

CodeWarrior™ Development Studio

for StarCore™ and SDMA, V1.3

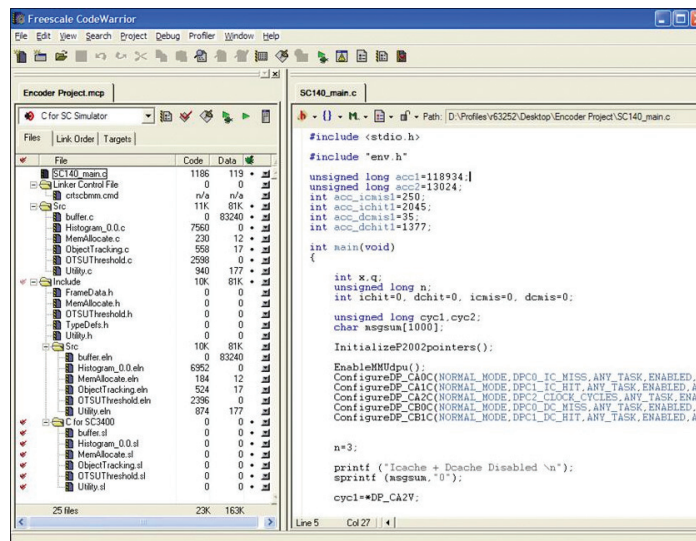
Shrinking time to market is critical to success in the wireless marketplace. When building products based on today's increasingly sophisticated and feature-rich mobile multi-media devices, developers need tools which help them efficiently build, debug, and analyze their complex development projects. CodeWarrior allows you to spend less time debugging code and more time developing your product. The intuitive CodeWarrior Integrated Development Environment (IDE) is easy to navigate and provides a full-featured editor for creating applications. Once created, applications are built and downloaded to the target with the click of a button.

CodeWarrior is an outgrowth of close collaboration between silicon and tools designers, ensuring thorough support of on-chip resources and allowing you to leverage the silicon's powerful diagnostic resources. This state-of-the-art development studio supports the advanced debug and profiling capabilities inherent to Freescale's i.300, MXC300, and MXC275 platforms by providing comprehensive visibility into the target processor, reliable control over program execution, and an intuitive interface for setting up complex debugging tasks. Easily tune your system using CodeWarrior's substantial profiling capabilities to identify and alleviate bottlenecks, enabling you to hit your performance targets and ship your product faster.

Product Highlights

CodeWarrior Development Studio contains all of the tools needed to complete a major embedded development project. The tightly integrated components give the user a consistent and intuitive environment, enabling programmers to accelerate their development cycle.

- **Project Manager** - Provides top-level file management – quickly see the build relationships in your code.
- **Source-Level Debugger** - High-performance graphical source-level debugger equipped with the latest features - shortens hardware bring-up and application development time.
- **Source Browser** - Navigate code quickly for both object oriented and procedural languages – find what you need, when you need it.
- **CodeWarrior C/C++ Compiler Suite** - Industry-leading StarCore C/C++ CodeWarrior Compiler – quickly assesses the trade-offs of code size and performance.
- **Nexus Tracing** – Simple interfaces ease the configuration of Nexus for both Program and



CodeWarrior IDE

- Data trace. Correlate and display Nexus traces with source code and navigate through the collected trace data – easily see what's going on in your system.
- **Debug and Profiling Unit (DPU) Counters** - DPU counters enable profiling of a variety of platform events, such as cache hits/misses, core stalls, and cache thrash – quickly configure the various DPU counters.

- **Embedded Cross Trigger (ECT)** – Map the hardware signals between all three cores (ARM™, StarCore™, and SmartDMA), allowing cross triggering of events between the cores – control your system from one interface.
- **L2 Event Monitor** - The level two cache controller event monitor module (EVTMON) monitors cache activity and provides statistics for profiling and optimization. Intuitive interface speeds setup of the L2 event monitor options – tune your system to maximize performance.
- **Simulation** – Integrated SC140e core simulator, including Cache and MMU – accelerates algorithm development.

- **SmartDMA (SDMA) Tools** – Assembly and debug tools for SDMA speed development of multicore applications.

Supported Targets - MXC91331, MXC91231, MXC91321, MXC91221, MXC91131 and MXC91311

Supported Boards – i.300-30 EVB, MXC275-30 EVB, MXC275-20 EVB

Product Details

Integrated Development Environment (IDE)

• Windows-Based Workspace Environment

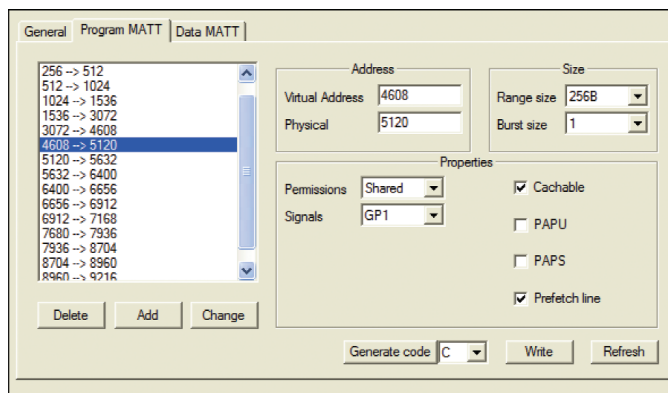
The CodeWarrior debugger's user configurable workspace allows developers to focus on complex debugging tasks. Each workspace contains just the set of views needed for the task at hand. If it is a source view, cache view or variables view, the developer views what they want, when they want it.

- **Project Stationery** - Example templates, called stationery, are provided as a starting place for the application and include a linker command file, target initialization files and project files - making it easy to get your project up and running.
- **External Build Support** - Allows users to conveniently build makefile projects outside of the IDE.
- **Text Editor** - Full-featured, user configurable, windowed text editor with syntax coloring, auto-indenting and more.

Full-Featured Debugger

The CodeWarrior Debugger provides a rich set of debugging features designed to help the developer quickly find and repair software defects, including:

- **Multi-core Control** - With one CodeWarrior IDE, control the multiple cores within Freescale's i.300, MXC300, and MXC275 platforms.
- **Display Stack Trace** - The "Call Stack" view provides an easy display of all functions active in the calling chain, and enables the developer to follow the progress of a program through its hierarchical call structure.
- **Memory View** - Memory view is the fastest way to display and modify the contents of target memory. Quickly find a value in memory, compare memory regions or upload and download memory to a file using this view.



MMU Configurator

- **Register view** - The register view provides extensive information on CPU and peripheral registers, as well as user-defined custom registers.
- **Cache View** - Use the Cache window to view Instruction and Data cache contents.
- **Nexus Trace Viewer** - View disassembled Nexus instruction and data trace messages correlated with source code.
- **Mixed Language Debugging** - The CodeWarrior debugger supports mixed language debugging in C, C++, and assembly language by automatically analyzing the file in view and adjusting the expression evaluation and data display.
- **Command-Line Window** - Automate testing, standardized data-logging or uncover that hard to find problem using the command-line interface together with various scripting engines, such as TCL and Perl.
- **MMU Configurator** - The Memory Management Unit (MMU) enables memory protection and allows different applications to share the same areas of memory. The MMU configurator allows you to set up a mapping for data and instruction addresses, then enable address translation. CodeWarrior provides a graphical MMU Config window, allowing the user to specify the mapping and then auto-generates the necessary initialization code.

• Breakpoints & Watchpoints

Hardware breakpoints, software breakpoints, and watchpoints are easily set or removed in source code, assembly or mixed-mode views.

Build Tools

Highly refined, global, local, CPU-specific, and application - specific (profile-driven) optimization techniques enable the programmer to fine-tune the compiler's output to match the application's requirements. Programmers can select various optimizations to

balance execution speed with code size while intelligent defaults can generate optimal code with no user interaction.

- ANSI C/C++ Compatible
- StarCore™ ABI Compliant
- **Flexible Optimizations** - Apply size and/or speed optimizations globally, by file, or by function.
- **Custom Calling Conventions** - Define your own calling conventions for maximum flexibility and resource utilization.

Performance Analysis

- **Profile Window** - Improve the performance of your application by using the Profile window to examine profile data collected from executing code.

RTOS Support

- RTXC Quadros Kernel Awareness debugger plug-in (available separately from Quadros Systems)

Host Operating System(s) Supported

- Windows XP - Complete toolchain
- Solaris 2.8/2.9 - Build Tools & Simulator Only
- Linux RH 3 or 4 - Build Tools & Simulator Only

Learn More:

For more information about Freescale DSP products, please visit www.freescale.com/DSP

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