

# CodeWarrior Build Tools Options for Optimal Performance on RS08 Cores

## 1 Introduction

This document describes two sets of options and pragmas that can be used with the CodeWarrior tools to produce optimal code for the RS08 cores. One set optimizes the size of the code; another set optimizes the execution speed. You can use the build tools options and pragmas described in this document for optimal performance, but the build tools settings must be set according to the application being developed.

For more information on the RS08 Compiler, refer to CodeWarrior Development Studio for Microcontrollers V10.x RS08 Build Tools Reference Manual by Freescale.

## 2 Optimization for Size

Specific options direct the compiler to optimize the generated code for smaller size. Choosing a less expensive memory model also helps improve the code size. The following sections provide details on these strategies.

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## 2.1 Compiler Options

For compact code, pass the following options to the compiler:

`-Os -Of`

A specific set of options may reduce the code size for some functions, but increase it for other functions in the same compilation unit. In order for the compiler to dynamically configure options for each function, invoke it with option `-OdocF`. This option takes a list of option sets as input, and instructs the compiler to run with each option set and keep the one that produces the best code size for each function. For example: `-OdocF="-Or|-Cni -Cu|-Oc"`.

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

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## 2.2 Memory Models

The SMALL memory model is less expensive than the BANKED memory model. Use the SMALL memory model if the application allows, that is, all data fits into the first 256 bytes (0 to 0xFF).

To select SMALL as the memory model, pass option `-Ms` to the compiler.

For more information on memory models, refer to topic Memory Models in CodeWarrior Development Studio for Microcontrollers V10.x RS08 Build Tools Reference Manual by Freescale.

## 3 Optimization for Speed

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

`-Ot -Cu -Onf -Oi -OiLib`

If the application allows, to further improve execution speed, select SMALL as the memory model (refer to section 2.2 for more details).

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