Release Notes

CodeWarrior™ Development Studio for Microcontrollers v10.5

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1 What's New

Freescale's CodeWarrior for Microcontrollers v10.5 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.

New device support:

- Kinetis E Series: MKE02Z16, MKE02Z32, MKE02Z64
- Kinetis K Series: MK21FX512, MK21FN1M0, MK22FX512, MK22FN1M0
- Kinetis M Series: MKM13Z64, MKM14Z64, MKM14Z128, MKM32Z64, MKM33Z64, MKM33Z128, MKM34Z128, MKM38Z128
- Qorivva: MPC5632M, MPC5633M, MPC5634M
- S12Z: MC9S12ZVL8, MC9S12ZVL16, MC9S12ZVL32, MC9S12ZVLS16, MC9S12ZVLS32,

Updated support for new silicon revisions:

- S12Z: MC9S12ZVH64, MC9S12ZVH128, MC9S12ZVM32, MC9S12ZVMC64, MC9S12ZVMC128, MC9S12ZVML64, MC9S12ZVML128

Major new features:

- Modular installer only installs support for selected Freescale architecture(s)
- Build tools, debugger, and Processor Expert performance improvements
- Heterogeneous multi-core debug support for Qorivva and PX devices.
- CodeWarrior Classic Project Importer available for CW DSC v8.3 projects
- Kinetis MQX task-aware debug available in Special, Basic, Standard and Professional Editions

Please note: CodeWarrior for Microcontrollers v10.5 is a full product release with a number of major enhancements. There are significant changes throughout the product, so updating a previous release to v10.5 is not practical.

CodeWarrior for Microcontrollers v10.5 adds new features and addresses a number of defects.

1.1 General

1.1.1 Features

- Moved to Eclipse 4.2.1 (Juno) and CDT 8.1.1.
- Moved the main Debug toolbar to the global toolbar for improved usability. The previous toolbar locations can be restored by first toggling the Show Debug Toolbar option in the Debug view's menu, then by disabling the Debug toolbar from the Customize Perspective dialog.
- Added ability to add Function Breakpoints to Breakpoints view
- Consolidated Download, Attach and Connect launch configurations into a single launch configuration
- New look for Launch Configuration Main Tab
- Added two (2) new options for Launching the Main Application:
  - Disable program counter initialization
  - Disable application resume after download
- Added support for chained errors

- Offline registers viewer imports hexadecimal text files
- Jython scripting can be used to configure debugger related settings for CCS connections
- Debugger Shell "config" command can be queried and has ‘–np’ option
- Debug database indexer runs automatically after modifications are made
- Added new option ‘Apply To Connection’ to quickly change the processor associated with a connection
- Selected rendering formats are persistent for memory monitors
- Performance improvements for debug session start:
  - First download and init file execution
  - Optimize parsing memory config file
- Mixed Source memory rendering was removed since functionality is covered by Disassembly view
- Added wizard to import register dumps
- Added support for variables when configuring Path Mapping
- Pressing Terminate without Suspend cancels trace collection and processing.
- All Software Analysis results editors have the same look and feel as trace editor (title, header, tooltip).
- CRCgen.exe, CRC utility, available for all architectures
- Improved Processor Expert performance to increase IDE responsiveness.
- Processor Expert provides ability to filter pin names in Component Inspector for all pin properties in all components, so a pin can be easily searched in a list.
- Processor Expert provides F1 help and tool tip text for all Preference and Settings panels.
- Updated MQX New Project Wizard to support both FSL ARM® compiler and ARM gcc compiler for Kinetis K Series devices. ARM gcc compiler is the default selection.
- Fixed Processor Expert default event name, when adding new processor to a project.
- Updated Processor Expert physical device driver (PDD) tooltips to contain possible enumeration values for enum arguments.

1.1.2 Bug Fixes

- ENGR00225384 – Processor Expert component help is dynamically generated from component html files and CPUs folders.
- ENGR00237460,ENGR00241207 – Processor Expert added 'Delete' and 'F2' short-cut commands for user folders.
- ENGR00256348 – When AnalogComp_LDD component is added to a project, Processor Expert adds one positive pin and negative pin.
- ENGR00257040 – Processor Expert fixed issue which caused a deadlock when restarting Eclipse.
- ENGR00258408 – Processor Expert added fixed prescaler support for serial device to fix timing calculation failures.
- ENGR00259669 – Updated Processor Expert to remove empty/unused Events/ISRs from Event modules.
- ENGR00259811 – Processor Expert added extra initialization blocks for UART registers BDH, BDL, C4, C5 to correct register ‘initialization values' configuration.

- ENGR00260780 – Processor Expert swapped order of register initialization for UART initialization sequence of UARTX_BDL-UARTX_BDH.
- ENGR00263622 – Removed duplicate section 3.3.8.1 from ProcessorExpertHelp.pdf
- ENGR00263910 – Processor Expert no longer invokes BeanInitialization CHG for new inherited components during project loading.
- ENGR00265364 –Licensing plug-in updated to find license.dat file even if path includes white spaces.
- ENGR00265547 – Processor Expert fixed exception, which occurred when adding indexed speed modes from include item during component creation.
- ENGR00270094 – Processor Expert updated MQX component help to show how to use the component to build a MQX bsp library.

1.1.3 Documentation

- Common Manuals
  - CodeWarrior Common Features Guide for Microcontrollers V10.x Quick Start
  - Microcontrollers V10.x Profiling and Analysis Users Guide
  - Microcontrollers V10.x Targeting Manual
  - Microcontrollers V10.x Profiling and Analysis Quick Start
- Processor Expert Manuals
  - Processor Expert User Manual
  - Processor Expert Components Manual
  - Component Development Environment User Guide
  - MQX Lite User Manual
- Microcontrollers 10.x FAQ Guide

1.2 ColdFire/ColdFire+

1.2.1 Features

- Software analysis performs register cleanup to avoid resource conflicts with the debugger breakpoints when trace is disabled or debug session is restarted.
- An error message is displayed and the current debug session terminated when P&E Mutlilink, Cyclone or Tracelink connections are disconnected unexpectedly.

1.2.2 Bug Fixes

- ENGR00163742 – Processor Expert added C++ support for ColdFire+ and V2-V4 ColdFire architectures.
- ENGR00216633 – New Project Wizard updated to use Processor Expert initialization function when generating C++ projects with Processor Expert for ColdFire devices.

1.2.3 Documentation

- ColdFire Assembler Manual
- ColdFire Build Tools Reference Manual

1.3 Digital Signal Controller (DSC)

1.3.1 Features

- Improved inline assembly support
- Improved stability and usability of compiler
- Improved generated debug information

- Added support for DSP56800EX instructions – IMPY32, IMPY64 and IMPY64UU
- Added Processor Expert initialization, physical device driver static C (PDD2), logical device driver (LDD) and high-level component (HLB) support for MC56F823xx/7xx device family.
- Software analysis performs register cleanup to avoid resource conflicts with the debugger breakpoints when trace is disabled or debug session is restarted.
- An error message is displayed and the current debug session terminated when OS-JTAG, P&E Multilink and Cyclone connections are disconnected unexpectedly.

1.3.2 Bug Fixes

- ENGR00156843 – Processor Expert extended IntFlash component documentation and added version spec. information/code for DSC derivatives.
- ENGR00226381: Fixed compiler issue which generated incorrect code when reading a word from a structure array located in external RAM addresses from 0x8000 to 0xFFFF using the small data model.
- ENGR00244555: Fixed inconsistent code generation for bit masking operations, generating optimized code for commonly used bit masking operations involving short data types.
- ENGR00255410 – Processor Expert improved the error message when there is no external memory available in the selected processor component.
- ENGR00265594 – Processor Expert has merged OCCS_OSCTL1[CLK_MODE] and OCCS_OSCTL1[ROPD] initialization sequence into one access to OCCS_OSCTL1 register for MC56F84xxx projects.
- ENGR00266539 – Processor Expert now detects if the peripheral selected in init component is not listed in component database or component is not supported for the selected processor.
- ENGR00266617 – Processor Expert fixed MC56F84789 clockgates properties in init component to allow PWM to be used for motor control.
- ENGR00268133: Fixed DSC compiler issue for optimization levels 2 and above.
- ENGR00273631: Replaced DSC trace decoder so trace is correct when using triggers.

1.4 Kinetis

1.4.1 Features

- Added debugger, run control and FLASH programming support for KM1x and KM3x device families
- Added debugger, run control, FLASH programming and Processor Expert support for K21F/K22F device family
- Added debugger, run control, FLASH programming and Processor Expert support for KE02Z device family
- DDR_Kinetis component in Processor Expert automatically checks the actual value of the DDR module's input clock.
- DDR_Kinetis component in Processor Expert provides ability to generate a CodeWarrior debugger initialization file.
- Added software analysis support for all Kinetis L devices
- Added J-Link/J-Trace run control connection support for all Kinetis devices. This support includes unlimited Flash breakpoints.

- An error message is displayed and the current debug session terminated when P&E Microcomputer Systems and OS-JTAG run control connections are disconnected unexpectedly.
- New Project Wizard updated to include bme.h header file in projects for Kinetis devices with the bit manipulation engine (bme).

1.4.2 Bug Fixes

- ENGR00163742 – Processor Expert added C++ support for Kinetis architectures.
- ENGR00220626 – Processor Expert added DMA mode to ADC_LDD component for Kinetis L-Family.
- ENGR00225194 – Processor Expert added new cpu function SystemReset() to allow software reset in a K70 project.
- ENGR00226007 – Processor Expert added DMA setting to ADC_LDD component for Kinetis family.
- ENGR00227619 – Processor Expert added DMA support in SPIMaster LDD and SPISlave LDD for Kinetis L-Family.
- ENGR00258009 – Processor Expert DDR_Kinetis component checks PLL1 value automatically instead of asking user to enter the value manually.
- ENGR00258375 – Processor Expert DDR_Kinetis component generates an initialization file for CodeWarrior debugger.
- ENGR00259793 – Processor Expert added a simple example of how to set the output value of a group of pins to the GPIO_LDD component's typical usage page.
- ENGR00260000 – Processor Expert fixed Cortex M0 dispatcher in Stack Overflow Idle Task to correctly restore stack frame.
- ENGR00260630 – Processor Expert added missing config bit for Kinetis K60 V2 devices.
- ENGR00262134 – Processor Expert enabled I2C Clock Stretching by adding a clock stretching property to select between empty character transmission and clock stretching if no characters are prepared for transmission by slave.
- ENGR00263452: fixed ARM trace decoder so there is no difference between "trace" view and "Call Tree" view about function calls
- ENGR00266232 – Processor Expert removed writes to reserved bits in SIM_CLKDIV1 for KL04Z32.
- ENGR00271025 – Processor Expert fixed ADC reference selection for LQFP32 packages on ADC_LDD component for MK10DX32VFM5.
- ENGR00273067 – Processor Expert added missing SCB_CPACR register into debugger registers for Kinetis Cortex M4 devices.

1.4.3 Documentation

- Kinetis Assembler Manual
- Kinetis Build Tools Reference Manual
- Kinetis GCC Build Tools Reference Manual

1.5 Qorivva/PX

1.5.1 Features

- Added heterogeneous mutli-core debugging for MPC5668x, MPC564xC and PXN20xx devices. Multiple heterogeneous cores can be debugged in the same debug session. The debugger has full control of all cores regardless of their type.
- Improved stability and usability of build tools
- Improved disassembly listing
- Improved SPE2 support in build tools
- Added Pragma read_only_vtable_RTTI to allow the linker to place object code in ROM area instead of RAM.
- Added automatic translation of classic 32-bit assembly instructions to mixed 16 and 32-bit VLE instructions in stand-alone assembler using -ppc_asm_to_vle option
- Introduced new linker option -gap_fill to fill the alignment gap created by address modifiers in s-record file
- Modified Software Breakpoints so they cannot be set in read-only memory (e.g. Flash Memory) and cause bus errors.
- Added debugger, run control and FLASH programming support for MPC563xM device family
- An error message is displayed and the current debug session terminated when OS-JTAG and P&E Multilink and Cyclone connections are disconnected unexpectedly.
- Updated license limitation error message to indicate the possible reasons (presence of C++ code or exceeded C code size limit) why the debug session ended.

1.5.2 Bug Fixes

- ENGR00241596 – Disallowed concurrent debugging of two different projects with mutli-core devices. It caused unpredictable results.
- ENGR00257381– Solved deadlock that appeared when debugging MQX projects with Task Aware Debugging (TAD) activated. The deadlock happened when asserting Reset command from debugger.
- ENGR00266747 – Fixed Multicore Resume issue when only one core was selected in Multicore Groups.
- ENGR00268846 – Software Breakpoints are properly removed when debugging mutli-core devices.
- ENGR00270709 – New Project Wizard updated to generate correct FlexCAN initialization code for MPC5643L, MPC567xK, PXS20xx and PXS30xx projects.

1.6 RS08/S08

1.6.1 Features

- Software analysis performs register cleanup to avoid resource conflicts with the debugger breakpoints when trace is disabled or debug session is restarted.
- An error message is displayed and the current debug session terminated when P&E Mutlilink or Cyclone connections are disconnected unexpectedly.
- Added device unsecure functionality to P&E Multilink and Cyclone connections to support Target Task FLASH programming for previously secured S08 devices.

1.6.2 Documentation

- HC(S)08/RS08 Assembler Manual
- HC(S)08 Build Tools Reference Manual
- RS08 Build Tools Reference Manual

1.7 S12Z

1.7.1 Features

- Added register pre-assignment optimization. The build tools decide which local variables are more appropriate to live in registers and generate code / allocate registers according to pre-assignment decision.
- Added stack access optimization. The build tools rearrange stack accesses to have accesses with higher frequencies at lower offset, which results in smaller code size.
- Added extensions to constant propagation optimization (to better work with code generated using register pre-assignment optimization).
- Added extensions to branch optimizations, including branch-to-branch and branch-to-rts optimizations.
- Added optimization for compacting stack space by removing unused stack locations.
- Modified Software Breakpoints so they cannot be set in read-only memory (e.g. Flash Memory) and cause bus errors.
- Added Processor Expert support for S12ZVH device family
- Added Processor Expert support for S12ZVM device family (mask set N59H).
- Added debugger, run control, FLASH programming and Processor Expert support for S12ZVL device family
- Added software analysis support for S12ZVFP and S12ZVHY device families
- An error message is displayed and the current debug session terminated when P&E Mutlilink or Cyclone connections are disconnected unexpectedly.

1.7.2 Bug Fixes

- ENGR00256168 – Processor Expert added project examples for S12Z family.
- ENGR00267538 – Processor Expert updated to allow COPCTL bits to be initialized by code generated by Init_COP or Watchdog component. This allows customer to initialize COP if either component is added to a HCS12XEP100 or S12Z project.
- ENGR00268183: Replaced S12 trace decoder so correct trace is generated for code using 'bra' instructions.

1.7.3 Documentation

- S12Z Assembler Manual
- S12Z Build Tools Reference Manual

1.8 Component Development Environment (CDE)

1.8.1 Features

- Component name is independent of Eclipse project name.
- New Component Editor allows easy modification of component structure tree on left side and details for each item on right side.

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 v10.5 is available for download at http://www.freescale.com/cwmcu10.

4 Installation and Licensing

To install CodeWarrior Development Studio for Microcontrollers v10.5, choose the download option that meets your needs.

The online installer package contains the CW MCU v10.5 core tools and an installer, which assumes your computer has internet access. During the installation process the core tools will be installed and you will be asked to select the Freescale architecture support you want installed. The installer will automatically access the internet, download the necessary archives and install them in your CodeWarrior directory.

The offline installer package contains the complete CW MCU v10.5 tool suite and an installer, which assumes your computer does NOT have internet access. All data needed by the installer will be downloaded and no other download will be performed. 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 and other FSL architectures can be added to CodeWarrior Development Studio for Microcontrollers v10.5 (CW MCU v10.5) with archives, service packs, updates and patches. Archives add support for other FSL architectures. 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 v10.5 Update & Patches and follow the Service Pack Updater procedure posted on the site.

Note: Before installing archives, 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 v10.5, 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	
ENGR00265303	**Description:** "Symbolics/Create and Use copy of Executable" breaks breakpoints in shared lib debug. When more than one executable is debugged with the same launch configuration (specified as other executables), the debug option 'Create and Use copy of Executable' cannot be used because breakpoints are no longer installed properly. **Workaround:** Debug the original executables leaving option 'Create and Use copy of Executable' unchecked and manually kill the debugger whenever a rebuild is necessary.
ENGR00265598	**Description:** When using "call by return" mechanism for calling functions in Performance View, a function will appear as if it has no children, and all its children will appear to be called from the function's parent. **Workaround:** None
ENGR00274323	**Description:** Importing a breakpoint does not correctly set the breakpoint marker if the breakpoint refers an action that no longer exists. **Workaround:** For the import operation to work correctly, make sure there isn't a breakpoint set at the same line as the breakpoint being imported.
ENGR00274667	**Description:** Find & Filter functionality does not work correctly in Software Analysis Trace Editors. **Workaround:** Find & Filter has been disabled for Software Analysis Trace Editors. The functionality is still available for Critical code and Performance Views.
ENGR00276474	**Description:** Nothing happens when right click in CodeWarrior Projects View, select Import > Component Development Environment > Import from Package and click Next. **Workaround:** "Import from Package" and "Export to Package" commands cannot be run immediately after CodeWarrior is launched. The Processor Expert Service must be loaded first. To monitor the loading process open the Progress window (Window > Show View > Other > General > Progress).
ColdFire/ColdFire+	
ENGR00236318	**Description:** Trace information captured with P&E Tracelink for MCF52259 is incomplete and inaccurate. **Workaround:** Due to a hardware issue with MCF52259, trace does not operate properly with P&E Tracelink. Do not use Tracelink for data capture with this device.
ENGR00258435	**Description:** Target Task flash programmer fails to calculate the correct number of sectors to erase before programming a MCF54418 external NAND flash. **Workaround:** Modify the Target Task to erase the correct number of sectors.
ENGR00272705	**Description:** Compiler generates incorrect code for a switch statement using enum variable when optimization level is more than one (1) and register coloring is enabled. **Workaround:** The "enum" type should be forced to "int". 1) Select Project -> Properties -> C/C++ Build -> Settings -> ColdFire Compiler -> Language Settings -> Enum Always Int - Or - 2) Add command line option -enum int

ENGR00274320	**Description:** Target Task flash programmer crashes when trying to program data using an offset that is outside the device's flash range (e.g. starting address or any subsequent address that goes outside the flash range). **Workaround:** The offset is applied to all flash addresses - Base Address + Offset. Calculate the offset so all newly formed addresses are within the flash range.
DSC	
ENGR00274320	**Description:** Target Task flash programmer crashes when trying to program data using an offset that is outside the device's flash range (e.g. starting address or any subsequent address that goes outside the flash range). **Workaround:** The offset is applied to all flash addresses - Base Address + Offset. Calculate the offset so all newly formed addresses are within the flash range.
Kinetis	
ENGR00251403	**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. **Workaround:** None. When timestamps are disabled, the timestamps in the Trace Data View should be zero.
ENGR00267162	**Description:** Wrong calculation when structure is packed using __attribute__ ((aligned (1))) with optimization level greater than 2 using FSL ARM compiler. **Workaround:** Use Pragma to turn off load store optimization – #pragma load_store_elimination off
ENGR00277345	**Description:** The SE bit in the CMPx_CR1 register must be cleared to use the peripheral bus clock in Sampled Filtered mode. Processor Expert allows you to select this mode in the Filter Mode property, but the generated code sets the SE bit in the Init method instead of clearing it. **Workaround:** Clear CMPx_CR1[SE] bit manually after Init function. 1) Use PDD macro - CMP_PDD_EnableSampling(CMPx_BASE_PTR, PDD_DISABLE); - Or - 2) Write directly to register.
Qorivva/PX	
ENGR00260637, ENGR00274574	**Description:** Software breakpoints do not work correctly on multi-core MPC56xx devices when a software breakpoint is set on one core while the other core is running. Due to software breakpoint corruption, the breakpoint on the running core is never activated. This only occurs when trying to debug two cores concurrently. **Workaround:** Use hardware breakpoints, which work without limitations, when debugging two cores concurrently. Use software breakpoints when debugging a single MPC56xx core.
ENGR00273161	**Description:** When debugging a MPC5675K/PXS30 project in LSM, the "Terminate and Remove" does not correctly terminate the debug session. **Workaround:** 1) Use terminate and multi-core terminate commands 2) Type "kill all" command in debugger shell to terminate the remaining cores.
S08	
ENGR00274320	**Description:** Target Task flash programmer crashes when trying to program data using an offset that is outside the device's flash range (e.g. starting address or any subsequent address that goes outside the flash range). **Workaround:** The offset is applied to all flash addresses - Base Address +

	Offset. Calculate the offset so all newly formed addresses are within the flash range.
S12Z	
ENGR00274320	**Description:** Target Task flash programmer crashes when trying to program data using an offset that is outside the device's flash range (e.g. starting address or any subsequent address that goes outside the flash range). **Workaround:** The offset is applied to all flash addresses - Base Address + Offset. Calculate the offset so all newly formed addresses are within the flash range.
Sensor	

ENGR00276212	**Description:** New Project Wizard does not generate an FXLC95000 application capable of booting from flash.
	Workaround:
	Change the following line in lcf file
	code (RX) : ORIGIN = 0x00000000, LENGTH = 0x0001FFFFC
	to
	code (RX) : ORIGIN = 0x000001D0, LENGTH = 0x0001FFE2C
	
	Change the following line in exceptions.c file
	__declspec(weak) vectorTableEntryType _vect[115] = {
	to
	__declspec(weak) vectorTableEntryType _vect[115] @0x0 = {

MQX	
ENGR00270400 ENGR00267677	**Description:** M54418 MQX example project generates bus errors when reading/writing memory. **Workaround:** • Copy the content of the following file: <CW 10.5 installation directory>\MCU\ColdFire_Support \Initialization_Files\TWR-MCF5441X.cfg • Use it to replace the content of the following file: <MQX 4.0.x installation directory>\mqx\source\bsp\twrmcf54418\cw\dbg \twrmcf54418.cfg • Rebuild the BSP library.

Appendix B: Freescale MQX™ RTOS Integration

1 MQX 3.8 was developed to work with CW MCU v10.1. It is not supported in CW MCU v10.5.

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 v10.5.

3 MQX 4.0 was developed to work with CW MCU v10.2 and CW MCU v10.3. It has been tested and confirmed to work with CW MCU v10.5.

4 MQX 4.0.1 was developed to work with CW MCU v10.4. It has been tested and confirmed to work with CW MCU v10.5.

5 MQX 4.0.2 was developed to work with CW MCU v10.4 and CW MCU v10.5.

6 MQX Lite RTOS is integrated with CW MCU v10.5. It supports Kinetis L and K 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.

7 MQX Task Aware Debugger is integrated with CW MCU v10.5 and is automatically installed. This plug-in can be used with all supported MQX versions (i.e. MQX 3.8.1, MQX 4.0.x and MQX Lite).

Appendix C: Performance Considerations

CodeWarrior Development Studio for Microcontrollers v10.5 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’