
Release Notes

CodeWarrior™ Development Studio for Microcontrollers v10.6 Update 3.0.0

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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.

CodeWarrior for Microcontrollers v10.6 Update 3.0.0 addresses a number of defects and new features.

New device support:

- S12Z: S12ZVC96, S12ZVCA128, S12ZVCA192, S12ZVCA64, S12ZVCA96
- DSC: MWCT1012, MWCT1212, MWCT1111

Updated support for silicon revisions:

- Kinetis K Series: K11DN512A, K11DX128A, K11DX256A, K21DN512A, K21DX128A, K21DX256A, K21FN1M0A, K21FX512A

1.1 General

1.1.1 Bug Fixes

- ENGR00337850 - When user copies a component that inherits another one, the inherited component loses its name and it's not possible to change it..
- ENGR00331583 - Fixed loading of driver files and change listeners to get actual state of component.
- ENGR00330546 – Flash actions settings lost after close then re-open a target task.
- ENGR00329295 - Cannot change breakpoint's color/text after restarting CodeWarrior.

1.2 ColdFire/ColdFire+

1.2.1 Bug Fixes

- None.

1.3 Digital Signal Controller (DSC)

1.3.1 Bug Fixes

- ENGR00331213 - Configuration of LBUF bit in FCCTL0 register in FreescaleCAN driver (for DSC family) has been fixed.
- ENGR00334933 - Constant floats in data flash generating incorrectly in user defined sections if value is zero
- ENGR00336704 - Internal compiler error for some specific instances of float to long type conversions
- ENGR00338999 - Code generator failure for structure member addressing due to stack sequence optimization
- ENGR00339168 - Byte address becomes corrupted due improper store/restore to pmem addresses in large memory model.
- ENGR00328677 - debugger problem if code split into different memory areas

1.4 Kinetis

1.4.1 New features

- ENGR00341493 - The support of MK20DX256VLK10 and MK20DX256VLL10 Kinetis parts have been added.

1.4.2 Bug Fixes

- ENGR00334255 - SPIMaster_LDD component's driver modified to deassert HALT bit in init method in case more CPU clock configurations when SPIMaster component uses all of them. This change is fixing problem described on FSL community page <https://community.freescale.com/thread/325670>.
- ENGR00338172 - Build problem of TSS library for Kinetis MK21 derivatives has been fixed
- ENGR00333141 - Kinetis L parts with 1kB of RAM: the start address of the SRAM_L area has been fixed.
- ENGR00335071 - EWL spec file not including libc++.a with size librarian.

1.5 Qorivva

1.5.1 Bug Fixes

- ENGR00336504 - MPC5645S SMC register group not found in Debugger Register view
- ENGR00338796 - the MPC5606S.h header file corrected
- ENGR00324541/ ENGR00342343 - Live periodical update feature does not work.
- ENGR00332815 - [e200][MPC5675K] Flash Programmer (Target Task) does not correctly program large elf/s19/bin (>768kB).

1.6 RS08/S08

1.6.1 Bug Fixes

- ENGR00333803 - Fixed an error on HCS08 when multiple KBI components were added in the same project
- ENGR00319635 – Fixed issue with simulator memory display

1.7 S12Z

1.7.1 New features

- Added new intrinsic for handling CLB operations with 8, 16, 32-bit sources and 8, 16, 32-bit results (ENGR00331939)
- Added support for snprintf() function in the standard library (ENGR00334625)

1.7.2 Bug Fixes

- ENGR00330716 - debug information fix (the local variable address was changed during debug) - branch-to-rtos optimization interferes with .debug_loc var ranges.
- ENGR00334798 - fix for warnings in CPP S12/L-ISA stationary
- ENGR00335121 - fix for code generation (addresses DIFF, with one of the addresses absolute)
- Fixed small issues related to peephole optimizations
- Fixed small issue in code generation (size of shifted operand was wrongly filled in).
- ENGR00335971 – resolved issues with debugging code in RAM
- ENGR00334033 – resolved issue with downloading code to RAM for S12ZVM

1.8 Component Development Environment (CDE)

1.8.1 Bug Fixes

- ENGR00331583 - Components created with earlier version of CDE doesn't save properly with all changes made.

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 v10.6 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:** Update 3
- **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	<p>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.</p> <p>Workaround: None</p>
ENGR00285343	<p>Description: Duplicate global variables are shown in the Variable View.</p> <p>Workaround: Use "Remove Global Variables" command to clean the Variable View and then add the required global variable(s) again.</p>
ENGR00300203	<p>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.</p> <p>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.</p>
ENGR00319187	<p>Description: When "Customize linker input order" option is enabled the project build might finish with exception.</p> <p>Workaround: Disable "Customize linker input order" in Linker settings .</p>
ENGR00299517	<p>Description: The user component name in PEx project should be different than the name of the Eclipse project..</p> <p>Workaround: None.</p>
ColdFire/ColdFire+	
ENGR00258435	<p>Description: Target Task flash programmer fails to calculate the correct number of sectors to erase before programming a MCF54418 external NAND flash.</p> <p>Workaround: Modify the Target Task to erase the correct number of sectors.</p>
ENGR00277322	<p>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.</p> <p>Workaround: Terminate the DE.EXE program in the task manager.</p>
ENGR00328361	<p>Description: After enabling Processor Expert in the existing project, new project wizard doesn't remove cfm.c file. It causes a compilation error.</p> <p>Workaround: Remove Sources\cfm.c file in the project before or after enabling Processor Expert in the existing project..</p>
DSC	
ENGR00282103	<p>Description: CW MCU v10.4 DSC project using -largeAddrInSdm option will not build.</p> <p>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".</p>
ENGR00287718	<p>Description: Processor Expert validation rejects valid configurations of DSC peripheral cross bar.</p> <p>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.</p>
ENGR00299457	<p>Description: Problem with breakpoints when debugging with USBTAP.</p> <p>Workaround: The issue occurs when a short watchdog period is specified. The watchdog should be disabled during debugging.</p>
ENGR00299753	<p>Description: Unable to fill the DSC unused memory space with data 0x00.</p> <p>Workaround: None. INITVAL representing the link-time initialization value to be used for watermarking a memory segment in a linker command file does not</p>

	work for zero input.
ENGR00329421	<p>Description: Processor Expert cannot detect name conflict between component name and PESL module name..</p> <p>Workaround: Do not use following names for component: ADC, ADC_SAR, AOI, CAN, CMP, COP, CRC, DAC, DECODER, DMA, EWM, FCAN, FCANMB, FLASH, FMC, FTFL, GPIO, HI8, HSCMP, I2C, INTC, LVI, MCM, MSCAN, MSCANMB, OCCS, PDB, periph, PESLib, PGA, PIT, PMC, PWM, QSCI, QSPI, QTIMER, REF, RTC, SCI, SEMI, SIM, SPI, SSI, SYS, TOD, TSENSOR and XBAR. Please note that Processor Expert may also cause such conflict. See option 'Set periph. Init component name as peripheral'..</p>
Kinetis	
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.</p>
ENGR00284177	<p>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.</p> <p>Workaround: None available.</p>
ENGR00291252	<p>Description: Fail to get trace data when using Tracelink after reset. The trace data shows "Trigger packet - ETB" with no other data showing.</p> <p>Workaround: Move trace viewer scroll bar up and down to refresh table content.</p>
ENGR00320744	<p>Description: DMATransfer_LDD component with MQX does not put the #include "mqx.h" into the generated code and _mem_free in Deinit() is referring to an undefined variable.</p> <p>Workaround: 1) stop code generation of DMATransfer_LDD component 2) add missing #include "mqx.h" 3) In DMAT1_Deinit() method delete ((DMAT1_TDeviceData *)DeviceDataPtr)->DescriptorPtr = NULL; 4) In DMAT1_Deinit() method replace _mem_free(DescriptorPtr) with _mem_free(((DMAT1_TDeviceData *)DeviceDataPtr)->DescriptorPtr);</p>
Qorivva	
ENGR00260637, ENGR00274574	<p>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.</p> <p>Workaround: Use hardware breakpoints, which work without limitations, when debugging two cores concurrently. Use software breakpoints when debugging a single MPC56xx core.</p>
ENGR00284202	<p>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.</p> <p>Workaround: None.</p>
ENGR00288114	<p>Description: Debugger stops at a breakpoint on a line that has already executed.</p> <p>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</p>

	is especially problematic if a software breakpoint is set within a tight loop. Workaround: Use hardware breakpoints which work without limitations.
ENGR00343945	Description: CRC utility returns different result with the same data in flash area Use Case: In case if required memory range for CRC utility are located in different segments then resulting CRC value might be incorrect. Workaround: Have unique entries of memory areas in CRC configuration file for every segment defined in linker file.
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.
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: <ul style="list-style-type: none"> • 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.

Appendix B: 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'

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