
Release Notes

CodeWarrior™ Development Studio for Microcontrollers v10.4

TABLE OF CONTENTS

1	What's New	2
1.1	General	2
1.2	ColdFire/ColdFire+	4
1.3	Digital Signal Controller (DSC)	5
1.4	Kinetis	6
1.5	Qorivva/PX	8
1.6	RS08/S08	8
1.7	S12Z	9
1.8	Component Development Environment (CDE)	10
2	System Requirements	12
2.1	Recommended Configuration	12
2.2	Operational Minimum Configuration	12
2.3	Host Operating System Support	12
3	Product WEB page	12
4	Installation and Licensing	12
5	Technical Support	13
	Appendix A: Known issues and Workarounds	14
	Appendix B: MQX Integration	17
	Appendix C: Performance Considerations	18

1 What's New

Freescale's CodeWarrior for Microcontrollers v10.4 integrates the development tools for the ColdFire[®], ColdFire+, DSC, Kinetis, Qorivva, PX, RS08, S08 and S12Z architectures into a single product based on the Eclipse open development platform. Eclipse offers an excellent framework for building software development environments and is a standard framework used by many embedded software vendors.

CodeWarrior for Microcontrollers v10.4 adds new features and addresses a number of defects.

1.1 General

1.1.1 Features

- Improved performance by increasing IDE responsiveness.
- Improved startup performance by optimizing debug database loading.
- Extended Memory Browser's memory import /export actions to handle word addressable memory spaces.
- Added ability to export register values in human readable format (CSV ASCII).
- Updated Register View to display leading 0's in binary and hexadecimal format.
- Watchpoint instances are persistent after restart.
- Added ability to reconfigure Tracepoints during a debug session.
- Ensured service packs install in one step.
- Device Initialization replaced by Processor Expert Hardware Perspective.
- Processor Expert automatically restores project upon startup.
- Added ability to disable code generation in Processor Expert for CPU.c and CPU.h files.
- Added new project option for subdirectory Static_Code.
- Added ability to select a different package in CPU Component Inspector and Processor view.
- Added F2 hot key in Project Panel to allow a component to be renamed.
- Added "Open File" command to Processor Expert component popup-menus to list generated files for selected component.
- Added "Remove Component" command in Processor Expert peripheral component pop-up menu in Target Processor view.
- Simplified New Project Wizard's Connections Dialog by listing only one entry for P&E's Cyclone MAX, Cyclone Pro and Tracelink interfaces
- Removed 'USB' from the debug configuration name for P&E: "Cyclone PRO/MAX" and "Tracelink" New Project Wizard projects
- Added Target Power ON/OFF functionality to Launch Configuration Dialog (LCD) for P&E's Multilink Universal FX and Tracelink interfaces.
- Added Windows XP 64-bit driver support for P&E USB interfaces
- Added new items to the popup menu to allow reordering of property groups "List of items" and "List of items defined in file".

1.1.2 Bug Fixes

- ENGR00208664: "Restore Defaults" button works correctly in Disassembly preference page.
- ENGR00227872: Updated processor component hints in Processor Expert Components Library view to list part number, pin count and package information for derivatives supported.
- ENGR00234132: Variables View shows correct value of "char" variable in decimal format.
- ENGR00237202: Components in User Folders are no longer moved to Processor Expert Embedded Components folder when they are disabled/enabled.
- ENGR00240738: Addressed Processor Expert CAN component code generation defect. BufferIdx range test in the GetRxFrameState() method has been changed to:

```
if (BufferIdx > DeviceDataPrv->MaxBufferIndex) {  
    ...  
}
```
- ENGR00243564: A warning is displayed if a breakpoint export file path is invalid.
- ENGR00243590: Update existing breakpoints option works as expected when importing breakpoints.
- ENGR00243874: Added tool tip and name for the "Go to address..." button in Disassembly Rendering in Memory View.
- ENGR00251319: Able to create attach debug configurations for mqx examples.
- ENGR00241807: Updated IDE to generate correct build make files.
- ENGR00252164: Consolidated error messages for Memory Browser View when setting a custom number of columns.
- ENGR00252377: No error message is displayed when clicking "CodeWarrior for MCU" in "Tips & Tricks"
- ENGR00254380: Addressed problem with importing and exporting breakpoints
- ENGR00253092: Output renaming is handled correctly for projects that unconditionally rename output files.

1.1.3 Documentation

- Getting Started
 - Microcontrollers V10.x Quick Start
 - Microcontrollers V10.x Profiling and Analysis Quick Start
 - Ethernet TAP Probe Quick Start
- Common Manuals
 - CodeWarrior Common Features Guide
 - Microcontrollers V10.x Profiling and Analysis Users Guide
 - HCS08/RS08/ColdFire/Kinetis/PA MISRA Exceptions Reference Manual
 - EWL C Reference Manual
 - EWL for C++ Reference Manual Processor Expert Manuals
- Processor Expert Manuals
 - Processor Expert User Manual
 - Processor Expert Components Manual
 - MQX Lite Real-Time Operating System User Guide
 - Macro-processor Language Reference Manual

- Run Control Manuals
 - Ethernet TAP Users Guide
 - USB TAP Users Guide
 - Open Source BDM-JM60 Users Guide
- Targeting Microcontrollers
 - Microcontrollers V10.x Targeting Manual
 - Porting Freescale ARM Compiler-based Projects to use ARM GCC
- Application Notes
 - Adding Device(s) to the CodeWarrior Flash Programmer
 - How to Write Flash Programming Applets
 - Using CodeWarrior Diff Tool
- Microcontrollers 10.x FAQ Guide

1.2 ColdFire/ColdFire+

1.2.1 Features

- Removed "com.freescale.core.ide.cdt.errorParsers.GCCErrorParser" error parser from ColdFire tool chain to improve performance.
- Register coloring automatically enabled when "fraloc" is used in inline assembly code.
- Added Advanced Programming options for V2-V4 ColdFire devices.
 - Preserve FLASH range
 - Choose alternative FLASH programming algorithm
- Removed "com.freescale.core.ide.cdt.errorParsers.GCCErrorParser" error parser from ColdFire tool chain to improve build performance.

1.2.2 Bug Fixes

- ENGR00174158: Added new Processor Expert method which allows transmit buffer priority to be set for FreescaleCAN.
- ENGR00231314: Compiler displays an error message when including a file which recursively includes itself without `#ifndef...#define` sequence.
- ENGR00243189: Clean project does not fail with "Exec" projects.
- ENGR00242360: Write to external MRAM memory is supported for ColdFire V2V3 and V4 architectures.
- ENGR00252260: MCF51AC256 project occasionally hangs after software reset. Updated Processor Expert to remove erroneous write of DIV32 bit in the PLL initialization code when FLL is active.
- ENGR00252423: CPU generated code updated to stop at main function in a Processor Expert enabled project when using MCF52211_Internal Flash configuration.
- ENGR00252536: Tracelink firmware updated to address Codewarrior communication issues when trace is enabled.
- ENGR00255341: Correct code generated for address computation when only register coloring is enabled.
- ENGR00256055: Fixed configuration when TWR-MCF51QM/TWR-MCF51JF and MQX RTOS adapter are enabled in BSP.

- ENGR00256373: Added error message when GNU compiler is incorrectly used for ColdFire+ derivatives.

1.2.3 Documentation

- Manuals
 - ColdFire Assembler Manual
 - ColdFire Build Tools Reference Manual
- Application Notes
 - Configuring Compiler Options for Optimal Performance of ColdFire Devices
 - Relocating Code and Data Using the CodeWarrior LCF for ColdFire Architecture

1.3 Digital Signal Controller (DSC)

1.3.1 Features

- Added support for C++ language in Build Tools.
Note: Limitations include:
 - Incomplete support for RTTI.
 - Incomplete support for Templates.
 - No Exception Handling support.
- DSC tools (Assembler/Compiler/Linker/Preprocessor/Disassembler) use args file passing mechanism.
- Removed "com.freescale.core.ide.cdt.errorParsers.GCCErrorParser" error parser from DSC tool chain to improve build performance
- Added Advanced Programming options for DSC devices.
 - Preserve FLASH range
 - Choose alternative FLASH programming algorithm
- Added Processor Expert support for MC56F82xxx devices
- Added static code generation to Processor Expert for MC56F82xxx init components.
- Enabled by default new (-v3) '56800EX' compiler option in MC56F82xxx and MC56F84xxx New Project Wizard projects.

1.3.2 Bug Fixes

- ENGR00176414: Added support for quadrature decoder for TMPRA0 and TMPRA1 by component PulseAccumulator_LDD for MC56F825x microcontroller.
- ENGR00229650: Added signed mode for Processor Expert Init_eFlexPWM_VAR0 component with PDD2 static support.
- ENGR00231323: Fixed compiler issue when including a file which recursively includes itself.
- ENGR00235878: Fixed errors when "Clean" is performed with DSC library projects.
- ENGR00238318: Fixed linker errors for OBJECT command usage in DSC Linker Command File.
- ENGR00239949: Added ability to search in multi-byte addressable memory spaces (e.g. "Program" or "Data Word")
- ENGR00240458: Fixed compiler crash issue for test cases with '___restrict' usage.

- ENGR00240207: Fixed confusing source code dump issue in the disassembly generation for final elf files.
- ENGR00250824: Fixed linker command file to avoid download stuck at 99% when using MC56F84763 and MC56F84789 microcontrollers.
- ENGR00251463: Added "Always Erase FLASH" option so P&E MultiLink can be used to program/debug MC56F83xxx devices with previously protected FLASH memory.
- ENGR00252619: Option ' -chkasm ' on command line and 'Check Inline Assembly for Pipeline' in IDE work for V3 / 56800EX core
- ENGR00253128: Addressed "Flash file to target" problem
- ENGR00256458: Added SetChanOffset() function for ADC component on MC56F84789.

1.3.3 Documentation

- DSC Assembler Manual
- DSC Build Tools Manual

1.4 Kinetis

1.4.1 Features

- Updated ARM Ltd. GCC compiler to version 4.7.3 and integrated with EWL libraries.
- Added support for variables stored in more than one register to complete -OO support for GCC ARM compiler.
- Added argument file support for GCC-ARM 'Linker (C/C++)' for application projects.
- Added argument file support for 'Archiver' tools for library projects.
- Added option to ARM GCC compiler to allow users to enable/disable listing file generation.
- Added version and build number for ARM Ltd. GCC Build Tools to display in the Help -> About dialog box.
- Improved FSL ARM compiler stability and usability
- Removed "com.freescale.core.ide.cdt.errorParsers.GCCErrorParser" error parser from FSL ARM tool chain to improve performance.
- Added full support for KL02Z, KL16Z, KL26Z, KL36Z, KL46Z, K11D, K21D and K61F devices including Processor Expert support.
- Added trace and profile support for K11D/K12D 50MHz devices
- Improved MTB trace buffer setup
- Added ability to set/change Tracepoints during a debug session.
- Updated OpenSDA DEBUG application to v1.05
- Added trim support to Launch Configuration Dialog for Kinetis L series devices.
- Defined a default semi hosting macro (-D__SEMIHOSTING) for a 'Debugger Console' [ARM GCC] I/O project selection.
- Added MQX-Lite support for Kinetis K Series devices
- Added support for MQX 4.0 including MQX New Project Wizard and task aware debug (TAD)

- New Project Wizard
 - Added 'Exceptions Support' in [ARM GCC] 'C++' generated projects
 - Added ability to disable listing file generation for [ARM GCC] Kinetis projects
 - Added OpenSDA interface support for Kinetis MK1x and MK2x 50 MHz devices
- MQX-Lite New Project Wizard
 - Added Kinetis K families/devices. Both FSL-ARM proprietary compiler and ARM Ltd.GCC compiler are supported for Kinetis K Series families. The default compiler is ARM GCC.
 - Added ability to disable listing file generation for [ARM GCC] Kinetis projects
 - Added OpenSDA interface support for Kinetis MK1x and MK2x 50 MHz devices

1.4.2 Bug Fixes

- ENGR00211209: GCC ARM compiler generates correct debug location for local variables at optimization -O1 or higher.
- ENGR00219043: Addressed Processor Expert Serial_LDD component documentation error.
- ENGR00235129: Addressed code generation error for Processor Expert Ethernet_LDD component. A missing condition was added to the component's driver to avoid the use of a disabled clock configuration.
- ENGR00236417: Added extern "C" in generated vectors.c so Processor Expert can be used with Kinetis C++ projects.
- ENGR00237210: Debugger able to stop a running K60F device.
- ENGR00239108: Updated Processor Expert serial_LDD component for KL25Z128 to generate correct baud rate code for Uart1.
- ENGR00242264: Correctly passes argc/argv argument to the debugger.
- ENGR00243412: Addressed External Bus configuration error in Processor Expert generated code.
- ENGR00243544: P&E Multilink, Cyclone and Tracelink run control devices support FLASH programming for Kinetis MK70 Rev 1 and Rev 2 silicon.
- ENGR00244393: Updated Make for GCC to react to changes in header files done in an external editor
- ENGR00250486: Fixed misspelled NMI module on KL25Z CPU properties.
- ENGR00250837: Updated Processor Expert SPIMaster_LDD component for Kinetis 100MHz K Series devices. Generated code sets PCS field of the SPI PUSHR register to correct values, so correct chip selects are enabled.
- ENGR00252015: Fixed data timeout error handling during data transfer, removed skipping of card status reading when using LDD_SDHC component.
- ENGR00252057: Fixed Init_TPM period calculation. Item description improved.
- ENGR00252061: Fixed missing DMA bit initialization in Init_TPM.
- ENGR00254445: Condition in driver code updated so code is not removed from void IntFlashLdd1_OnOperationComplete(LDD_TUserData *UserDataPtr) method if only one SetXXXFlash method is enabled.

- ENGR00256202: Processor Expert Serial_LDD component error messages for shared mode settings extended to be more descriptive.
- ENGR00256760: Fixed typo in Processor Expert Kinetis CPU component NMI Interrupt comment.
- ENGR00256888: Fixed Processor Expert Serial_LDD component pin settings for UART0 on FRDM-KL05Z.

1.4.3 Documentation

- Manuals
 - Kinetis Assembler Manual
 - Kinetis Build Tools Reference Manual
- Application Notes
 - Configuring Compiler Options for Optimal Performance of Kinetis Cores
 - CodeWarrior Linker Command File (LCF) for Kinetis

1.5 Qorivva/PX

1.5.1 Features

- Improved compiler stability and usability
- Added new load store optimization
- Added simultaneous debugging of cores with identical register group names but with different content to support heterogeneous multi-core debugging.
- Support for MQX 4.0. including MQX New Project Wizard and task aware debug (TAD)
- Removed "com.freescale.core.ide.cdt.errorParsers.GCCErrorParser" error parser from Qorivva/PX tool chain to improve performance.

1.5.2 Bug Fixes

- ENGR00243411: Disabling breakpoints in current context is supported when debugging MPC56xx programs in FLASH.
- ENGR00243417: Setting MPC56xx hardware breakpoints using "All Context" is supported.
- ENGR00252060: The debugger does not lose connection, if "Step Over" an MQX infinite loop.

1.5.3 Documentation

- Manuals
 - Power Architecture Processors Build Tools Reference Manual
- Application Notes
 - Optimal Build Tools Settings for Power Architecture e200Core
 - CodeWarrior Linker Command File (LCF) for Qorivva/PX

1.6 RS08/S08

1.6.1 Bug Fixes

- ENGR00174158: Added new Processor Expert method which allows transmit buffer priority to be set for FreescaleCAN.

- ENGR00232471: Processor Expert MCU Target View updated for S08GT16 LQFP and PDIP packages to show the correct location of pin #1.
- ENGR00238908: Processor Expert added Init component support for all S08PT peripherals.
- ENGR00240535: Updated PWM component to remove unnecessary limit on minimal timer ticks, so list of calculated timing values is complete.
- ENGR00241888: Corrected close() implementation for the Customize Perspective Dialog.
- ENGR00243258: Processor Expert generates correct code for S08PT16 FTM module.
- ENGR00252918: Added -Lm assembler option to enable correct include file tracking by the make system.
- ENGR00253381: Addressed issue importing and executing flash task.
- ENGR00254944: Updated IDE to guard against empty build artifact type value.
- ENGR00255156: To set logging at workspace level globalBuildConsole should be used instead of buildConsole. The proper command is org.eclipse.cdt.ui/globalBuildConsole/keepLog=false.

1.6.2 Documentation

- Manuals
 - HC(S)08/RS08 Assembler Manual
 - HC(S)08 Build Tools Reference Manual
 - RS08 Build Tools Reference Manual
 - HCS08/RS08 Build Tools Utility Manual
- Application Notes
 - RS08 Upper Memory Access
 - Configuring Compiler Options for Optimal Performance of HCS08 Cores
 - Configuring Compiler Options for Optimal Performance of RS08 Cores

1.7 S12Z

1.7.1 Features

- Extended 64-bit floating point support to enhance precision and compliance with the IEEE754 standard (rounding, comparisons, flags/exceptions)
- Extended 32-bit floating point support to enhanced precision and compliance with the IEEE754 standard (rounding, comparisons, flags/exceptions)
- New Project Wizard provides two separate sets of 32/64-bit floating point options: optimized vs. compliant.
- Compiler supports stack consumption estimation.
- Compiler provides information so linker will not link object files compiled with different memory models
- Libraries are linked, based on the memory model (small/medium/large) and language selection (Asm/C and C++)
- '-Lm' option added to assembler's command-line to generate dependency tracking
- Enforce operators added to inline assembly and assembly code (both in compiler and in assembler). Memory and immediate operands can be forced to a certain

addressing mode using enforce operators. In this case the compiler doesn't generate code for the shortest addressing mode, but the specified mode.

- "-asm_enhance" command line option added to enable inline assembly data optimizations and stack effect computation.
- Flash Programmer provides the ability to unsecure a device via mass erase when using a P&E Microcontrollers Multilink or Cyclone Pro to connect to the device. The mass erase functionality can also be used to unprotect the device.
- Added support for MM9Z1x638, VFP64 and VHY64 devices
- Added Processor Expert support for VFP64, VHY64, VM32 silicon version 2.0, VMC64, VMC128, VML64, VML128.
- Run control support for S12Z architecture added to Tracelink. To use Tracelink with a s12z device: create a Cyclone Pro or Multilink project, edit Connection in Debug Configuration dialog and select USB- or Ethernet-based Tracelink connection

1.7.2 Bug Fixes

- ENGR00174158: Added new Processor Expert method which allows transmit buffer priority to be set for FreescaleCAN.
- ENGR00177806: Added property to modify LDOK bit in Init_PMF_HCS12 component.
- ENGR00242040: Implemented Enable/Disable Event optimization in TimerInt, TimerOut, FreeCntr components.
- ENGR00251371: S12Z compiler generates correct ASM code with opt=2 or opt =3 when an inline assembly code function accesses local variables.
- ENGR00252358: Corrected handling of inline assembly constant when passed with "\$" prefix.
- ENGR00255608: Added missing referenced TPS files to Init_RVA_HCS12 component.
- ENGR00255801: Fixed "Enable PE for existing C project" feature for S12Z.
- Updated variable debug information to handle situations where stack pointer is modified outside the function's prologue or epilogue.
- Fixed accepted/encoded inline assembly code
- Fixed stack consumption estimation to work with C++ code
- Fixed return issue for functions with return values (according to the prototype) but with nothing returned (especially in assembly)

1.7.3 Documentation

- S12Z Assembler Manual
- S12Z Build Tools Manual

1.8 Component Development Environment (CDE)

1.8.1 Features

- Component Development Environment operates at the Community level if no license is found. The Community license level allows you to create and freely distribute software components for non-commercial use.

1.8.2 Bug Fixes

- ENGR00250998: When creating new component project, Component icon is created successfully
- ENGR00251196 - HtmlDocumentation_Hint in new event is filled with %hint by default
- ENGR00250845 - OK button works correctly in "Select Group" dialog when adding method or event groups
- ENGR00238653 - Error message correctly disappears when changing from "Local Interface" type to "Global Interface" type
- ENGR00241822 - RTOS button is enabled and if there is no valid license user will be notified by error message.
- ENGR00251197 - "Delete Item" button is only active when there are items to delete.
- ENGR00241577 - The size of dialog is correct when performing copy project
- ENGR00251195: Able to create component project when change from "Device Component" to "Software Component"
- ENGR00253766 - Order of folders under component is now Properties, Methods, Events, PropertyTypes, TypesDefinition, Constants, ItemDefinitions, RegisteredOnInterface, Revisions)
- ENGR00241830 - Premature validation with "This field cannot be empty" dialog deleted.
- ENGR00236252: Only have to specify "Size" for Array type. No longer have to specify low and high indexes.
- ENGR00243298: No error notification for Array type with size.
- ENGR00255726 - Event Module added to show basic properties.
- ENGR00255565 - Embedded Component is shown in Component view when created.
- ENGR00256094: Addressed Component Information IconCombo editing issue.
- ENGR00256714: Able to generate project with inh. Component.
- ENGR00256835: Added combo condition to provide ability to edit imported ADC component from package.
- ENGR00256089: Fixed icon combo/selection in wizard and info page.
- ENGR00257126: Addressed issue with removing items in Components view
- ENGR00255817: Addressed exception that occurs when creating a new component with sharing
- ENGR00256772 - Search as you type works in Inheritance Wizard as expected
- ENGR00256650 - "Problem Occurred " dialog is not displayed when performing rename project with spaces in front of name

1.8.3 Documentation

- Component Development Environment Getting Started
- Component Development Environment User Guide
- Component Development Environment RTOS User Guide

2 System Requirements

2.1 Recommended Configuration

- 2.6GHz Pentium® compatible processor or better
- 4GB RAM
- 20GB (When installing full product or updates for all architectures)
- 400MB on Windows system disk
- DVD drive for installation
- USB port for communications with target hardware
- Ethernet port for communications with target hardware (optional)

2.2 Operational Minimum Configuration

- 1.8GHz Pentium® compatible processor or better
- 2GB RAM
- 20GB (When installing full product or updates for all architectures)
- 400MB on Windows system disk
- DVD drive for installation
- USB port for communications with target hardware

2.3 Host Operating System Support

- Microsoft® Windows XP 32-bit and 64-bit (Professional Edition)
- Microsoft Windows 7 32-bit and 64-bit (Home Premium Edition and Professional Edition)
- Microsoft Windows 8 32-bit and 64-bit (Home Premium Edition and Professional Edition)

3 Product WEB page

CodeWarrior Development Studio for Microcontrollers v10.4 is available for download at <http://www.freescale.com/cwmcu10>.

4 Installation and Licensing

To install CodeWarrior Development Studio for Microcontrollers v10.4, double-click the installation package and a wizard will guide you through the installation process. An 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 during the evaluation period. After 30 days, the license works as a Special Edition license (free permanent, but feature limited) which supports unlimited assembly code, up to 64KB of C code for S08/RS08, V1 ColdFire/ColdFire+, Kinetis L Series derivatives; up to 128KB of C code for V2-V4 ColdFire and Kinetis K Series derivatives; and up to 512KB of C code for Qorivva and PX derivatives.

New functionality including support for new devices can be added to CodeWarrior Development Studio for Microcontrollers v10.4 (CW MCU v10.4) with service packs, updates and patches. Service packs add specific support for new devices. Updates and patches correct software defects and add general functionality affecting more than one device family. New support can be added directly from the Internet or from a downloaded archive. If your computer is connected to the Internet, select Install New Software in the Help Menu and all available updates will be displayed. If your computer does not have Internet access, you can download the archive that contains the service pack, update

or patch you need from [CW MCU v10.4 Update & Patches](#) and follow the Service Pack Updater procedure posted on the site.

Note: Before installing updates, service packs or patches, select Restart in the File menu to perform a CodeWarrior restart. This will ensure all processes (e.g. debugger shell) are closed. CodeWarrior should NOT be used during the installation process.

5 Technical Support

All CodeWarrior issues are tracked through Freescale's normal Service Request Process. To report feature requests (enhancements) or defects for CodeWarrior Development Studio for Microcontrollers v10.4, please submit a Service Request.

1. Go to <http://www.freescale.com/support>
2. Log in.
3. On the resulting MyFreescale page, click Enter a Service Request
4. Choose category Software Product Support
5. Choose topic CodeWarrior
6. Click Next.
7. Provide the required information. You may attach a file up to 10 MB in size to the SR. You may also specify email addresses of people you would like to keep notified on the progress of the SR. Separate multiple email addresses with commas. Depending on the nature of the issue (defects require more information) you may need to provide some or all of the information listed below.
 - **Type:** pick from Question, Defect Report, Feature Request
 - **Subject:** be short and descriptive
 - **Description:** details your question, defect or feature request
 - **Severity:** choose from Medium, High, or Critical
 - **Target:** specify the hardware microcontroller/microprocessor family involved
 - **Reproducibility:** choose from Always, Rarely, Sometimes, Unknown
 - **Steps to Reproduce:** be precise so we can reproduce the problem
 - **Expected Result:** what you expected to happen
 - **Observed Result:** what actually happened
 - **Product:** CW for Microcontrollers
 - **Root Cause/Nature:** enter root cause (e.g. software defect)
 - **RTOS:** enter the RTOS being used (e.g. NA)
 - **Major:** 10
 - **Minor:** 3
 - **Patch:** N/A
 - **Component:** enter component (e.g. Debugger)
 - **Host:** enter host operating system

Please note:

The Product field must be set to CW for Microcontrollers. This will allow the appropriate Freescale personnel to find SRs related to this project very easily, follow up as needed, report on them, and gather statistics on how the product is doing.

8. When finished, click Submit.

After Submit is selected, a confirmation page will be displayed with the SR number. You will also receive a confirming email sent to the address specified in your Freescale account.

Appendix A: Known issues and Workarounds

Issue ID	Description
General	
ENGR00250596	Description: When selecting Filter Trace, an incorrect dialog box appears. Workaround: None. This feature is not functioning at this time.
ColdFire/ColdFire+	
ENGR00236318	Description: P&E Tracelink captures very little trace data for MCF52259. Workaround: None. Due to a hardware issue with MCF52259, trace does not operate properly with P&E Tracelink.
ENGR00243601	Description: The correct values are not displayed for Avg Inclusive, Percent Callee, Percent Caller in the Performance View when Time Unit is changed from cycles. Workaround: When changing time units in Performance View, use the pie charts tooltips. They display the correct percentages.
ENGR00243932	Description: Data Trace is collected and shown in Trace View even when Trace Data Values are disabled for Read Data and Write Data with P&E Tracelink. Workaround: None
ENGR00259872	Description: Configuration of external bus does not work properly in Processor Expert. External memory area configured using "ChipSelect" property in the processor component (properties CS0 - CS5) is not displayed in the Memory map. External memory block cannot be specified. Workaround: Do not specify external memory blocks in the processor component. The external memory areas must be configured manually in the linker file.
DSC	
ENGR00226381	Description: Reading a word from external RAM (memory space above 0x7fff) does not work correctly with Small Data Model. Workaround: Small Data Model only allows access up to 0x7fff. Use Large Data Model if extended data access is required.
ENGR00259771	Description: Values in Processor Expert timing dialog are incorrect to implement chained counters for MC56F84xxx devices. Workaround: There is no work around for this issue. Do not use Processor Expert to set up chain counters.
ENGR00259871	Description: Software breakpoints for MC56F82xxx projects with static init support for C++ do not work with USB TAP. Workaround: Do not use USB TAP to debug MC56F82xxx projects.
Kinetis	
ENGR00238462	Description: Enabling MTB trace does not work through project properties. Workaround: Set the trace/profile options through the debugger settings.

ENGR00244296	<p>Description: When building a Kinetis project for the K20 and the Freescale USB Stack, there is an internal compiler error generated, "constant value not in range for Thumb2 instructions." The project is for K20DX128VLH5 and uses the Freescale USB Stack 4.0.3.</p> <p>Workaround: Disable optimization, use <code>-O0</code>.</p>
ENGR00251403	<p>Description: Timestamps greater than zero are reported in Trace Data View when Timestamps are disabled for ITM trace. The development platform is a Tracelink connected to a K21DN512 board.</p> <p>Workaround: None. When timestamps are disabled, the timestamps in the Trace Data View should be zero. This issue will be fixed in a future release.</p>
ENGR00251512	<p>Description: Timestamps are reset to zero in Trace Data View when a breakpoint is hit and the debug session is resumed. The development platform is a Tracelink connected to a K21DN512 board.</p> <p>Workaround: None. When a debug session is resumed, the timestamps in the Trace Data View should not be reset to zero. This issue will be fixed in a future release.</p>
ENGR00251760	<p>Description: Unable to build the CMSIS libraries as delivered from the web. The build system is limited to an 8KB command line length. When including the CMSIS library, this line length is exceeded.</p> <p>Workaround: List all the objects being linked in a <code>@argument</code> file or split the library into several sub-archives.</p>
	<p>Description: Large Kinetis projects take a long time to build with ARM GCC compiler.</p> <p>Workaround: Disable the Freescale GCC error parser in Project Proprieties <code>->C/C++ Build->Settings->Error Parser</code> Tab. This will prevent the parser from processing build console output and redirecting error messages to the "problems view."</p>
Qorivva/PX	
ENGR00229909	<p>Description: Can't access <code>core_0</code> after issuing a single core reset via the on demand dialog when the project is configured for single (<code>core_0</code>) operation.</p> <p>Workaround: When the project is configured for single (<code>core_0</code>) operation, RESET causes the entire processor to be RESET. The <code>core_0</code> reset occurs and <code>core_1</code> is also held in RESET. To utilize single core debug functionality configure the project in Launch Configuration Dialog to debug both cores.</p>
ENGR00233491	<p>Description: During RAM debug sessions on multi-core Qorivva devices, an issue arises when a software breakpoint is set and only enabled for one core. The PC is not properly updated following resume and halt commands.</p> <p>Workaround: Ensure that a given software breakpoint is enabled in both cores, which is the default setting.</p>
ENGR00238029	<p>Description: Breakpoints/debugger stepping functions do not work when code is located in Shadow Flash.</p> <p>Workaround: The Shadow Flash is meant for silicon and system configuration storage. The ability to run code from this memory space is possible, but not recommended. The Shadow Flash does not have the appropriate hardware support to allow single stepping or setting break points.</p>
ENGR00258314	<p>Description: A project can be mis-configured if "All configurations" is selected accidentally in C/C++ Build <code>-> Settings</code>. Linker parameters <code>'-romaddr'</code> and <code>'-rambuffer'</code> will not be included in the project settings.</p> <p>Workaround: Do not select "All configurations" when modifying build configurations. If "All configurations" is accidentally selected, select "Cancel" and restart the build configuration process.</p>

ENGR00258378	<p>Description: After "Multicore Restart" the wrong instance of a breakpoint gets disabled.</p> <p>Workaround: Enable the instance from Breakpoints View. Click the check-box in front of the instance to enable the breakpoint.</p>
ENGR00257998	<p>Description: Cannot add a Memory Monitor after "Multicore Restart."</p> <p>Workaround: Use "Terminate and Relaunch" in Debug View context menu instead of "Multicore Restart."</p>
RS08/S08	
ENGR00184839	<p>Description: Debugger Flash programming will fail if the application downloaded has overlapping memory ranges. The debugger will display a "Failed to resume target process" error.</p> <p>Workaround: Check the linker options and remove the -WmsgSd1100 -WmsgSd1912 options so the linker reports overlapping memory ranges.</p>
ENGR00243112	<p>Description: Function chart in Performance View doesn't update when clicking next/previous function buttons.</p> <p>Workaround: Select the desired function directly from the functions table.</p>
ENGR00252493	<p>Description: CodeWarrior stops working when select Start/Stop Trace button with P&E Full Chip Simulation.</p> <p>Workaround: None. Software Analysis does not support simulators. Do not enable trace when using P&E Full Chip Simulation.</p>
MQX	
ENGR00195659	<p>Description: When importing MQX v3.8.1 projects for ColdFire boards, some sub files may not be located and cause an error message to be displayed</p> <p>Workaround: Locate the file(s) or edit the source lookup path to include the correct path to the MQX installation.</p>
ENGR00210485	<p>Description: MQX 3.8.1 projects for PXN2020, PXS2010 and PXS3020 boards may not operate correctly (e.g. not stop at main function).</p> <p>Workaround: Manually set the path to the initialization files in the CW installation - {MCU10.3Beta2Dir}\MCU\PA_Support\Initialization_Files\px. This issue is addressed in MQX 4.0.</p>

Appendix B: MQX Integration

- 1 MQX v3.8 was developed to work with CW MCU v10.1. It is not supported in CW MCU v10.4.
- 2 MQX v3.8.1 was developed to work with CW MCU v10.2. It has been tested and confirmed to work with CW MCU v10.4.
- 3 MQX v4.0 was developed to work with CW MCU v10.2 and CW MCU v10.4.
- 4 MQX Lite RTOS is integrated with CW MCU v10.4. It supports Kinetis L Series devices. To create a new project with MQX-Lite RTOS do the following:
 - Select **New MQX-Lite Project** in the Commander View.
 - Name the project.
 - Select a Kinetis device in the Devices dialog
 - Select a connection in the Connections dialog
 - Select preferred language and build tools options
 - A Processor Expert project will be created with the **MQX-Lite** component.
 - Configure the **MQX-Lite** component.
 - Add and configure other peripheral components to the project.
 - Select **Generate Processor Expert Code icon** in the Components View.
 - Add your application code to the project.
- 5 MQX 3.8.1 task-aware debug is integrated with CW MCU v10.4 and will be automatically installed.
- 6 MQX 4.0 task-aware debug is integrated with CW MCU v10.4 Update 1.0.0 and will be automatically installed. This plug-in can be used with MQX or MQX-Lite.

Appendix C: Performance Considerations

CodeWarrior Development Studio for Microcontrollers v10.4 is a powerful tool chain. The following suggestions will help keep the CodeWarrior tools running at a respectable performance level.

- 1 To maximize performance, the CodeWarrior tools should be installed on a computer with the recommended system configuration. While the tools will operate on a computer with the minimum configuration, the limited hardware will restrict its ability to function at desired performance levels.
- 2 Close unused projects. Eclipse caches files for all open projects in the workspace. If you need multiple projects open, try to limit the number of projects to no more than 10.
- 3 The Eclipse IDE provides several options that provide user assistance tools. These options, however, use memory and cpu bandwidth. If performance is slow and you do not need these options, turn them off.
 - Scalability options configure how eclipse deals with large source files.
 - Scalability options
 - Editor live parsing: impacts parsing while typing, Outline view, semantic highlighting, folding, etc.
 - Semantic highlighting: C/C++ identifiers are colored
 - Syntax coloring: coloring of keywords, comments and literals
 - Parsing-based content assist proposals: content assist proposals which require parsing the file
 - Content assist auto activation: content assist activated automatically on trigger sequences, like '.', '::' or '->'.
 - To disable:
 - Click menu 'Windows' -> 'Preference'
 - Expand 'C/C++' -> 'Editor' -> 'Scalability'
 - Uncheck 'enable scalability options'
 - Content Assist Auto Activation can reduce the number of keystrokes a developer must type to create code. The Content Assist plug-in consists of components that predict what a developer will type, based on the current context, scope and prefix.
 - To disable:
 - Click menu 'Windows' -> 'Preference'
 - Expand 'C/C++' -> 'Editor' -> 'Content Assist'
 - Uncheck all the options for 'Auto Activation'