



# CodeWarrior™ Development Studio

## StarCore™ Enterprise Compiler

### Overview

The StarCore™ Enterprise Compiler is a special purpose DSP compiler that is standard in the CodeWarrior™ Development Studio for StarCore DSP Architectures. The Enterprise Compiler is optimized for DSP algorithms. Consequently, this compiler compiles code that is up to 50% faster and 50% smaller than the nearest competitor. We encourage anyone to benchmark this compiler. Included with the compiler is a full featured set of code generation and management tools.

### Output Formats

- > ELF/DWARF
- > Position-independent code

### System Requirements

- > System requirements are driven by the IDE and installation of the CodeWarrior Development Studio

### Supported Processors

- > All Freescale™ StarCore-based DSPs

### Supported Operating Systems

- > RTXC™
- > OSE™
- > SmartDSP OS

### Compatible Operating Systems

- ThreadX®

### Product Highlights

- > Memory models
  - Large and small memory models
  - Shared memory
  - Private memory
- > Big- little-endian selectable
- > Extensible IDE allows easy interfacing to lint and code-quality tools
- > C compatibility selectable
  - K&R
  - ANSI
- > Complete control of level of debug information
- > C/ASM function calling conventions user definable
  - Helps with porting and reuse
- > Support of in-line assembly
- > Optimizations
  - Size versus speed trade-offs
  - Controlled from project, file or function level
  - Understands parallelism
    - › Developers can write linearly
    - › Code from general-purpose CPU easily ported
    - › Multiple move support
  - Multi-file optimization
  - Multiple-loop optimization and management algorithms
    - › Smart-loop unrolling
    - › Multi-sampling
    - › Unroll and jam
- Module addressing
- Reverse carry addressing
- Substitutions
- Insertions
- Hoisting
- Partial summation leverage
- Variable lifetime analysis
- Register reuse
- > High degree of control over assembly process
  - Selectable rule checking for architecture restrictions related to pipelining
  - Cycle counts
  - Check sums
  - Interrupt location checking
  - Conditional assembly
  - Full use of pre-processor commands in assembler
  - Full-featured macro capability
  - Over 15 selections for control of assembly listing output
- > Linker
  - ELF/DWARF outputs
  - Aggressively remove unused code
  - Fully relocatable
  - Full support of segments
  - Full support of overlays
  - Map file option
- > Thread-safe run-time libraries
- > Object file hiding
- > Intrinsic function support for ITU/ETSI
- > Easily modifiable to leverage new capabilities of new StarCore DSP architecture-based variants

**Learn More:** For more information about Freescale products, please visit [www.freescale.com/codewarrior](http://www.freescale.com/codewarrior)

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