Controller Continuum

CodeWarrior™
Development Studio
for Microcontrollers V6.3

Quick Start
CODEWARRIORM DEVELOPMENT STUDIO
FOR MICROCONTROLLERS V6.X QUICK START

This Quick Start explains how to install the CodeWarrior Development Studio for Microcontrollers V6.x software, and how to use the IDE to create, build, and debug a project.

SECTION A: INSTALLING CODEWARRIOR SOFTWARE

NOTE You must install the CodeWarrior software on the equipment on which you intend to use the software.

1. Insert CodeWarrior Development Studio CD into CD-ROM drive — CW Auto Install begins

NOTE If Auto Install does not start, run launch.exe, which is located in the root directory of the CD.

The CodeWarrior software may be part of a DVD included with your kit. In this case, click Install CodeWarrior Development Studio for Microcontrollers, follow the on-screen instructions, and skip to step "Check for updates".

SYSTEM REQUIREMENTS

<table>
<thead>
<tr>
<th>Hardware</th>
<th>PC with 1 GHz Intel® Pentium® compatible processor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>512 MB of RAM (1 GB recommended)</td>
</tr>
<tr>
<td></td>
<td>CD-ROM drive</td>
</tr>
<tr>
<td></td>
<td>Depending on host-target connection: Parallel Port, 9-pin Serial Port, or USB Port</td>
</tr>
<tr>
<td>Operating System</td>
<td>Microsoft® Windows® XP or</td>
</tr>
<tr>
<td></td>
<td>Microsoft Windows Vista® Operating Systems</td>
</tr>
<tr>
<td>Disk Space</td>
<td>2 GB total</td>
</tr>
<tr>
<td></td>
<td>400MB on Windows system disk</td>
</tr>
</tbody>
</table>
2. Follow setup program's on-screen instructions

**NOTE** **Special Edition:** The Special Edition license is automatically installed with your product and you do not need to register it. This license allows you to develop projects with unlimited assembly code, up to 32KB of C code for HC(S)08/RS08 derivatives and up to 64KB of C code for ColdFire V1 derivatives.

**NOTE** **Evaluation Edition:** The Evaluation license is automatically installed with your product and you do not need to register it. This license allows you to develop projects as Professional Edition within the 30-day evaluation period. After 30 days, the license works as Special Edition license (free permanent, but feature limited) which supports unlimited assembly code, up to 32KB of C code for HC(S)08/RS08 derivatives and up to 64KB of C code for ColdFire V1 derivatives.

**Section B: Creating and Building a Project**

1. Create a project
   a. Select **Start > Programs > Freescale CodeWarrior > CW for Microcontrollers V6.x > CodeWarrior IDE** — IDE starts and displays startup dialog box.

   **Startup Dialog Box**

   ![Startup Dialog Box](image)
b. Select Create New Project — the Microcontrollers New Project Device and Connection dialog box appears.

**NOTE** This section of the quick start demonstrates using the New Project Wizard. We use an **MC68HC908GZ60** target as an example.

c. Expand **HC08** and **GZ Family** and select **MC68HC908GZ60** derivative.

**NOTE** If your MCU is missing from the list, download a service pack for that device at [http://www.freescale.com/codewarrior/downloads](http://www.freescale.com/codewarrior/downloads).

**Device and Connection Dialog Box**

```

```

d. Select **Full Chip Simulation** as your default connection.

e. Click Next — the Project Parameters dialog box appears.

**Project Parameters Dialog Box**

```

```
f. In Project name text box, the IDE supplies a default project name. Enter a project name of your choice.

**NOTE**  The IDE automatically creates a folder with the same name in specified location. The IDE automatically adds .mcp extension when it creates project.


g. In Location text box enter location to store project, click Set to browse to folder location

h. Select C as language to be supported by project.

**NOTE**  You can click Finish to accept defaults for remaining options.

i. Click Next — the Add Additional Files dialog box appears.
This dialog box lets you browse folders and add or remove files to or from the project.

**Add Additional Files Dialog Box**

![Add Additional Files Dialog Box](image)

j. Click Next — the Processor Expert dialog box appears.
This dialog box let you specify whether you want your project configured to use Device Initialization or Processor Expert.
k. Select the None option button.
l. Click Next — the C/C++ Options dialog box appears. This dialog box allows you to specify C/C++ Options.

C/C++ Options Dialog Box

m. Select ANSI startup code as code, the New Project Wizard will place in your project as startup code.
n. Select Small as memory model to use.
o. Select None for floating point format to support.
p. Click Finish — the IDE creates your project according to your specifications; Project window appears, docked at left side of main window.
2. Select connection
   
   For this example, we specified Full Chip Simulation (FCS).
   
   a. To change MCU and connection, select Project > Change MCU Connection.
   
   b. Make sure Full Chip Simulation is selected in drop-down list.

3. Edit source code
   
   a. Double click main.c in Sources folder — the Editor window opens displaying contents of file.

   main.c in Editor Window
   
   ```c
   #include <stdio.h> /* for printf() function */
   #include "derivative.h" /* include peripheral declarations */

   void main(void) {
     __attribute__((interrupt))
     ISR(void)
     {
       // include your code here
     }

     for (;;) {
       printf("%s, %d", __FUNCTION__, 1); /* display program */
       printf("%s, %d", __FUNCTION__, 2); /* display function */
       printf("%s, %d", __FUNCTION__, 3); /* display variable */
       printf("%s, %d", __FUNCTION__, 4); /* display constant */
       printf("%s, %d", __FUNCTION__, 5); /* display expression */
     }
   }
   ```
b. Make changes to contents of `main.c` file, if desired.
c. From the IDE main menu bar, select File > Save — the IDE saves changes.

4. Add files if appropriate
   a. In the project window, select a folder.
   b. From IDE main menu bar, select Project > Add Files. The Select files to add dialog box appears.
   c. Navigate to the directory that contains file you want to add.
   d. Select the filename of file you want to add to project.
   e. Click Open — the Project Messages window appear indicating access path has been added to target, if the path is new to the project.
   f. In the project window, filename of the added file appears under the selected folder.

5. Build project
   a. From IDE main menu bar, select Project > Make — the IDE builds (assembles, compiles, and links) project; Error & Warnings window opens showing any error messages and warning messages

Section C: Debugging Your Application

1. Start debugger
   a. Click on project window title bar to ensures that window is active project
   b. From main menu bar, select Project > Make.
   c. From main menu bar, select Project > Debug — the True-Time Simulator & Real-Time Debugger window opens.
**True-Time Simulator & Real-Time Debugger Window**

### NOTE
The Source and Assembly panes display the main.c program and code.

2. Set breakpoint
   a. Point at a C statement in **Source** window and right-click — the **Source** context menu appears.
   b. Select **Set Breakpoint** — a permanent breakpoint mark is set.

3. Run application
   a. From the **True-Time Simulator & Real-Time Debugger** window, select **Run** — the **Run** menu appears.
   b. Select **Start/Continue** or click on **Start/Continue** icon — the Program executes till the first breakpoint; **Command** pane displays program status
4. Click the Start/Continue icon — the simulator resumes program execution.

5. Click the Halt icon — the Simulator stops program execution.

6. From the True-Time Simulator & Real-Time Debugger window toolbar, select File > Exit to exit the debugger.

7. From IDE main Window toolbar, select File > Exit to exit the CodeWarrior IDE.

Congratulations!
You have successfully created, built, and run an HC08 application with the CodeWarrior for Microcontrollers V6.x software!