Release Notes

CodeWarrior™ Development Studio for Microcontrollers v10.6

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1 What's New

Freescale's CodeWarrior for Microcontrollers v10.6 integrates the development tools for the ColdFire®, ColdFire+, DSC, Kinetis, Qorivva, 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: MKE04Z8, MKE04Z64, MKE04Z128, MKE06Z64, MKE06Z128
- Kinetis KEA Series: SKEAZN16, SKEAZN32, SKEAZN64, SKEAZ128
- Kinetis K Series: MK24FN1M0, MK63FN1M0, MK64FX512, MK64FN1M0
- Kinetis V Series: MKV10Z16, MKV10Z32
- S08: HCS908RN8, HCS908RN16, HCS908RN32, HCS908RN48, HCS908RN60, HCS908RNA2, HCS908RNA4, HCS908RNA8, HCS908RNA16, HCS908RNA32, HCS908RNA48, HCS908RNA60
- S12Z: MC9S12ZVC64, MC9S12ZVC128, MC9S12ZVC192, MC9S12ZVHY32

Updated support for silicon revisions:

- DSC: MC56F844xx, MC56F845xx, MC56F847xx
- Kinetis E Series: MKE02Z16, MKE02Z32, MKE02Z64 (40MHz)
- S12Z: MC9S12ZVFP64, MC9S12ZVHY64

Major new features:

- 64-bit 'long long' and 64-bit floating point support for S12Z devices
- Intrinsic support for Square Root and Hardware Divide commands for the Kinetis V Series
- Optional New Component Inspector available with Processor Expert
- P&E Cyclone Universal [FX] support

Please note: CodeWarrior for Microcontrollers v10.6 is a full product release with a number of major enhancements. There are significant changes throughout the product, so updating a previous release to v10.6 is not practical.

CodeWarrior for Microcontrollers v10.6 adds new features and addresses a number of defects.

1.1 General

1.1.1 Bug Fixes

- ENGR00279070 – Added missing target connection, so CW MCU v10.1projects can be successfully imported for MC1323x devices.
- ENGR00284869, ENGR00284911, ENGR00285433, ENGR00298540 – Fixed defects in CDT Indexer.
- ENGR00286348 – Fixed deletion of multiple components in Processor Expert.
- ENGR00290299 – Processor Expert Configuration Registers View shows registers from the previous processor after switch to another processor. The register list was not being updated if the peripheral for both processors shared the same name. This issue has been addressed.
- ENGR00296869 – After creating a project, enabling Processor Expert and generating code, the project does not built successfully. Issue caused by

implementation of new feature (configurable main module). Linker file name changed to ProcessorExpert.prm or ProcessorExpert.lcf to correct problem.

- ENGR00297024 – Fixed configuration of the pin direction if user name (signal) is assigned to the pin.
- ENGR00297946 – Able to terminate execution of a script from Remote Launch web page while starting debug session.
- ENGR00297948 – Default remote launch results folder moved outside product folder.
- ENGR00297953 – CodeWarrior does not freeze after remote launch is disabled
- ENGR00300792 – Fixed issue which caused Processor Expert to hang during creation of a component requiring shared components that are configured via templates.

1.1.1 Documentation

- Getting Started
  - Microcontrollers V10.x Quick Start
  - Microcontrollers V10.x Profiling and Analysis Quick Start
  - Ethernet TAP Probe Quick Start
- Targeting Microcontrollers
  - Microcontrollers V10.x Targeting Manual
- 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
- Run Control Manuals
  - Ethernet TAP Users Guide
  - USB TAP Users Guide
- Processor Expert Manuals
  - Processor Expert User Manual
  - Component Development Environment Getting Started
  - Component Development Environment User Guide
  - Component Development Environment RTOS User Guide
  - MQX Lite Real-Time Operating System User Guide
  - Macro-processor Language Reference Manual (Only PDF available)
  - MQX Lite User Manual Manual (Only PDF available)
- Application Notes
  - AN4902 - Adding a run control interface into an existing CodeWarrior for MCU v10.x project
- Microcontrollers 10.x FAQ Guide

1.2 ColdFire/ColdFire+

1.2.1 Features

- Added P&E Cyclone Universal [FX] support

1.2.2 Bug Fixes

- ENGR00272705 – Fixed wrong application of constant propagation optimization for variable of "enum" type (when "enum" is not forced to "int"). The issue only appears for architectures based on ISA_B or ISA_C.

- ENGR00293019 - Fixed following error reported when importing a Processor Expert ColdFireV1 project with peripheral initialization components: "ERROR: Peripheral Initialization component is not supported for selected target"

1.2.3 Documentation

- ColdFire Assembler Manual
- ColdFire Build Tools Reference Manual

1.3 Digital Signal Controller (DSC)

1.3.1 Features

- Improved stability of compiler.
- Improved inline assembly support.
- Added P&E Cyclone Universal [FX] support

1.3.2 Bug Fixes

- ENGR00198394 – Fixed strength reduction compiler optimization bug.
- ENGR00280163 – Fixed the wrong compiler codegen issue with "#pragma interrupt alignsp" usage.
- ENGR00281854 – Fixed the wrong codegen issue for cases with pointer to pointer assignment statements.
- ENGR00292059 – Fixed "#indef __cplusplus" line in DA1.h file, so MC56F82748 project builds when DAC component added.
- ENGR00293876 – Fixed wrong offset in code generated for initializing non-constant values in character arrays, for C++ tests.
- ENGR00294399 – Fixed compiler issue with variable argument support.
- ENGR00299162 –Fixed problem in "Receiver/Transmitter DMA support" properties, so MC56F84441 Init_SCI component generates correct code.
- ENGR00299492 - Processor Expert "backward compatibility" pin group algorithm updated to ensure CW MCU v10.4 DSC projects with Init components import successfully.

1.3.3 Documentation

- DSC Assembler Manual
- DSC Compiler Manual

1.4 Kinetis

1.4.1 Features

- MMDVSQ.h header file added to provide intrinsic support for Square Root and Hardware Divide commands for the Kinetis V Series.
- Added Segger J-Link support for new Kinetis devices.
- Added P&E Cyclone Universal [FX] support
- Updated OpenSDA firmware to v1.14 to provide combined MSD and DEBUG functionality for all supported Freedom and Tower OpenSDA-based evaluation boards.

1.4.2 Bug Fixes

- ENGR00278409 – "Enable Partitioning" option in P&E Advanced Programming dialog updated to work correctly.
- ENGR00284374 - Fixed script issue which caused the following error message to be displayed - "ERROR: Unexpected status of script: Drivers \ Kinetis \ TimerUnit _LDD.rgi"

- ENGR00287913 – Fixed issue which caused the debugger to report overlaps in Processor Expert generated .mem when DDR is enabled on K70.
- ENGR00288059 – Error in clock gate property after reloading Kinetis MK60DX256VLQ10 project with Init_HSCMP component. Fixed clock gate definition.
- ENGR00291382 – Clock Monitor Enable does not work correctly for Kinetis devices with multiple System Oscillators in Processor Expert. Moved Clock Monitor property to System Oscillator property group so each oscillator has a separate setting for the clock monitor.
- ENGR00292148 – Interrupt vector handling in MQX Lite fixed when using SSI DMA components in Processor Expert.
- ENGR00292706 – Processor Expert InitCAN component is displayed in Component Library for Kinetis K21F devices in both full and filtered modes.
- ENGR00294780 – Processor Expert FLASH_LDD for Kinetis E Series - SafeRoutine must be 4 bytes aligned, otherwise, depending on the actual address of the routine, address of status register stored in structure is incorrectly read and hard fault exception occurs. Wait in RAM routine is placed on the address modulo 4 to fix the issue.
- ENGR00296021 – DMA Mux module clock not initialized properly in Processor Expert. Removed special condition for Kinetis 50MHz derivatives that incorrectly added suffix 0 to the DMAMUX name.
- ENGR00297465 – Fixed Processor Expert EnterCritical() and ExitCritical() macro implementation for Kinetis family.
- ENGR00299166 – Code generation fails for Kinetis K64 and TSS_Library component in Processor Expert. Added pin model support to TSS_Library component.
- ENGR00299660 – Error when creating project for KE04Z8. Processor Expert code generation script updated to support Kinetis E Series devices.
- ENGR00299680 – Fixed Processor Expert code generation failure. Added missing property for fine fast clock trim address.
- ENGR00300879 – Processor Expert code generation fails for Kinetis K64 and TSS_Library component. Updated TSS_Library component driver.
- ENGR00301559 – Processor Expert entry point __init_hardware() conflicts with MQX entry point __init_hardware(). The Processor Expert entry point function name has been updated to avoid conflicts.

1.4.3 Documentation

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

1.5 Qorivva

1.5.1 Features

- Added P&E Cyclone Universal [FX] support
- Removed support for PX Series devices

1.5.2 Bug Fixes

- ENGR00285949 – Added support for both MPC5606B/MPC5606BK devices to default FLASH programming algorithm

1.5.3 Documentation

- Power Architecture® Processors Build Tools Reference Manual

1.6 RS08/S08

1.6.1 Features

- Added ability to New Project Wizard to allow an application to boot from flash
- Added P&E Cyclone Universal [FX] support

1.6.2 Bug Fixes

- ENGR00280044 – HCS08 debugger updated to correctly show code in banked memory.
- ENGR00290520 – Fixed Processor Expert IntFLASH component for PA16. SetWordFlash, SetLongFlash, SetBlockFlash, SetPage updated to write at misaligned addresses.
- ENGR00298081 – Fixed Processor Expert IntFLASH Component error for S08DZ60.

1.6.3 Documentation

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

1.7 S12Z

1.7.1 Features

- Added 64-bit 'long long' and 64-bit floating point support. (enabled by using "-llong_size=8" command line option)
- Added alignment of global variables - using either attribute object-by-object OR option for all global objects (enabled by "-align_globals" command line option) (speed only)
- Added stack alignment optimization (enabled by "-align_stack" command line option - speed only)
- Added alignment of data structure members (enabled by "-align_structs" command line option - speed only)
- Added common code extraction optimization operating at basic block level
- Added support for inter-procedural analysis and optimizations at compile unit level (enabled by "-ipa file" command line option)
- Added optimization for code generation using a base pointer for global variables accesses (enabled by "-use_base_pointer" command line option)
- Added encoding improvements for more compact code
- Added spill-to-register optimization (enabled by "-spilltoreg" command line option)
- Added optimization to keep 32-bit constant value in memory
- Added bit manipulation optimizations (including bit-fields and bitwise operations)
- Added branch head merge optimization (enabled by "-branch_head_merge" command line option - size only)
- Added code generation support to allow some levels of detection for MIN / MAX / ABS patterns

- Enhanced the information dumped in the MAP file with the used tools version
- Enhanced compiler speed optimizations
- Enhanced alias analysis for more accurate memory accesses disambiguation
- Enhanced branch prediction
- Enhanced code generation with reverse-op constructions
- Enhanced code generation for PRE/POST INC/DEC addressing modes
- Enhanced code generation with elimination of implicit conversions
- Added P&E Cyclone Universal [FX] support

1.7.2 Bug Fixes

- ENGR00256197 – S12ZVH128 software analysis updated to allow action C or D to be set with Analysis points.
- ENGR00276509 – S12Z linker options panel updated to allow message type to be changed.
- ENGR00283352 - Fixed error when set up 'Initialize unused I/O pins' property in Processor Expert CPU component for S12ZVC
- ENGR00294852 – Fixed error building S12Z projects with assembly language (mixed C and assembly language).
- ENGR00295185 – Fixed assembler constant limits issue when using constants defined with EQU directive (exposed for hexadecimal constants that that have the sign-bit set)
- ENGR00297686 – Changed assembler warning message to an error message when a value, which is not supported by the selected addressing mode, is used.
- ENGR00298830 – Missing Processor Expert Init_GDU and Init_PTU components added into installation.

1.7.3 Documentation

- S12Z Assembler Manual
- S12Z Compiler Manual

1.8 Component Development Environment (CDE)

1.8.1 Features

- Components created for New Component Inspector have User Interface (UI) attributes to control how their properties are displayed. Since components can be created for current Component Inspector and New Component Inspector, there is also an option to determine whether or not UI attributes should be saved for a new component.
- Implemented context sensitive help for Export/Import Component, Deploy Component Wizard and Inheritance Wizard.

1.8.2 Bug Fixes

- ENGR00299766 – Fixed issue which caused key shortcuts [e.g. Ctrl-C (copy) and CTRL-V (paste)] to stop working after installing CW MCU v10.5 PEx Update 1.0.0.

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)
- Microsoft Windows 8.1 32-bit and 64-bit (Home Premium Edition and Professional Edition)

3 Product WEB page

CodeWarrior Development Studio for Microcontrollers v10.6 is available for download at http://www.freescale.com/cwmcu10.

4 Installation and Licensing

To install CodeWarrior Development Studio for Microcontrollers v10.6, choose the download option that meets your needs.

The online installer package contains the CW MCU v10.6 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 v10.6 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 derivatives.

New functionality including support for new devices and other FSL architectures can be added to CodeWarrior Development Studio for Microcontrollers v10.6 (CW MCU v10.6) 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 v10.6 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 v10.6, 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:** 6
- **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	
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
ENGR00285343	**Description:** Duplicate global variables are shown in the Variable View. **Workaround:** Use "Remove Global Variables" command to clean the Variable View and then add the required global variable(s) again.
ENGR00300203	**Description:** Disassembly View is empty when a breakpoint is set in Outline View and the Disassembly View is no active when the breakpoint is hit. **Workaround:** Use the "Link with Active Debug Context" button to refresh the Disassembly View. Uncheck it and then check it again. The Disassembly View will be refreshed.
ColdFire/ColdFire+	
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.
ENGR00277322	**Description:** If the "reset" button is selected during a ColdFire debug session using a USB TAP (as opposed to "terminating" the debug session), CodeWarrior will hang. **Workaround:** Terminate the DE.EXE program in the task manager.
DSC	
ENGR00282103	**Description:** CW MCU v10.4 DSC project using –largeAddrInSdm option will not build. **Workaround:** There is no support for -largeAddrInSdm option in project settings. The option can be specified on the "C/C++ Build->Settings->Tool Settings" panel of the "DSC Compiler/Language" page in the field "Other Flags".
ENGR00287718	**Description:** Processor Expert validation rejects valid configurations of DSC peripheral cross bar. **Workaround:** Use PESL macros instead of init components (Init_ENC and Init_AOI) or use ConnectPin method instead of high level and init components (QuadratureEncoder and Init_AOI). QuadratureEncoder must be configured for pin sharing.
ENGR00299457	**Description:** Problem with breakpoints when debugging with USBTAP. **Workaround:** The issue occurs when a short watchdog period is specified. The watchdog should be disabled during debugging.
ENGR00299753	**Description:** Unable to fill the DSC unused memory space with data 0x00. **Workaround:** None. INITVAL representing the link-time initialization value to be used for watermarking a memory segment in a linker command file does not work for zero input.
ENGR00303435	**Description:** DSC register Y is displayed incorrectly. **Workaround:** The value of separate registers Y0 and Y1 should be read instead of combined register Y.
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.

ENGR00284177	**Description:** When an MQX project is edited to debug out of DDR on a TWR-K70 board, the debugger does not download the code to the external DDR memory. **Workaround:** None available.
ENGR00291252	**Description:** Fail to get trace data when using Tracelink after reset. The trace data shows "Trigger packet - ETB" with no other data showing. **Workaround:** Move trace viewer scroll bar up and down to refresh table content.
Qorivva	
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.
ENGR00284202	**Description:** The PXMMU configurator plugin is unavailable for MPC567xK. The MMU configurator view does not show the MMU entries and complains that the MCU is not in the devices list. **Workaround:** None.
ENGR00288114	**Description:** Debugger stops at a breakpoint on a line that has already executed. Use Case: This issue may occur on E200 devices when the debugger is halted manually by the user at an assembly line just in front of the software breakpoint. During software breakpoint handling the PC is changed by an offset of 2 which is especially problematic if a software breakpoint is set within a tight loop. **Workaround:** Use hardware breakpoints which work without limitations.

ENGR00302946	**Description:** Problem in C99 designated array initialization when running beyond the end of an array.
	Workaround/Example:
	typedef struct A { int a[2]; } A;
	typedef struct B { A b; } B;
	typedef struct C { B c[4]; } C;
	
	C c1 = {
	.c = {
	[3].b = { .a = { 1 } }, // compiler bug after this init
	[0].b = { .a = { 2 } }
	}
	};
	
	C c2 = {
	.c = {
	[0].b = { .a = { 2 } },
	[3].b = { .a = { 1 } } // OK if c[3] is defined last
	}
	};

S08	
ENGR00286342	**Description:** The Target Task (Flash file to Target) does not program S19 files into MC13237. **Workaround:** The default "Flash File to Target" task can be modified to remove restricted areas. The following actions are required:

	• Select "Save as Target Task" in the “Flash File to Target” dialog • Specify task name • Perform Erase and Program • In the dialog “Save Resource” specify the path • Open the Target Tasks tab • Select the saved task • Select “Edit task Configuration” from local menu • Double click on Erase and Program operations in the list of Flash Programmer actions • “Add Program/Verify Action” dialog will open • Uncheck "Restrict to Addresses in this Range" • Close dialog with “Update Program Action” button. Now use this task to flash the S19 files into MC13237.
S12Z	
ENGR00296204	**Description:** Debugger Register View missing CPMUCOP (@0x0006cc) under Clock, Reset and Power Management Unit (CPMU). **Workaround:** The register CPMUCOP is displayed under "Computer Operating Properly Watchdog (COP)" group.
ENGR00297274	**Description:** FLASH task does not program FLASH security register to secure S12Z device. **Workaround:** None. By default the FLASH programming task unsecures FLASH.

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 v10.6.

2 MQX v3.8.1 was developed to work with CW MCU v10.2. It is not supported in CW MCU v10.6.

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 v10.6.

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 v10.6.

5 MQX 4.0.2 was developed to work with CW MCU v10.4 and CW MCU v10.5. It has been tested and confirmed to work with CW MCU v10.6.

6 MQX 4.1 was developed to work with CW MCU v10.5. It has been tested and confirmed to work with CW MCU v10.6.

7 MQX Lite RTOS is integrated with CW MCU v10.6. 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.

8 MQX Task Aware Debugger is integrated with CW MCU v10.6 and is automatically installed. This plug-in can be used with all supported MQX versions (i.e. MQX 4.0.x, MQX 4.1 and MQX Lite).

Appendix C: Performance Considerations

CodeWarrior Development Studio for Microcontrollers v10.6 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’