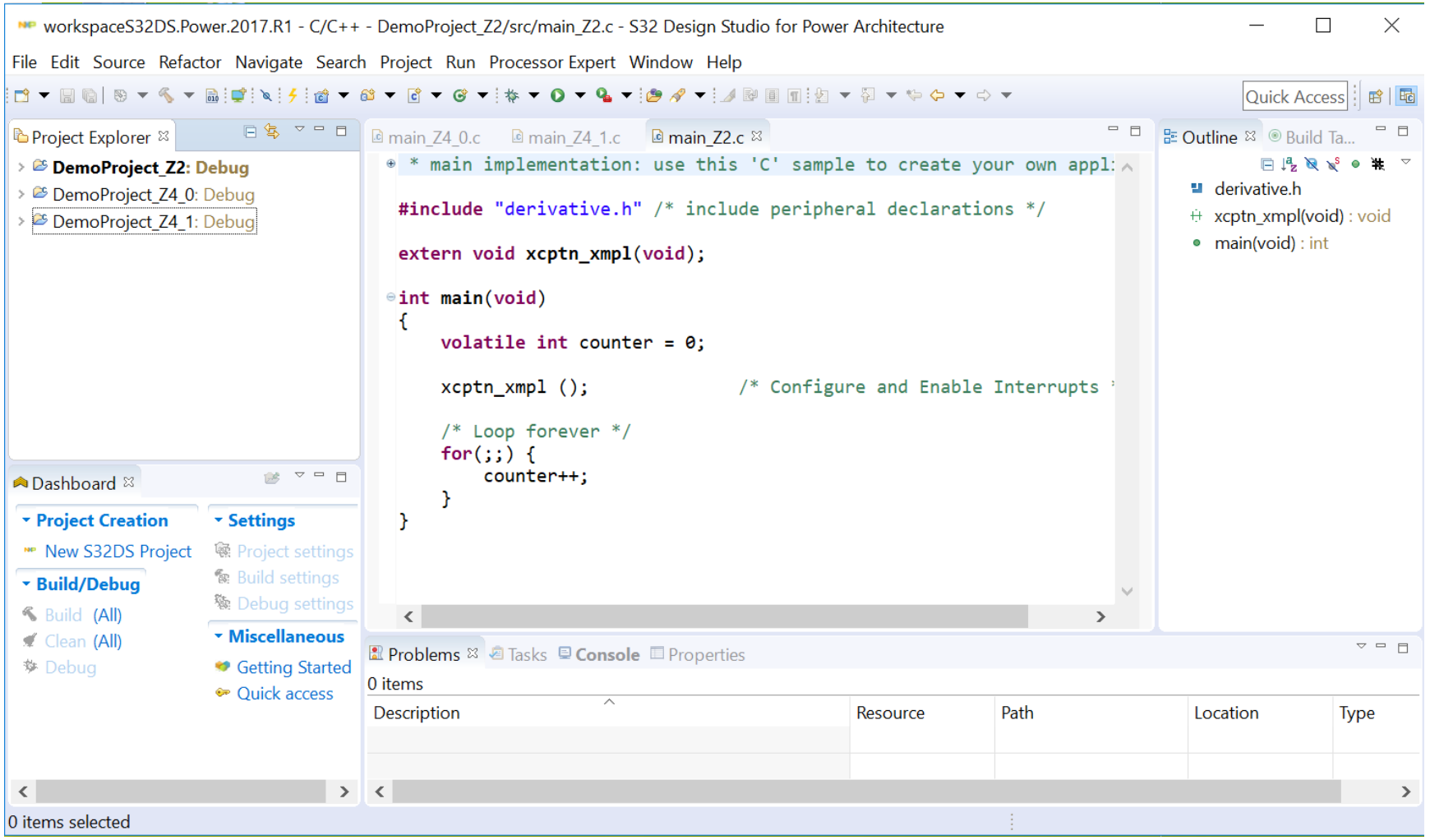
- Select Cores
- Select Flash and RAM size
- Select Programming Lanuage
- Select the Library
- Select the Debugger
- Click Finish

Recommended: use Default settings (for beginners)



Step-5

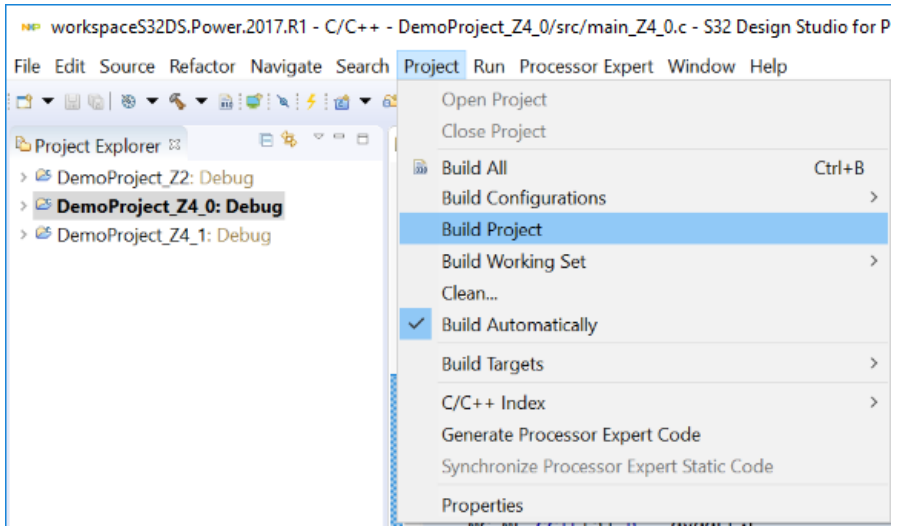
- 3 Projects will be created for 3 different cores of MPC5748G



BUILD AND DEBUG PROJECTS

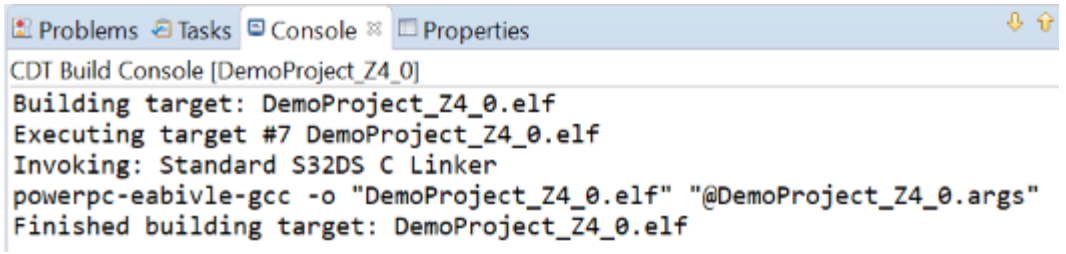
Build a Project

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



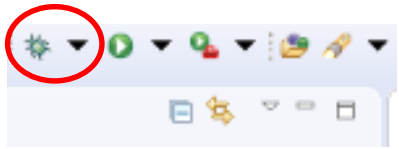
  2.  Click on hammer symbol to build that project

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

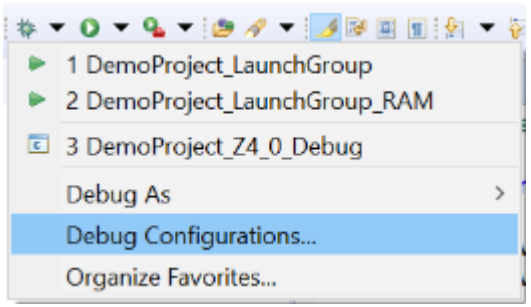


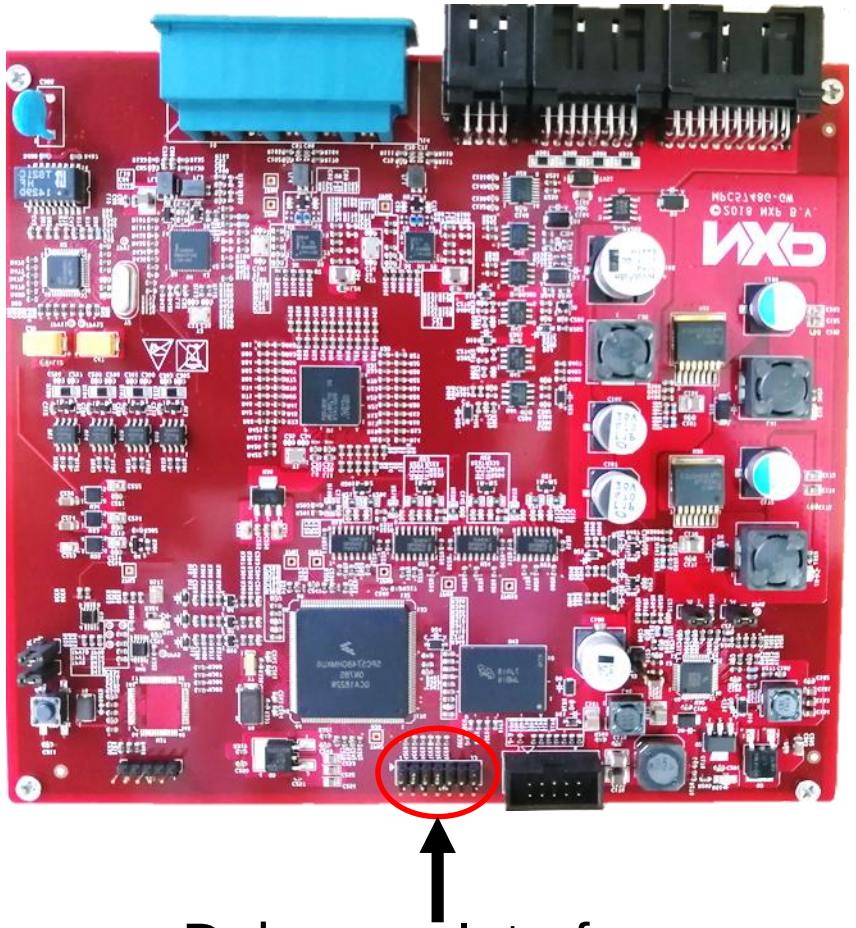
Debug a Project

- Connect a PE Micro debugger to both, the board and the PC
- Click on arrow in the  icon



- Then Open Debug Configuations





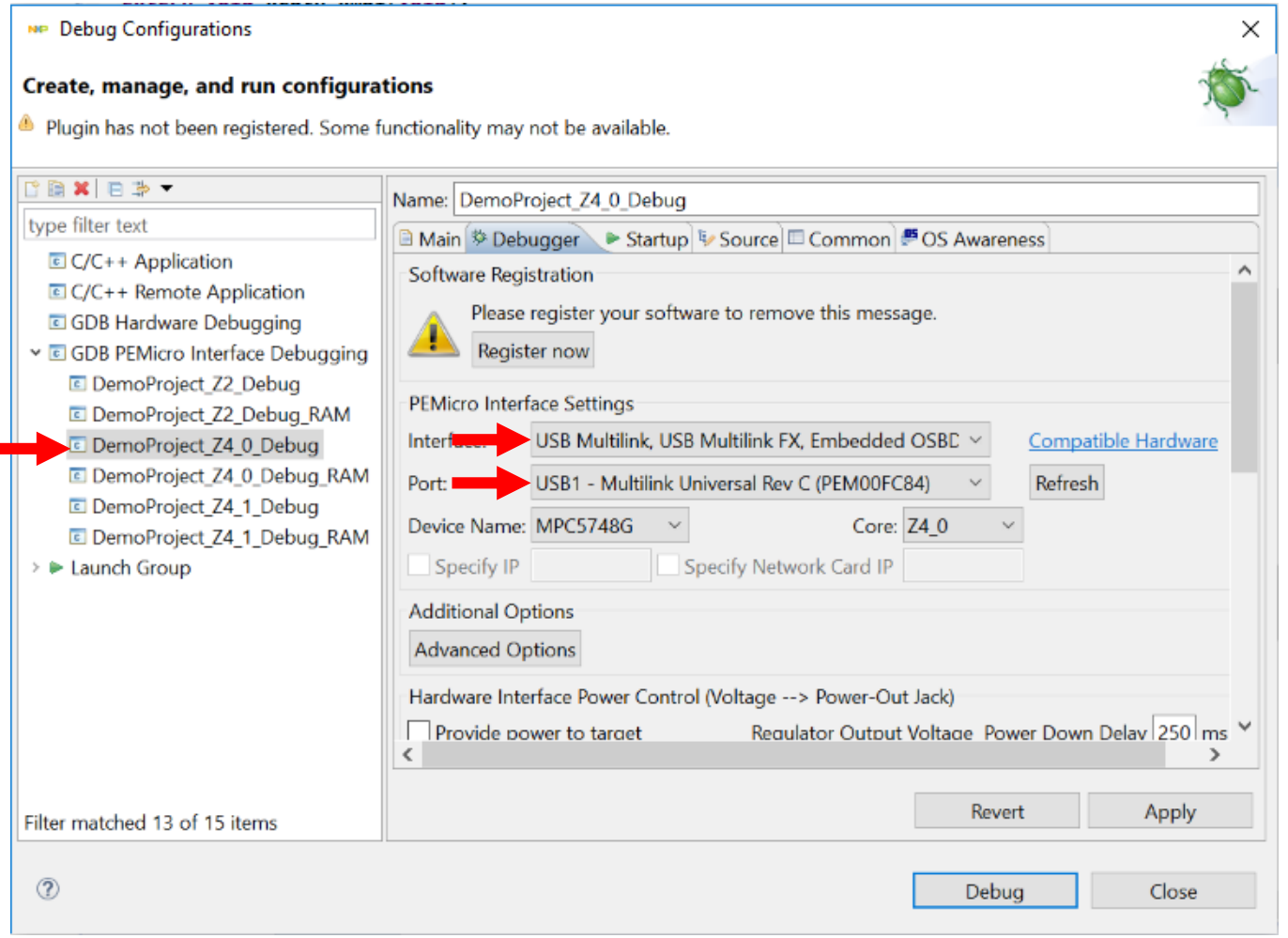
Debug a Project

- Select Project
  - Example:

    DemoProject_Z4_0_Debug
- Select Interface:

  USB Multilink, USB Multilink FX…
- Select Port:

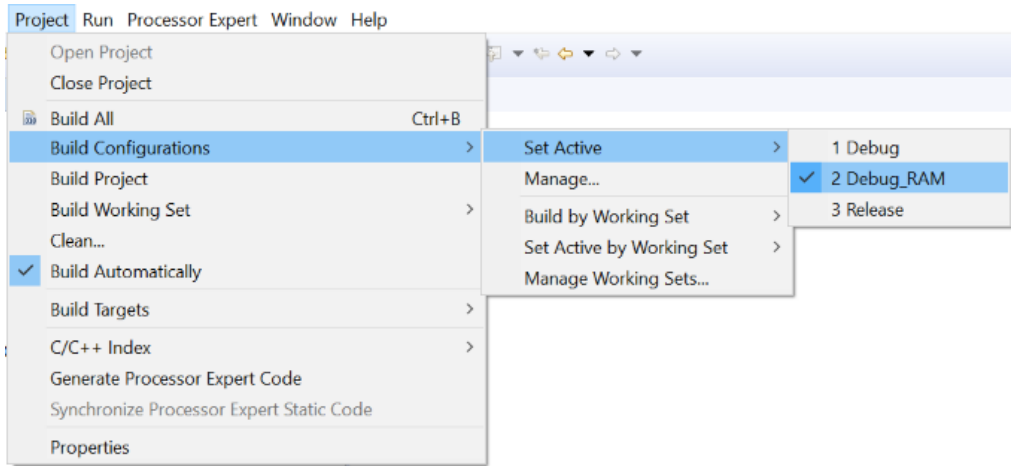
  USB1-Multilink Universal Rev C…
- Click on Debug to start debugging



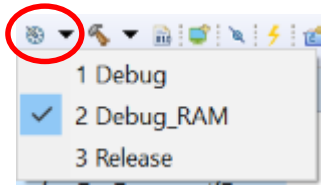
Debug a Project from RAM

- Step1: Configure a project to debug from RAM, follow one of the methods:

1. Project — Build Configurations — Set Active — Debug_RAM



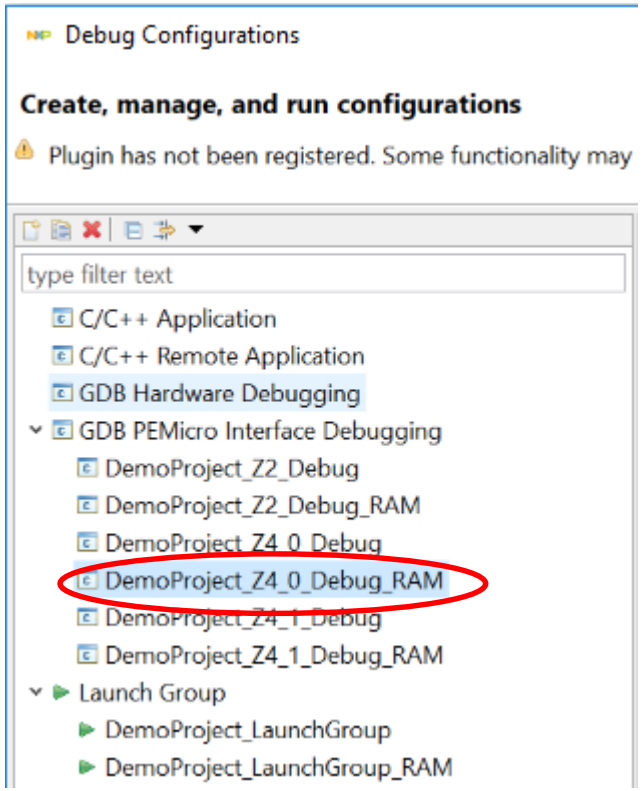
2. Select Debug_RAM by clicking Down Arrow of  icon



- Step2: Follow the steps shown on “Build a Project” Page

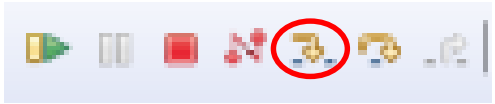
Debug a Project from RAM

- Step3: Follow the steps shown on “Debug a Project” Page, but need to select the RAM related session while debugging



Debug Basics: Step, Run, Suspend, Resume

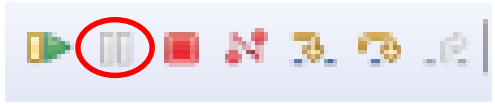
- Step Into (F5)



- Step Over (F6)

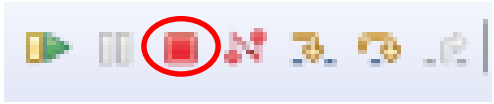
- Run

- Suspend



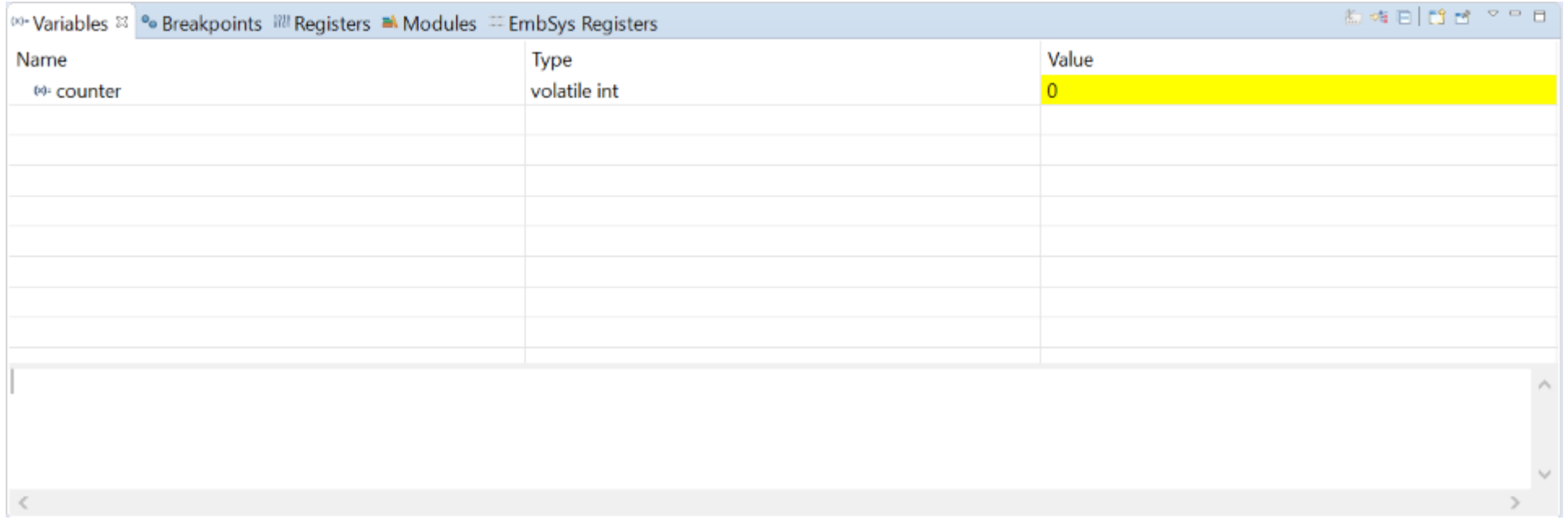
- Resume (F8)

- Terminate (Cltrl+F2)



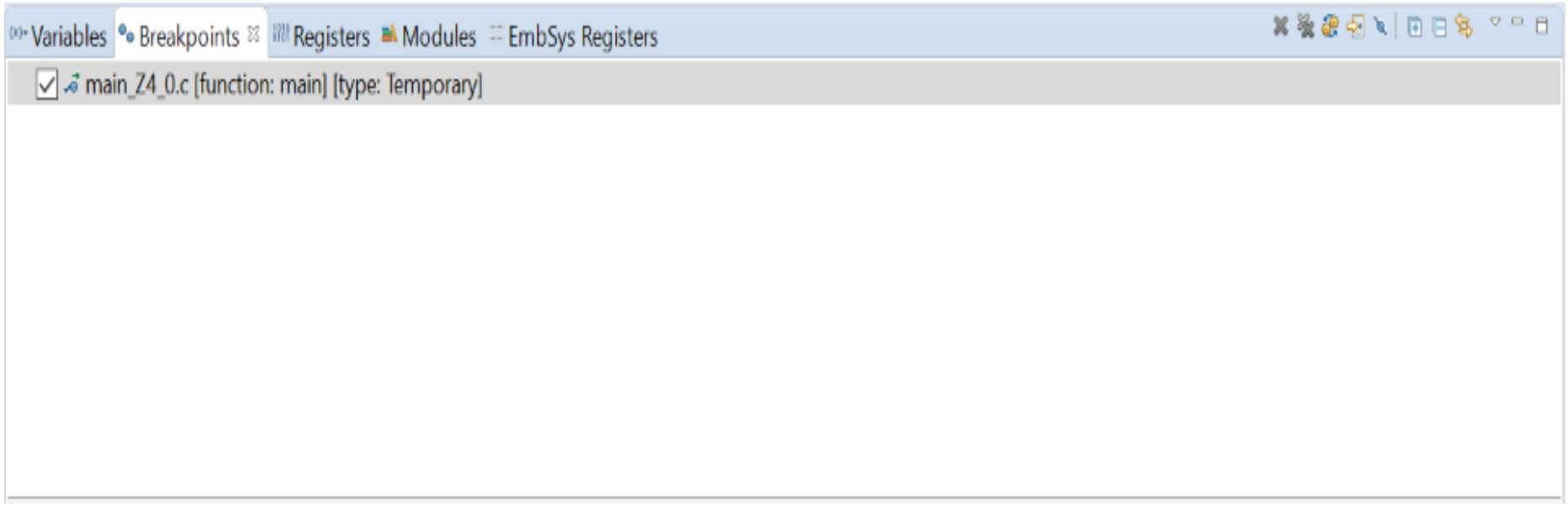
Debug Basics: View & Alter Variables

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



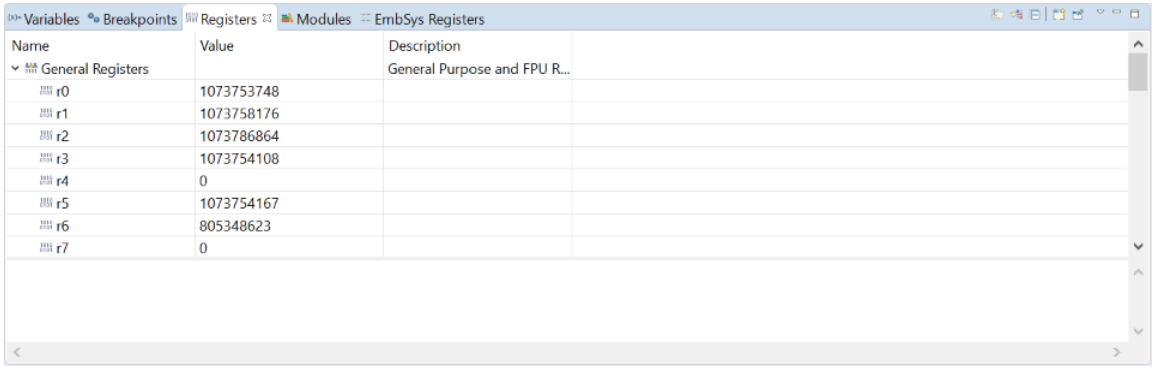
Debug Basics: Disable or Enable Breakpoints(Temporarily)

- When uncheck the breakpoint, it will be temporarily disabled.

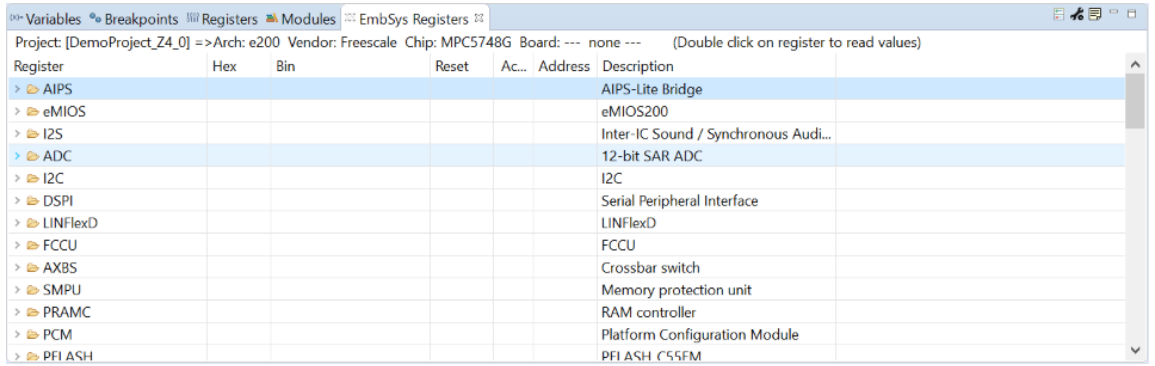


Debug Basics: View & Alter Registers

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

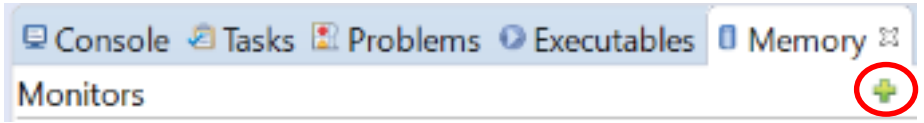


- View peripheral registers in the “EmbSys Registers” tab

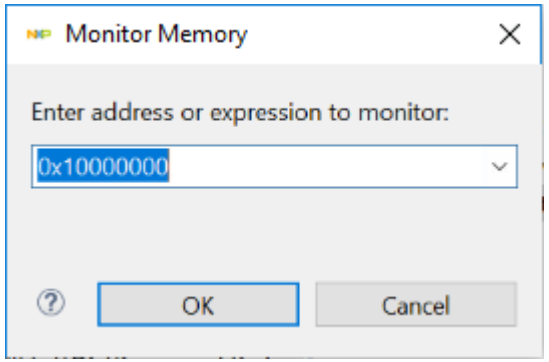


Debug Basics: View Memory

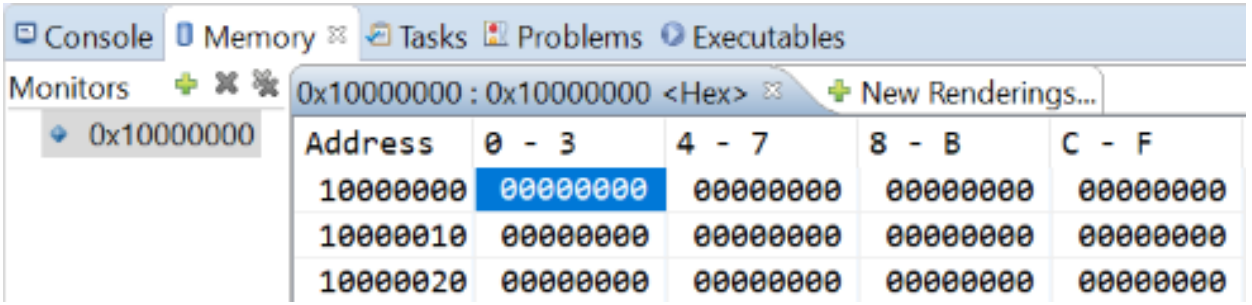
- Add Memory Monitor
  - Click on + icon



- Enter address to monitor
  - Example: 0x10000000

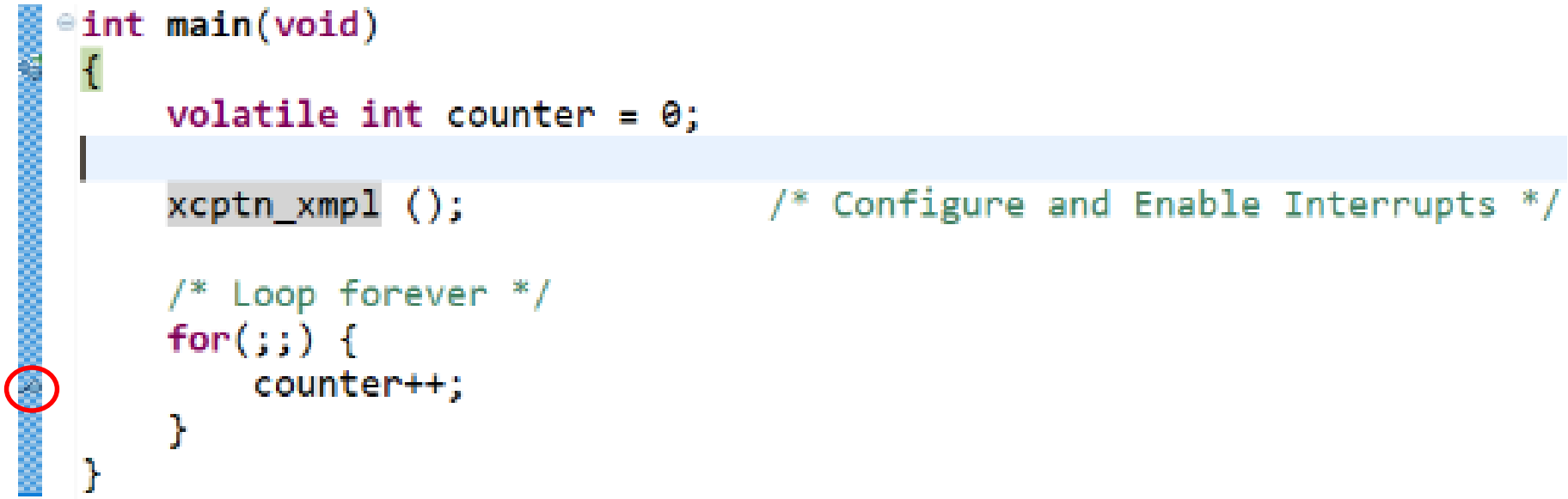


- View Memory



Debug Basics: Breakpoint

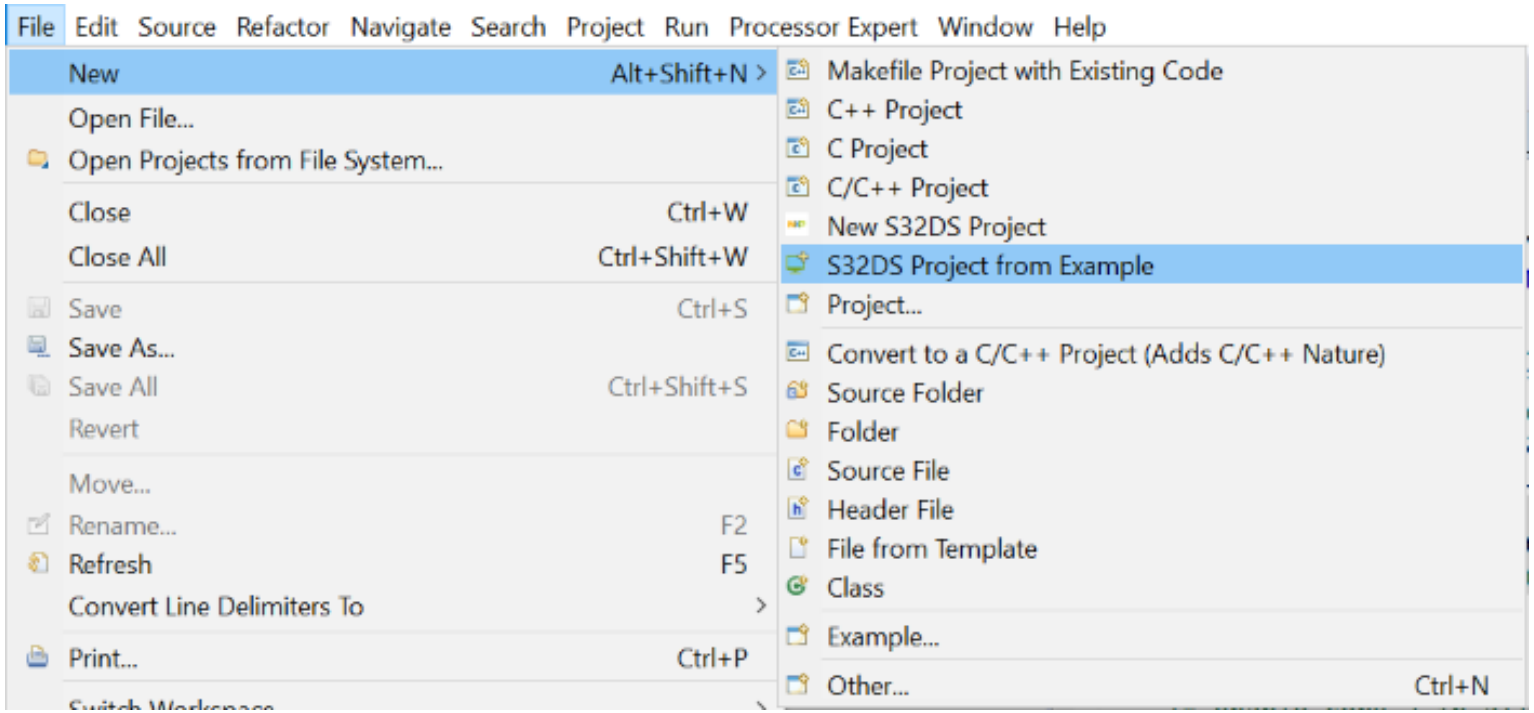
- Add Breakpoint: Point mouse pointer at circled area and Double Click there
  - Light blue dot will pop up that represents debugger breakpoint



MAKING PROJECTS FROM BUILT-IN EXAMPLE

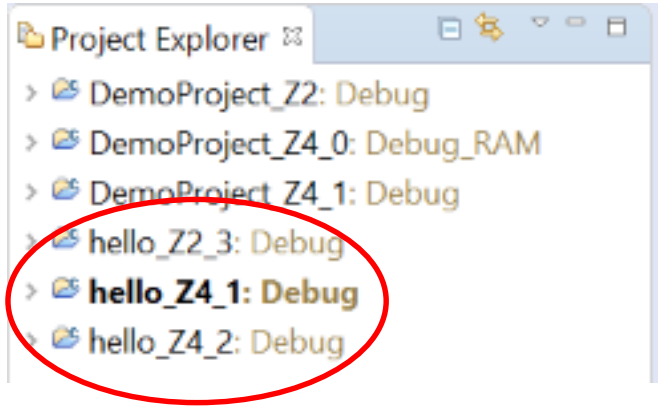
Step-1

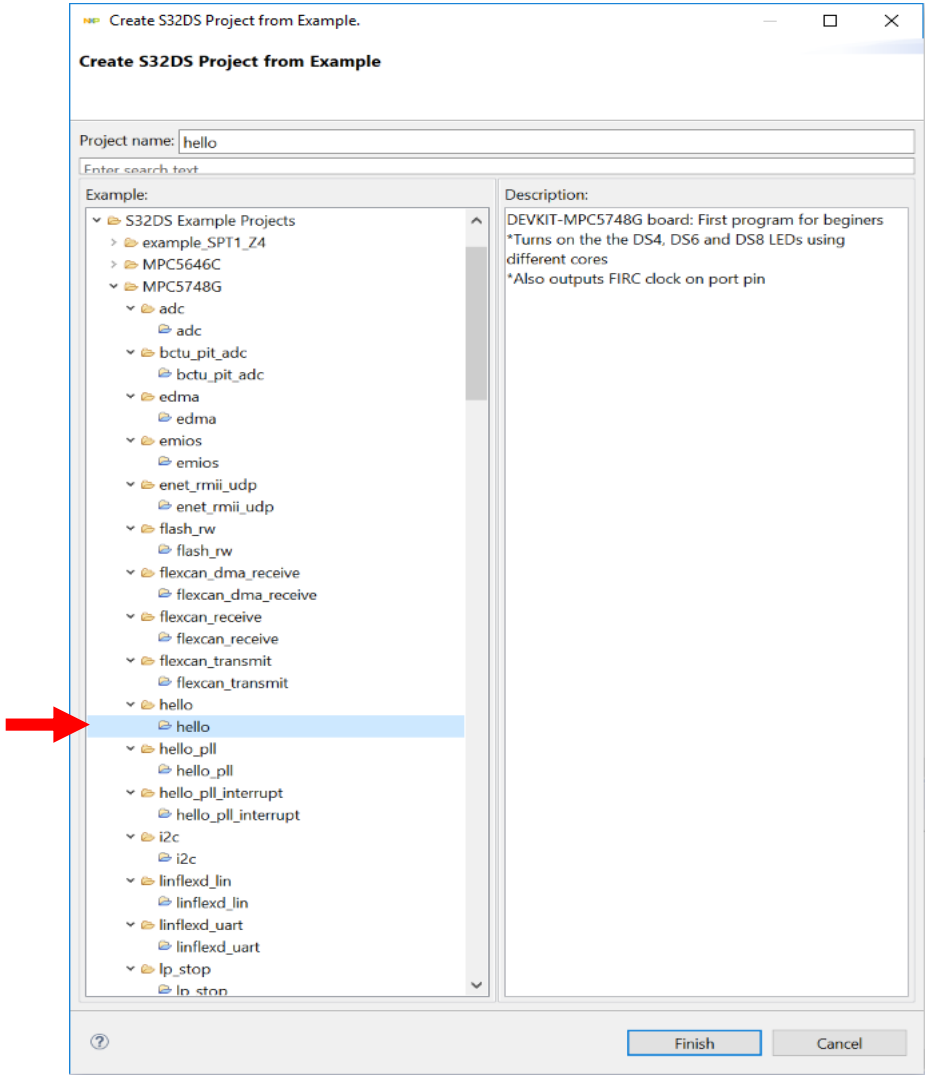
- Go to menu bar: File — New — S32DS Project from Example



Step-2

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

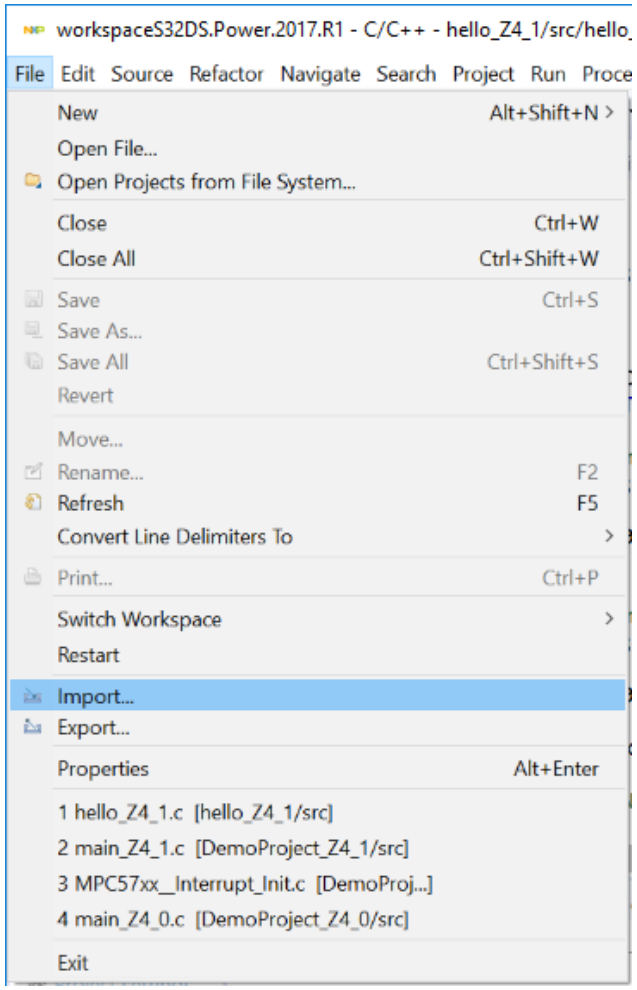




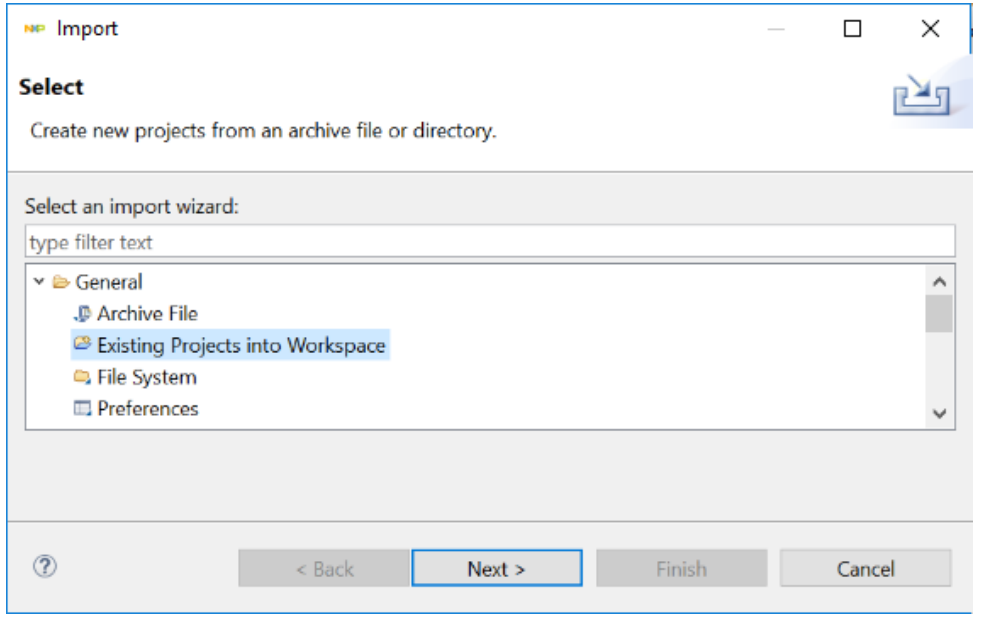
IMPORTING PROJECTS

Step-1

- Go to menu bar: File — Import

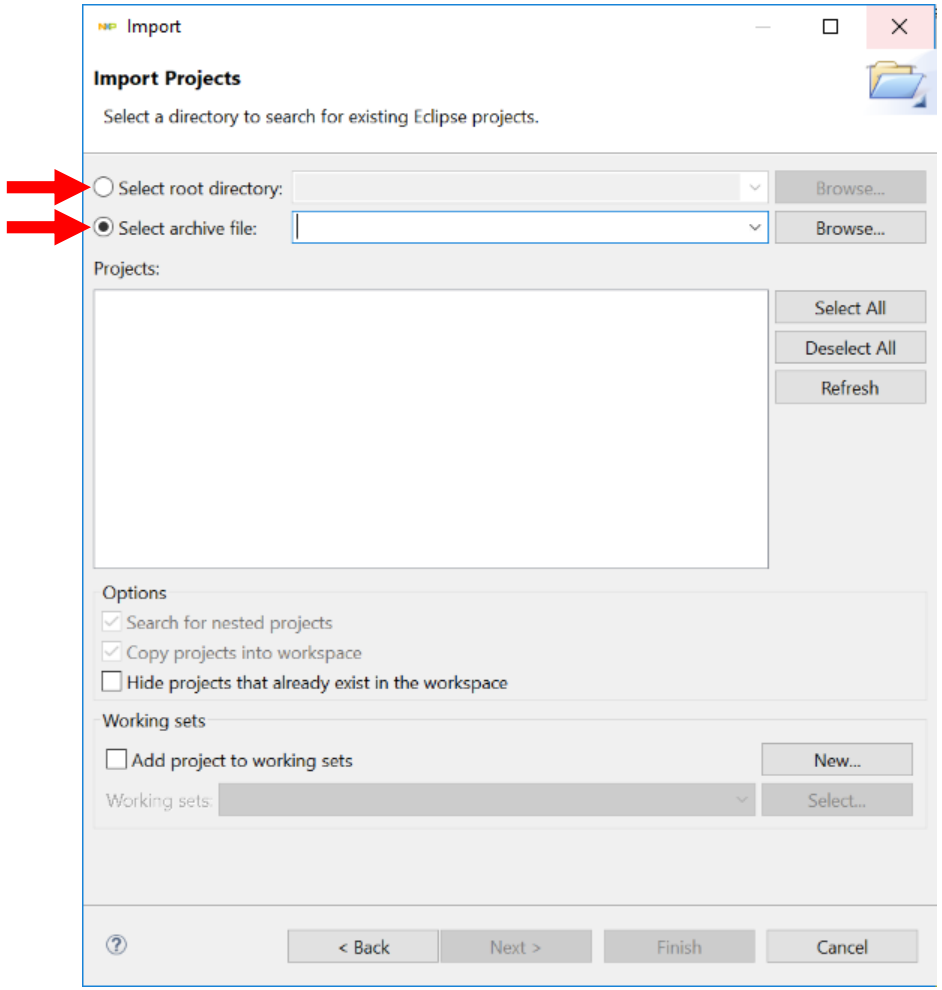


- Click on: “Existing Projects into Workspace” — Click “Next”



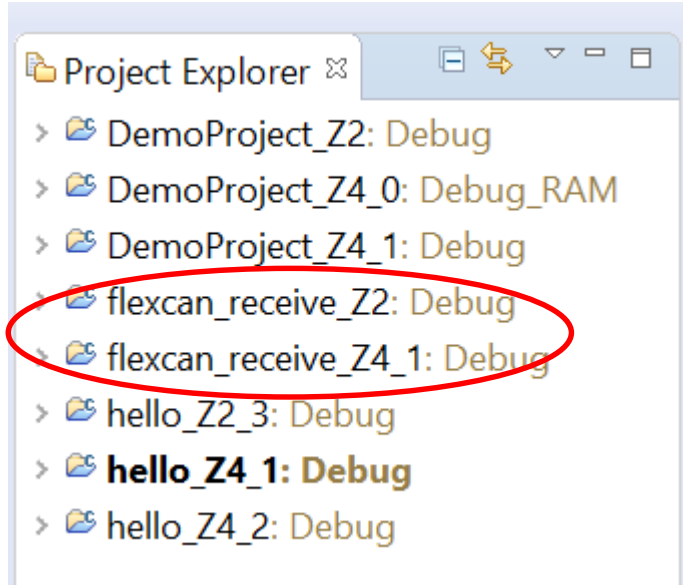
Step-2

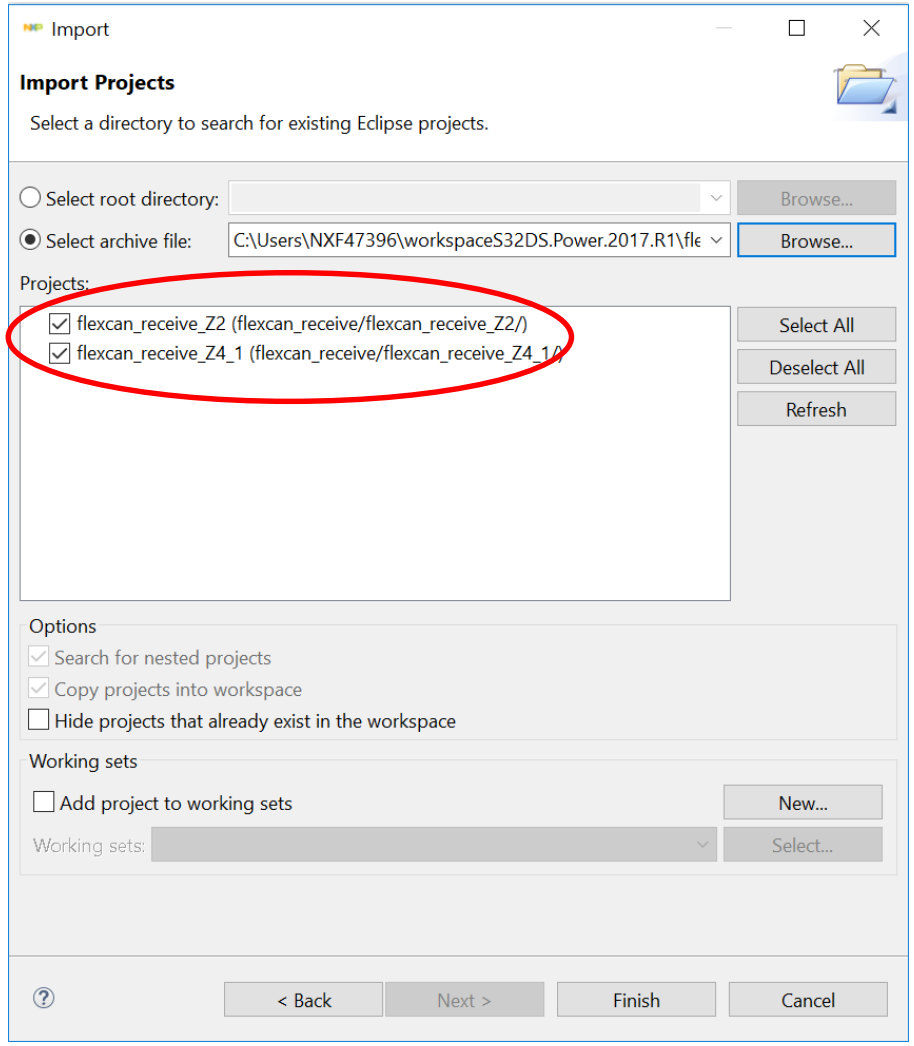
- Click on: Browse & Select Example Folder



Step-3

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





SECURE CONNECTIONS
FOR A SMARTER WORLD