



# CodeWarrior Development Studio for StarCore DSP SC3900FP Architectures Quick Start for the Windows® Edition

## SYSTEM REQUIREMENTS

<b>Hardware</b>	Intel® Pentium® 4 processor, 2 GHz or faster, Intel Xeon™, Intel Core™, AMD Athlon™ 64, AMD Opteron™, or later 2 GB RAM CD-ROM drive for CD installation Microsoft Mouse compliant pointing device Internet connectivity for web downloads and update access
<b>Operating System</b>	Microsoft® Windows 7 (32/64-bit) Home Premium, Professional, Ultimate Operating System or Windows Server 2012 R2
<b>Disk Space</b>	2 GB, additional space required during installation

This Quick Start explains how to install the CodeWarrior software on a Windows PC. Also, the document explains how to use this software to create, build, and debug a simple StarCore DSP project.

---

**NOTE** In the procedures that follow, advanced users can use numbered steps. Novices may use the more detailed instructions provided by substeps.

---

---

**NOTE CodeWarrior Eclipse usage on a Microsoft® Windows system:**

Administrator rights are required to install CodeWarrior software on Microsoft Windows 7 systems, since the installer copies files into the `System` folder.

The default CodeWarrior installation folder is `C:\Freescale\CW_SC_3900FP_v10.x.x`. To protect against malware, Windows 7 do not allow normal processes to change files in the `Program Files` folder; therefore, you must have administrator rights to install and run CodeWarrior software from this location. If you will be running CodeWarrior software with a non-administrative user account, then you need to install CodeWarrior software in another folder (e.g., `C:\Users\Freescale`).

In addition, your project workspace must be created in a folder to which you have full access rights.

---

**1. Install the CodeWarrior software**

---

**NOTE** If you are installing from a CD, insert the **Development Studio for StarCore** CD into the CD-ROM drive — auto install begins, proceed directly to substep b.

- a. Run the installer — the install wizard appears.
- b. Follow the wizard's on-screen instructions to install the CodeWarrior software.

When installation completes, the **InstallShield Wizard Completed** page appears.

- c. Check the **Display Documentation** box.
- d. Click **Finish**.

The wizard closes.

A browser starts and displays the **Documentation** page. This page contains tabs that group the CodeWarrior documentation into categories.

**Quick Links**

- What's New in Documentation
- Product Release Notes
- Web Link to Application Notes
- Web Link to Technical Support

**Thank you for installing CodeWarrior Development Studio!**

By selecting Documentation as one of the components during installation, you now have access from this page to all PDFs available in this version of CodeWarrior Development Studio.

**Getting Started Guides**

[CodeWarrior for StarCore DSPs - Getting Started](#)  
 Explains how to install CodeWarrior Development Studio, configure target hardware, and work with StarCore projects.

[Using the Ethernet TAP Probe - Quick Start](#)  
 Explains how to set up the Ethernet TAP probe and create, build, and debug a simple StarCore project that uses this device.

[... see all getting started guides >](#)

**Comprehensive User Guides**

[Targeting StarCore DSPs](#) **UPDATED**  
 Explains how to use the CodeWarrior IDE to develop software that targets the StarCore DSP architecture. Includes examples and a debugging tutorial.

[StarCore C/C++ Compiler User Guide](#)  
 Explains how to use the StarCore C/C++ compiler to develop software for the StarCore architecture.

[StarCore SC3000 Linker User Guide](#)  
 Explains how to use the new, SC3000 StarCore linker to develop software that targets the StarCore architecture.

[StarCore Simulator User Guide](#)  
 Explains how to use runsim and the StarCore simulators, also explains how to use runsim to profile code and perform speed and size tradeoff analyses.

[... see all comprehensive user guides >](#)

**Cheat Sheets [can run only within CodeWarrior IDE]**

[Making C/C++ the IDE's Default Perspective](#) **NEW**  
 Shows you how to make the C/C++ perspective the CodeWarrior IDE's default perspective. The default perspective is the one the IDE displays each time it starts.

[Target Management via RSE](#)  
 Shows you how to perform target management via remote system explorer. It provides data models and frameworks to configure and manage

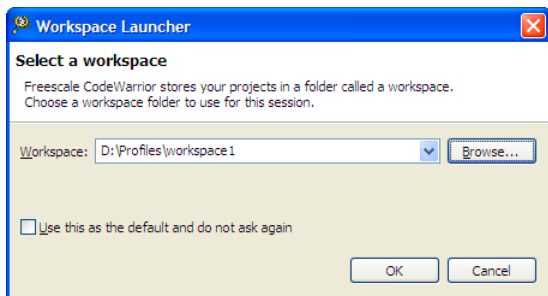
2. Browse the CodeWarrior documentation.
  - a. Click any tab in the **Documentation** page.  
 A page appears that lists and briefly describes each document in the chosen category.
  - b. To read a document listed in the selected page, click the document's link.
  - c. When finished, exit the browser.  
 You have successfully installed CodeWarrior Development Studio for StarCore DSPs.

**NOTE** For licensing and activation of your CodeWarrior Development Studio for Freescale StarCore DSP Architectures, refer to the *CodeWarrior Development Suite Quick Start*. Save the license file, license.dat to the installation root folder, the default is *CWInstallDir\SC*, where *CWInstallDir* is the path to your CodeWarrior installation.

1. Launch the CodeWarrior IDE
  - a. Select **Start > Programs > Freescale CodeWarrior > CW for StarCore < number> > CodeWarrior**, where *number* is the version number of your product.

The **Workspace Launcher** dialog box appears.

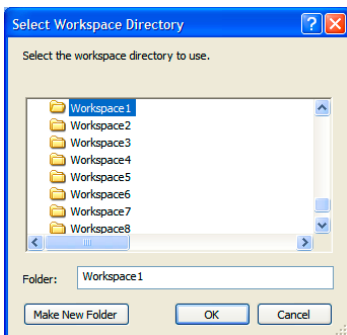
### Workspace Launcher Dialog Box



- b. If you wish to change the location of your project's Workspace, click **Browse** to select a new path.

The **Select Workspace Directory** dialog box appears.

### Select Workspace Directory Dialog Box



- c. Select the required folder or click **Make New Folder** to create a new folder for storing your projects.
  - d. Click **OK**.

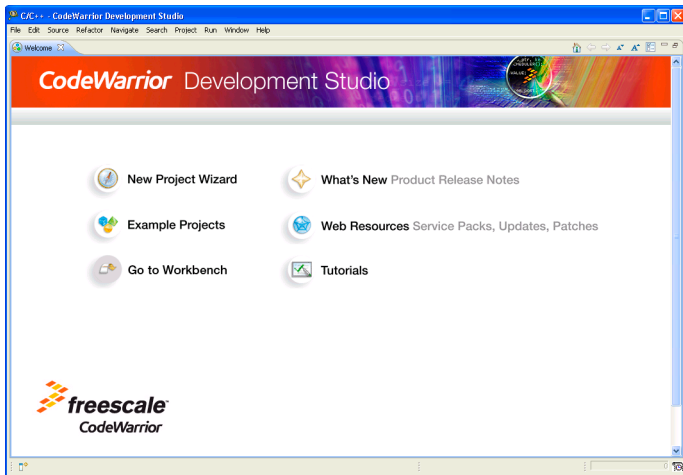
The **Select Workspace Directory** dialog box closes.



OK to store the project at the specified location.

CodeWarrior launches and displays the **Welcome** page.

## Welcome Page



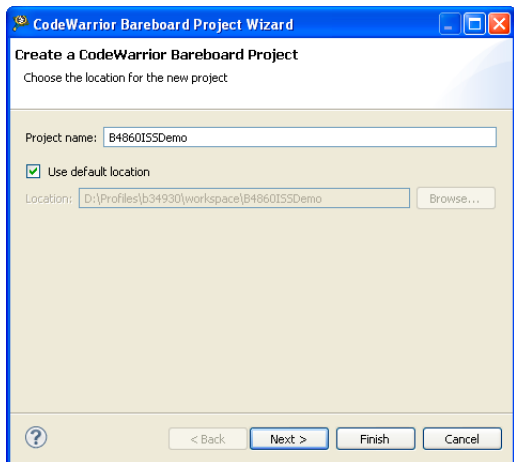
---

**NOTE** The **Welcome** page is displayed when CodeWarrior is run for the first time. You can always return to this page by selecting **Help > Welcome** from the CodeWarrior IDE menu bar.

---

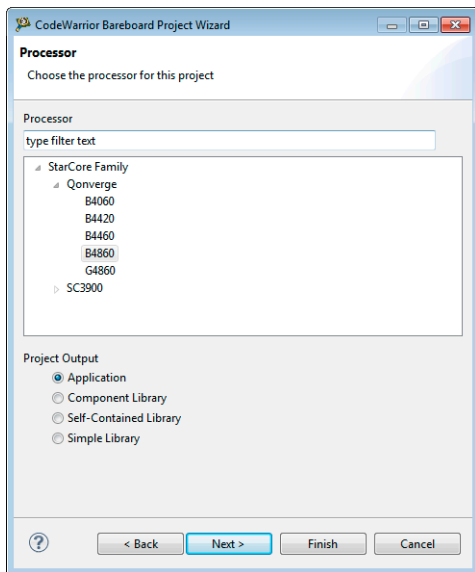
2. Create a new project
  - a. From CodeWarrior IDE menu bar, select **File > New > CodeWarrior Bareboard Project Wizard**.  
The **CodeWarrior Bareboard Project Wizard** dialog box appears.
  - b. In the **Project name** field, type B4860ISSDemo.

## Create a CodeWarrior Bareboard Project Page



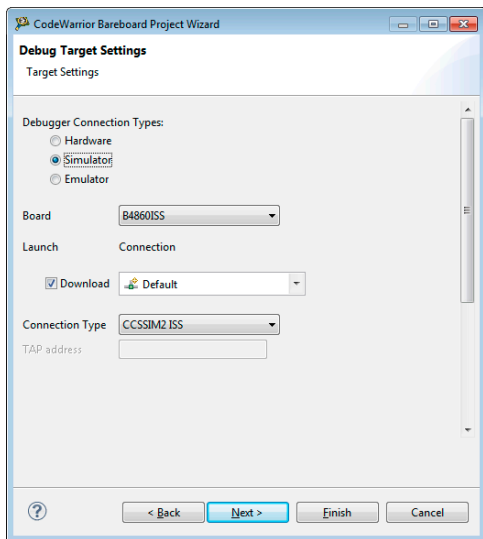
- c. Click **Next**.  
The **Processor** page appears.
- d. Expand the **Qonverge Family** tree control and select **B4860**.
- e. Select the **Application** option from the **Project Output** group.

## Processor Page



- f. Click **Next**.  
The **Debug Target Settings** page appears.
- g. Select the **Simulator** option, from **Debugger Connection Types** group, to include simulator launch configurations in your project.
- h. Select **B4860ISS**, from the **Board** drop-down list.
- i. Select the launch configurations, that you want to include in your project and the corresponding remote system configuration using **Connection** dropdown list.

## Debug Target Settings Page



- j. Click **Next**.  
The **Build Settings** page appears.
- k. Select the programming language for this project.

---

**NOTE** The language option selected on this page also sets up the default compiler/linker options for the toolchain.

---

- l. Select a toolchain from the **Toolchain** group.
- m. Select a **Hardware** or **Software** option from the **Floating Point** dropdown list.
- n. Check the **Fused multiply and accumulate** checkbox to enable fused multiply and add generation option. The option is only applicable if hardware floating point support is enabled on the SC3900FP compiler.

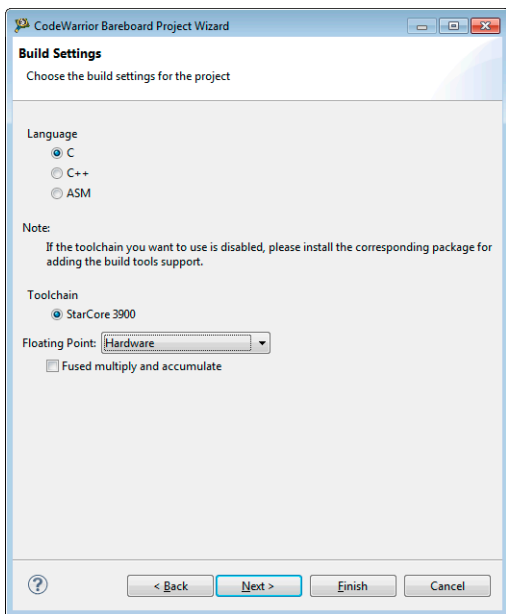
---

**NOTE** For more details about exceptions to hardware and software floating point support, refer the *StarCore C/C++ Compiler User Guide*.

---



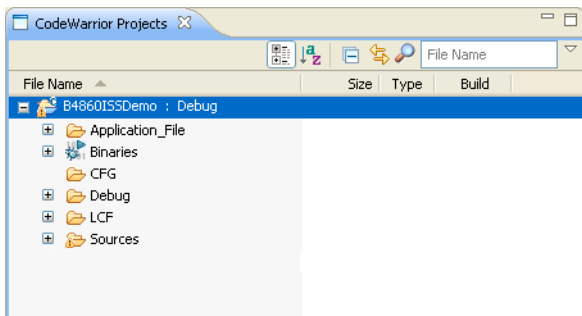
## Build Settings Page



- o. Click **Finish**.

The newly created project appears in the **CodeWarrior Projects** view.

### CodeWarrior Projects View



3. Build the program



at the project in the **CodeWarrior Projects** view.

- b. Select **Project > Build Project** to build the project. Alternatively, right-click on the project in the **CodeWarrior Projects** view and select **Build Project** from the context menu that appears.

The IDE compiles the project's source code files and links resulting object code into an ELF-format executable file.

---

**NOTE** B4860 ISS simulator is supported on both Linux 64-bit and Windows operating system. To debug the project on a Linux PC, you need to launch the simulator remotely. Follow the instructions given in Step 4, to launch the simulator on a Linux PC.

---

#### 4. Launch simulator on a Linux PC

- a. Copy and extract the contents of the `sc_swsim_linux64.tgz` archive to a Linux PC (64-bit).

---

**NOTE** The `sc_swsim_linux64.tgz` archive is available in the `CWInstallDir\SC\bin\linux64` folder, where `CWInstallDir` is the path to your CodeWarrior installation.

---

- b. Navigate to the `sc_swsim_linux64/linux64` folder.
- c. Start `ccssim2` in a terminal window.

```
./ccssim2 -port 41475
```

---

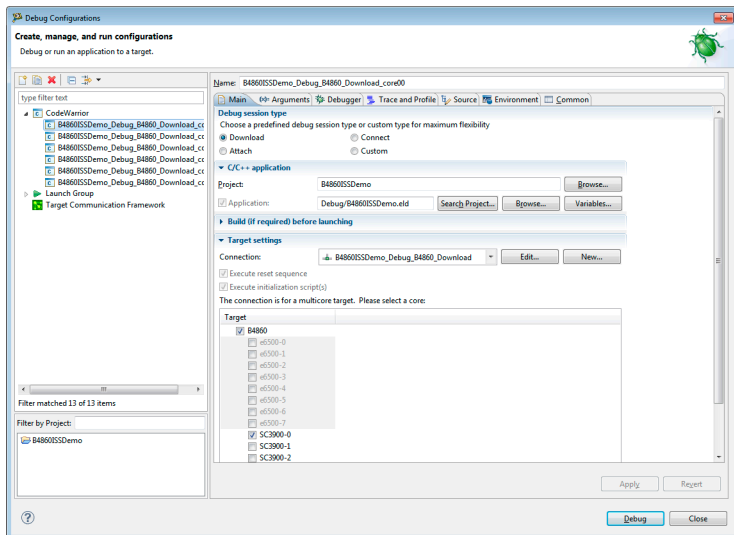
**NOTE** For more information about the optional flags supported by `ccssim2`, refer to the *StarCore Simulator User Guide*.

---

#### 5. Debug the program

- a. From the CodeWarrior IDE menu bar, select **Run > Debug Configurations**.  
The **Debug Configurations** dialog box appears.
- b. From the left pane of this dialog box, expand the **CodeWarrior** group and select **B4860ISSDemo\_Debug\_B4860\_Download\_core00**.  
The **Main** page appears in the right pane.
- c. Select a remote system from the **Connection** dropdown list.

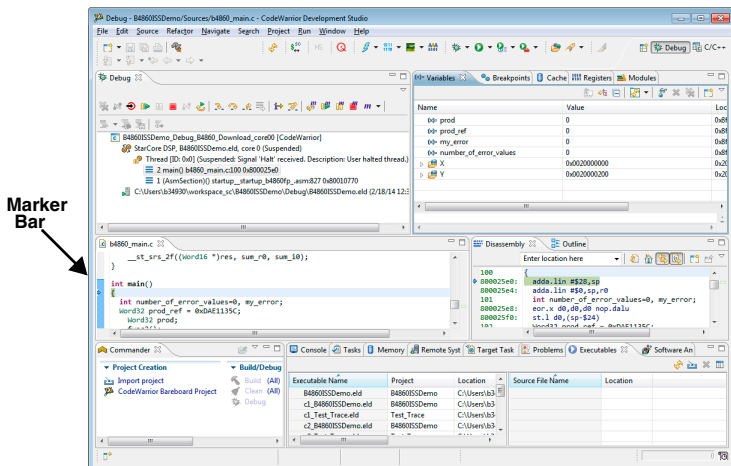
## Debug Configurations Dialog Box




d. Click **Debug**.


The **Debug** perspective appears and the execution halts at the first statement of `main()`.

## Debug Perspective



on the thread in the **Debug** view.

The program counter icon  on the marker bar points to the next statement to be executed.

- f. In the **Debug** view, click **Step Over**  .

The debugger executes the current statement and halts at next statement.

## 6. Set breakpoint and execute program to breakpoint.

- a. In the editor area, scroll to a line of command statement, for example:

```
if (prod!=prod_ref)
```


- b. Double-click on the marker bar next to the statement.

The breakpoint indicator (blue dot) appears next to the statement.

- c. In the **Debug** view, click **Resume** .

The debugger executes all statements up to but not including the breakpoint statement.


## 7. Control program

- a. In the **Debug** view, click **Step Over**  .

The debugger executes the breakpoint statement and halts at the next statement.

- b. In the **Debug** view, click **Resume** .

The program outputs to the **Console** window at the bottom.

- c. In the **Debug** view, click **Terminate** .

The debug session ends.

## 8. Close the Console window

- a. Select **File > Exit**.

The CodeWarrior IDE window closes.

---

# Congratulations!

**You have created, built, and debugged a StarCore DSP Simulator project using CodeWarrior!**

---



Freescale logo, CodeWarrior, PowerQUICC, QorIQ, Qorivva, StarCore are trademarks of Freescale Semiconductor, Inc., Reg. U.S. Pat. & Tm. Off. QorIQ Qonverge, QUICC Engine are trademarks of Freescale Semiconductor, Inc. All other product or service names are the property of their respective owners. The Power Architecture and Power.org word marks and the Power and Power.org logos and related marks are trademarks and service marks licensed by Power.org.

© 2009– 2015 Freescale Semiconductor, Inc. All rights reserved.

Information in this document is provided solely to enable system and software implementers to use Freescale Semiconductor products. There are no express or implied copyright licenses granted hereunder to design or fabricate any integrated circuits or integrated circuits based on the information in this document.

Freescale Semiconductor reserves the right to make changes without further notice to any products herein. Freescale Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Freescale Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters that may be provided in Freescale Semiconductor data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals", must be validated for each customer application by customer's technical experts. Freescale Semiconductor does not convey any license under its patent rights nor the rights of others. Freescale Semiconductor products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Freescale Semiconductor product could create a situation where personal injury or death may occur. Should Buyer purchase or use Freescale Semiconductor products for any such unintended or unauthorized application, Buyer shall indemnify and hold Freescale Semiconductor and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Freescale Semiconductor was negligent regarding the design or manufacture of the part.

## How to Contact Us

<b>Corporate Headquarters</b>	Freescale Semiconductor, Inc. 6501 William Cannon Drive West Austin, Texas 78735 U.S.A.
<b>World Wide Web</b>	<a href="http://www.freescale.com/codewarrior">http://www.freescale.com/codewarrior</a>
<b>Technical Support</b>	<a href="http://www.freescale.com/support">http://www.freescale.com/support</a>