CodeWarrior Build Tools Options for Optimal Performance on HC12/HCS12/HCS12X/HCS12XE Cores

1 Introduction

This document describes two sets of options in the CodeWarrior tools to produce optimal code generation for the HC12/HCS12/HCS12X/HCS12XE cores. One set optimizes the speed of the code; another set optimizes the size of the code.

You can use the build tools options described in this document for optimal performance, but the build tools settings must be set in accordance to the application being developed.

For more information about the S12(X) Compiler, refer to *S12(X) Build Tools Reference Manual* by Freescale.

2 Optimization for Speed

In order to reduce the overall cycle count of the code, pass the following options to the compiler:

```
-Ot -Cu -Ous -Onf -Oi -OiLib -OnB=al
```

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3 Optimization for Code Size

For better code size, pass the following options to the compiler:

```
-Os -Ous -Of
```

The following option accepts a list of option sets as input and instructs the compiler to run with each option set and keep the one that gives best performance for each function:

```
-Odocf
```

For example, `-OdocF="-Or"`

> **NOTE** The compilation time multiplies by a factor equal to the number of option sets passed to the compiler.


For additional hints on code size optimization, refer to the topic *Generating Compact Code*, of *S12(X) Build Tools Reference Manual* by Freescale. You can also use the MemoryBanker and SmartSliders features of the CodeWarrior HC(S)12(X) Compiler, for optimizing the speed and size of the code.

3.1 Using MemoryBanker

You can activate MemoryBanker by selecting the **Custom** memory model from the CodeWarrior New Project Wizard (Figure 1.). You can use this feature to reduce the memory footprint of the application, but the small or banked memory leads to better results.

For more information about S12(X) MemoryBanker, refer to *TN262: Using the MemoryBanker in S12(X) Projects* by Freescale.
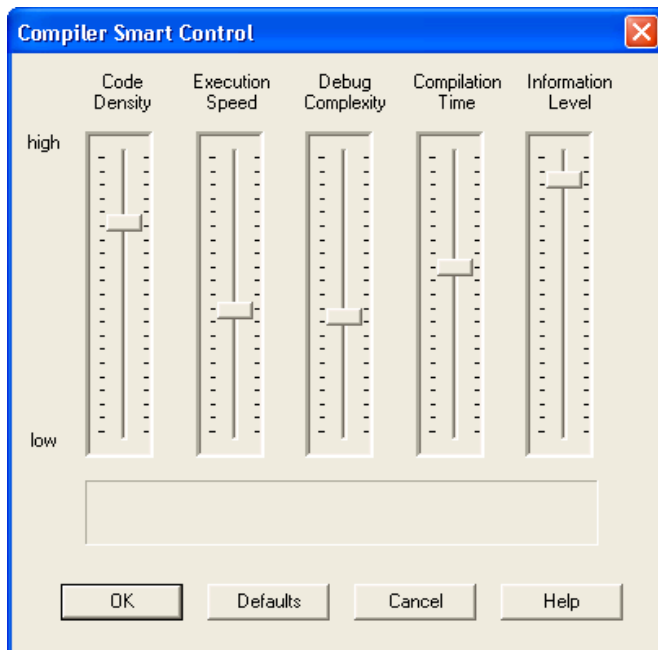
Figure 1. Activating MemoryBanker
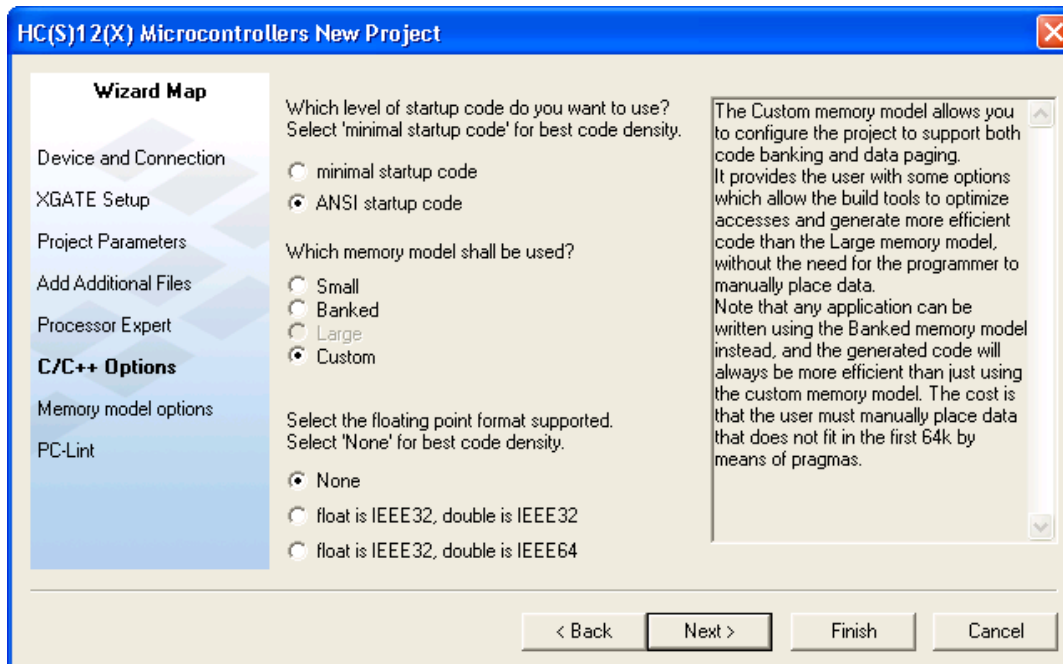
3.2 Using SmartSliders

To use SmartSliders or Smart Controls, after creating the CodeWarrior project:

1. Go to **Edit>Standard Settings** (or press **Alt+F7**).
2. From the **Standard Settings** dialog box, select **Compiler for HC12** and click **Smart Sliders** button.
3. Adjust the sliders to get the required application profile (Figure 2.).

Figure 2. Compiler Smart Control

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