



Release Notes

Processor Expert Software – Microcontrollers Driver Suite 10.4.2 Update

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This update provides an additional content for Driver Suite 10.4

This is an incremental update of Driver Suite 10.4. You need to have Driver Suite 10.4 installed in order to be able to apply this update.

Installation instructions

1. Run Driver Suite / Eclipse
2. Go to the main menu Help > Install New Software...
3. Add a new install site using the Add... button
4. Type name of the install site into the Name field (e.g. DS 10.4.2).
5. Click on the Archive... button and find the com.freescale.pexdrv10.4.2.zip.
6. Select the Processor Expert Software – Microcontrollers Driver Suite Update 10.4.2 item.
7. Continue with the wizard. Accept the license agreement during the installation process.
8. Restart Eclipse.

A. What's new in this release

Component Development Environment 1.7

Bug Fixes:

- PEXCDE-228 - [CDE][KDS] The 'Edit method/DRV' unstable operation
- PEXCDE-113 - Not possible to remove the first character in a description of an inherited property - fixed
- PEXCDE-215 - Fixed the behavior when component lost its content after rename
- PEXCDE-172 - The component now loads the property with empty include correctly
- PEXCDE-179 - Fixed exception when changing number value
- PEXCDE-189 - Fixed issue with interface component renaming
- PEXCDE-156 - Content of 'CDE_Getting_Started_Guide' (pdf) updated
- PEXCDE-134 - Fixed adding methods/events into interface after a new component has been registered to it
- PEXCDE-221 - Adding a new user type now works correctly on Linux

Processor Expert Core

New Features:

- PEXCORE-530 - [L4K][MKL46Z256][PinSettings] Conflict display issues
- PEXCORE-434 - New Project Wizard provides filtering based on substring
- PEXCORE-445 - If custom signal name is assigned to the pin, there is also displayed original pin name in drop-down list in PinSettings component
- PEXCORE-392 - Support Project build variables for Kinetis SDK path
- PEXCORE-454 - New Project Wizard is ready for creating projects with Kinetis SDK 1.1.0
- PEXCORE-450 - Archiver flag is set for custom toolchain (for Libraries projects)

Bug Fixes:

- PEXCORE-471 - Creation of new SDK projects on Ubuntu (problem with absolute path)
- PEXCORE-496 - Fixed NullPointerException in the console log if symbols are duplicated in component
- PEXCORE-505 - Fixed error entry in the eclipse log about missing Project_Settings/Debugger
- PEXCORE-430 - Fixed project creation problem in case user fills-in the absolute path for KSDK ending with slash/backslash

Processor Expert Components

Bug Fixes:

- PEXMCU-150 - Can't set 'Baud rate' in Serial_LDD component.
- PEXMCU-522 - The startup.c file has been updated to initialize FPU for chips with FPU support.
- PEXMCU-430 - Missing initialization of SADDR(4-63) and DADDR(4-63) register added.
- PEXMCU-402 - Added implementation of Cpu_EnterCritical() and Cpu_ExitCritical() for Keil compiler into PE_Types.h. Generated Cpu.c file - corrected name of reference manual for Kinetis E derivatives, fixed problem with PE footer'.
- PEXMCU-235 - Corrected clock mode switching in Cpu.c for Kinetis E derivatives.
- PEXMCU-197 - Incorrect checking of allowed frequency limits on 50MHz CPU components has been fixed.
- PEXMCU-157 - Removed IO map and PDD compiler paths adding from the 'Enable Processor Expert for existing C project' feature for IAR compiler as these paths are set automatically by processor component. Removed option 'Append compiler search path to Sources and header files directory' as is duplicate of 'Append compiler search path to Generated_Code and Sources' option.

B. Known problems and limitations

- PEXMCU-756 - It is not possible to create a new Processor Expert project based on a board configuration template (when the project is created for a board rather than for a processor – 2nd page of the New Processor Expert Project Wizard) with a previously installed KSDK GA version once support of a newer KSDK GA version is installed. The board configuration templates from the previous KSDK GA version are overwritten by board configuration templates from the new KSDK GA version. Existing projects are not affected.
- "Enable Processor Expert for existing C project" Wizard doesn't work properly for SDK projects. There is neither a possibility to specify the project the wizard is opened for is the SDK project nor a possibility to specify what SDK should be used for the project.

Workaround:

1. In "Enable Processor Expert for Existing C Project" Wizard select Target Processor with _4SDK suffix. Processors with this suffix are supported by the Kinetis SDK.
2. After Wizard finish an error message occurs and project is not completely generated.
3. Go to project Properties to the "Processor Expert" -> "Kinetis SDK Specific" and fill the SDK path. Use browse button and select a path to the Kinetis SDK folder or fill the

`{KSDK_PATH}` which is default system variable. This variable points to the default Kinetis SDK folder.

4. After this project still shows some errors. Remove the PinSettings component from project and add new PinSettings component from Components Library. This process adds missing `fsl_clock_manager` component to the project too.
 5. Press the button "Generate Processor Expert Code" and project should be generated without errors.
- PEXMCU-141 (ENGR00308769) - In some cases Driver Suite crashes down during the Code Generation process without any error reporting. This behavior has been observed when the IAR eclipse plugin (<http://eclipse-update.iar.com/arm/6.50>) has been installed. The problem is caused by a defect in JRE 1.6: https://bugs.eclipse.org/bugs/show_bug.cgi?id=360855.

Workaround:

Switch to JRE 1.7. If you use the Driver Suite product (Driver Suite Eclipse environment), follow these steps:

1. Close eclipse
 2. Install latest JRE 1.7
 3. Go to the Driver Suite installation folder `<Driver Suite>\eclipse`
 4. Rename folder "jre" to something else, e.g. "jre-bad"
 5. Start eclipse (when step 4 is done, eclipse searches for latest installed Java runtime)
- If you don't want to upgrade your system JRE then you can use JRE 1.7 only for your Driver Suite installation. In such case follow these steps:

1. Download JRE 1.7 in a form of a zip package
2. Replace the current content of the jre folder in `<Driver Suite>\eclipse` folder by the content of the package
3. Restart Driver Suite

This workaround will work also in case of a Eclipse plug-in installation of Driver Suite.

- PEXMCU-158 (ENGR00320785) - projects with SDK mcu's cannot be built in IAR Embedded Workbench.

Workaround:

IAR Workbench doesn't set requested compiler symbol defined in ProjectInfo.xml. For Kinetis SDK projects it is necessary to define appropriate C symbol in IAR project manually, e.g. `CPU_MK70FN1M0VMJ12`.

- PEXMCU-199 (ENGR00322688) - When the Enable PEx for existing C project feature is used for an existing bareboard project the project cannot be compiled.

Workaround:

When adding ProcessorExpert support to an already existing project, files which already exist in the current project may be in conflict with the files added or generated by Processor Expert. Typically, definition of main function or header file definition. In this case user is responsible for identifying the conflicting files and renaming/removing them.

- PEXMCU-531 - PEx TSS component does not work out of the box with KDS. The issue is with `asm()` usage and configuring the project settings.
Workaround: change compiler settings to GNU ISO C90, add the TSS library path to the library path and define `TSS_KXX_M0` as the library. See <https://community.freescale.com/message/435546#435546>
- PEXMCU-782 - K64 Init_FTM component does not allow user to select pins.

Workaround:

It is possible to use PinSettings component to configure the quadrature decoder pins.

- PEXCORE-106 (ENGR00267865), PEXCORE-105 (ENGR00267282) - The CAU_LDD component doesn't work correctly.

Workaround:

Use MMCAU library directly without CAU_LDD component. For more information see the MMCAU library documentation.

- PEXCORE-323 (ENGR00316233) - The Rename function doesn't work as expected

Workaround:

This issue is reproducible only when autobuild enabled, project is changed and without saving renamed. It causes false errors being reported.

There is simple workaround - proceed code generation again to fix it.

- PEXCORE-429 - Combo CPU type displays no items on the first click.

Workaround:

Add new wanted processor. In added CPU set the configuration same as in the original one. Remove old processor.

- PEXCORE-419 - Project file paths with parenthesis prevent PEx from generating code.

Workaround:

Do not use parenthesis in workspace path or in project name.

- PEXCORE-521 - fsl_debug_console component linked mode does not select auto values.

Workaround:

Option "Window – Preferences – Processor Expert – General – Auto connect component" is not applied for automatically added linked components and peripherals are not selected automatically. The component is added un-configured and it is necessary to configure it manually, for example (e.g. MQX_KSDK, fsl_usb_framework, fsl_debug_console,...).

DDR Validation Tool

- Kinetis family processors are not supported in DDRv.
- PEXMCU-458 (ENGR00317464) - Remote connection doesn't work properly and cannot be used for J-Link HW & XTRW-VF65GS10 board in a target connection for a DDR validation session.

Currently only localhost accessible HW can be connected and is working as expected. Note that target connection might display a broken chain with red mark icon which means that HW is not properly connected. This may happen when trying to connect to localhost accessible J-Link HW & XTRW-VF65GS10 board that has been physically connected and powered-up later than the DDR Validation session has started. In that case close and restart the whole Eclipse environment and try to connect to target again.

- Limitation: 64-bit OS's are not supported. DDRv within the Driver Suite requires 32-bit environment.

CDE (Component Development Environment)

- PEXCDE-125 (ENGR00314469) - Inherited/shared components not offered when creating .PEupd
 - Adding inherited/shared components from system directory into the list of components when exporting to .PEupd is not supported yet (only files from workspace).

- This functionality will be supported within solution of component repositories.

Workaround:

- Repeat export for every needed component separately

- PEXCDE-128 - Event procedure name disappears in CDE.

Workaround: Reload project.

- PEXCDE-136 - Home, End and other keys don't work.

Workaround: Use context menu functions.

- PEXCDE-144 (ENGR00318257) - Content of a component could disappear from CDE views if the component inherits other component(s) and you rename it.

Workaround:

When this issue appears the customer simply needs to close and reopen the eclipse project with the component.

- PEXCDE-169 - [CDE][DS10.4] The "<None>" function into the Items don't work as expected.

Workaround: Use Save All function, to delete project use 2 times Delete function.

- PEXCDE-172 (ENGR00322002) - Lost properties issue: If a property of the "Include properties" type is created before its related .item file exist and is used for the property before the component is saved then CDE behaves improperly and could forget all the properties created after this "Include properties" property.

Workaround:

Create the .item file before the "Include properties" property.

- PEXCDE-175 - [CDE][DS 10.4.1]The "Value" ComboBox of "Type Spec Name" cannot save after save state.

Workaround: none, or don't use any custom type specifier name.

- PEXCDE-176 - [CDE][DS 10.4.1] The "TPrphNameItem" Property Type does work as expected.

Workaround: none

- PEXCDE-144 (ENGR00318257) - Content of a component could disappear from CDE views if the component inherits other component(s) and you rename it.

Workaround:

- When this issue appears the customer simply needs to close and reopen the eclipse project with the component.

- PEXCDE-208 - Deploy doesn't work if project is linked.

Workaround: Copy changed files from workspace to deploy location manually.

- PEXCDE-212 - CDE changes Components version after load/save.

- PEXCDE-227 - Multiline hints are not processed properly.

Workaround: Edit hints in external editor and copy paste to them.

Kinetis limitations:

- CAN_LDD - due to silicon 1.0 limitation the CAN will work only when System Oscillator in CPU component is enabled
 - (Clock settings\System oscillator) and OSCERCLK clock is enabled
 - (Clock settings\Clock configuration\External reference clock\OSCERCLK clock).
- SSI_LDD - due to silicon 1.0 problems with prescalers in System Integration module these prescalers are not used by SSI_LDD component.

Vybrid limitations:

- No dual-core support. Only A5 core supported in the generated code.
- Vybrid silicon 1.1 supported and used for testing.

C. Product Content

Components

1. Kinetis K CPU Components

- MK10DN128xxx5 - MK10DN128VLH5, MK10DN128VMP5, MK10DN128VFT5, MK10DN128VLF5, MK10DN128VFM5
- MK10DN32xxx5 - MK10DN32VLH5, MK10DN32VMP5, MK10DN32VFT5, MK10DN32VLF5, MK10DN32VFM5
- MK10DN512xxx10 - MK10DN512VLQ10, MK10DN512VMD10, MK10DN512VMC10, MK10DN512VLL10, MK10DN512VLK10
- MK10DN512Zxxx10 - MK10DN512ZVLQ10, MK10DN512ZVMD10, MK10DN512ZVMB10, MK10DN512ZVMC10, MK10DN512ZVLL10, MK10DN512ZVLK10
- MK10DN64xxx5 - MK10DN64VLH5, MK10DN64VMP5, MK10DN64VFT5, MK10DN64VLF5, MK10DN64VFM5
- MK10DX128xxx10 - MK10DX128VLQ10, MK10DX128VMD10
- MK10DX128xxx5 - MK10DX128VLH5, MK10DX128VMP5, MK10DX128VFT5, MK10DX128VLF5, MK10DX128VFM5
- MK10DX128xxx7 - MK10DX128VLL7, MK10DX128VLK7, MK10DX128VLH7
- MK10DX128Zxxx10 - MK10DX128ZVLQ10, MK10DX128ZVMD10
- MK10DX256xxx10 - MK10DX256VLQ10, MK10DX256VMD10
- MK10DX256xxx7 - MK10DX256VLL7, MK10DX256VLK7, MK10DX256VLH7
- MK10DX256Zxxx10 - MK10DX256ZVLQ10, MK10DX256ZVMD10
- MK10DX32xxx5 - MK10DX32VLH5, MK10DX32VMP5, MK10DX32VFT5, MK10DX32VLF5, MK10DX32VFM5
- MK10DX64xxx5 - MK10DX64VLH5, MK10DX64VMP5, MK10DX64VFT5, MK10DX64VLF5, MK10DX64VFM5
- MK10DX64xxx7 - MK10DX64VLK7, MK10DX64VLH7
- MK10FN1M0xxx12 - MK10FN1M0VLQ12, MK10FN1M0VMD12
- MK10FX512xxx12 - MK10FX512VLQ12, MK10FX512VMD12
- MK11DN512xxx5 - MK11DN512VMC5, MK11DN512VLK5
- MK11DX128xxx5 - MK11DX128VMC5, MK11DX128VLK5
- MK11DX256xxx5 - MK11DX256VMC5, MK11DX256VLK5
- MK12DN512xxx5 - MK12DN512VMC5, MK12DN512VLK5, MK12DN512VLH5
- MK12DX128xxx5 - MK12DX128VMC5, MK12DX128VLK5, MK12DX128VLH5, MK12DX128VLF5
- MK12DX256xxx5 - MK12DX256VMC5, MK12DX256VLK5, MK12DX256VLH5, MK12DX256VLF5
- MK20DN128xxx5 - MK20DN128VLH5, MK20DN128VMP5, MK20DN128VFT5, MK20DN128VLF5, MK20DN128VFM5
- MK20DN32xxx5 - MK20DN32VLH5, MK20DN32VMP5, MK20DN32VFT5, MK20DN32VLF5, MK20DN32VFM5
- MK20DN512xxx10 - MK20DN512VLQ10, MK20DN512VMD10, MK20DN512VMC10, MK20DN512VLL10, MK20DN512VLK10
- MK20DN512Zxxx10 - MK20DN512ZVLQ10, MK20DN512ZVMD10, MK20DN512ZVMB10, MK20DN512ZVMC10, MK20DN512ZVLL10, MK20DN512ZVLK10
- MK20DN64xxx5 - MK20DN64VLH5, MK20DN64VMP5, MK20DN64VFT5, MK20DN64VLF5, MK20DN64VFM5

- MK20DX128xxx10 - MK20DX128VLQ10, MK20DX128VMD10
- MK20DX128xxx5 - MK20DX128VLH5, MK20DX128VMP5, MK20DX128VFT5, MK20DX128VLF5, MK20DX128VFM5
- MK20DX128xxx7 - MK20DX128VLL7, MK20DX128VLK7, MK20DX128VLH7
- MK20DX128Zxxx10 - MK20DX128ZVLQ10, MK20DX128ZVMD10
- MK20DX256xxx10 - MK20DX256VLQ10, MK20DX256VMD10, MK20DX256VMC10
- MK20DX256xxx7 - MK20DX256VLL7, MK20DX256VLK7, MK20DX256VLH7
- MK20DX256Zxxx10 - MK20DX256ZVLQ10, MK20DX256ZVMD10, MK20DX256ZVMB10, MK20DX256ZVMC10, MK20DX256ZVLL10, MK20DX256ZVLK10
- MK20DX32xxx5 - MK20DX32VLH5, MK20DX32VMP5, MK20DX32VFT5, MK20DX32VLF5, MK20DX32VFM5
- MK20DX64xxx5 - MK20DX64VLH5, MK20DX64VMP5, MK20DX64VFT5, MK20DX64VLF5, MK20DX64VFM5
- MK20DX64xxx7 - MK20DX64VLK7, MK20DX64VLH7
- MK20FN1M0xxx12 - MK20FN1M0VLQ12, MK20FN1M0VMD12
- MK20FX512xxx12 - MK20FX512VLQ12, MK20FX512VMD12
- MK21DN512xxx5 - MK21DN512VMC5, MK21DN512VLK5
- MK21DX128xxx5 - MK21DX128VMC5, MK21DX128VLK5
- MK21DX256xxx5 - MK21DX256VMC5, MK21DX256VLK5
- MK21FN1M0xxx12 - MK21FN1M0VLQ12, MK21FN1M0VMD12, MK21FN1M0VMC12
- MK21FX512xxx12 - MK21FX512VLQ12, MK21FX512VMD12, MK21FX512VMC12
- MK22DN512xxx5 - MK22DN512VMC5, MK22DN512VLK5, MK22DN512VLH5
- MK22DX128xxx5 - MK22DX128VMC5, MK22DX128VLK5, MK22DX128VLH5, MK22DX128VLF5
- MK22DX256xxx5 - MK22DX256VMC5, MK22DX256VLK5, MK22DX256VLH5, MK22DX256VLF5
- MK22FN1M0xxx12 - MK22FN1M0VLQ12, MK22FN1M0VMD12, MK22FN1M0VMC12, MK22FN1M0VLL12, MK22FN1M0VLK12, MK22FN1M0VLH12
- MK22FX512xxx12 - MK22FX512VLQ12, MK22FX512VMD12, MK22FX512VMC12, MK22FX512VLL12, MK22FX512VLK12, MK22FX512VLH12
- MK24FN1M0xxx12 - MK24FN1M0VLQ12, MK24FN1M0VDC12
- MK30DN512xxx10 - MK30DN512VLQ10, MK30DN512VMD10, MK30DN512VMC10, MK30DN512VLL10, MK30DN512VLK10
- MK30DN512Zxxx10 - MK30DN512ZVLQ10, MK30DN512ZVMD10, MK30DN512ZVMB10, MK30DN512ZVMC10, MK30DN512ZVLL10, MK30DN512ZVLK10
- MK30DX128xxx10 - MK30DX128VLQ10, MK30DX128VMD10
- MK30DX128xxx7 - MK30DX128VLL7, MK30DX128VLK7, MK30DX128VLH7
- MK30DX128Zxxx10 - MK30DX128ZVLQ10, MK30DX128ZVMD10
- MK30DX256xxx10 - MK30DX256VLQ10, MK30DX256VMD10
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- MK30DX256Zxxx10 - MK30DX256ZVLQ10, MK30DX256ZVMD10
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- MK40DX128Zxxx10 - MK40DX128ZVLQ10, MK40DX128ZVMD10
- MK40DX256xxx10 - MK40DX256VLQ10, MK40DX256VMD10
- MK40DX256xxx7 - MK40DX256VLL7, MK40DX256VLK7, MK40DX256VLH7
- MK40DX256Zxxx10 - MK40DX256ZVLQ10, MK40DX256ZVMD10
- MK40DX64xxx7 - MK40DX64VLK7, MK40DX64VLH7

- MK50DN512xxx10 - MK50DN512CLQ10, MK50DN512CMD10, MK50DN512CMC10, MK50DN512CLL10
- MK50DN512Zxxx10 - MK50DN512ZCLQ10, MK50DN512ZCMD10, MK50DN512ZCMC10, MK50DN512ZCLL10
- MK50DX128xxx7 - MK50DX128CLK7, MK50DX128CLH7
- MK50DX256xxx10 - MK50DX256CMD10, MK50DX256CMC10, MK50DX256CLL10, MK50DX256CLK10
- MK50DX256xxx7 - MK50DX256CLL7, MK50DX256CLK7
- MK50DX256Zxxx10 - MK50DX256ZCMB10, MK50DX256ZCMC10, MK50DX256ZCLL10, MK50DX256ZCLK10
- MK51DN256xxx10 - MK51DN256CLQ10, MK51DN256CMD10
- MK51DN256Zxxx10 - MK51DN256ZCLQ10, MK51DN256ZCMD10
- MK51DN512xxx10 - MK51DN512CLQ10, MK51DN512CMD10, MK51DN512CMC10, MK51DN512CLL10
- MK51DN512Zxxx10 - MK51DN512ZCLQ10, MK51DN512ZCMD10, MK51DN512ZCMC10, MK51DN512ZCLL10
- MK51DX128xxx7 - MK51DX128CLK7, MK51DX128CLH7
- MK51DX256xxx10 - MK51DX256CMC10, MK51DX256CLL10, MK51DX256CLK10
- MK51DX256xxx7 - MK51DX256CLL7, MK51DX256CLK7
- MK51DX256Zxxx10 - MK51DX256ZCMB10, MK51DX256ZCMC10, MK51DX256ZCLL10, MK51DX256ZCLK10
- MK52DN512xxx10 - MK52DN512CLQ10, MK52DN512CMD10
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- MK53DN512xxx10 - MK53DN512CLQ10, MK53DN512CMD10
- MK53DN512Zxxx10 - MK53DN512ZCLQ10, MK53DN512ZCMD10
- MK53DX256xxx10 - MK53DX256CLQ10, MK53DX256CMD10
- MK53DX256Zxxx10 - MK53DX256ZCLQ10, MK53DX256ZCMD10
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- MK60DN512Zxxx10 - MK60DN512ZVLQ10, MK60DN512ZVMD10, MK60DN512ZVMC10, MK60DN512ZVLL10
- MK60DX256xxx10 - MK60DX256VLQ10, MK60DX256VMD10, MK60DX256VMC10, MK60DX256VLL10
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- MK60FN1M0xxx12 - MK60FN1M0VLQ12, MK60FN1M0VMD12
- MK60FN1M0xxx15 - MK60FN1M0VLQ15, MK60FN1M0VMD15
- MK60FX512xxx12 - MK60FX512VLQ12, MK60FX512VMD12
- MK60FX512xxx15 - MK60FX512VLQ15, MK60FX512VMD15
- MK61FN1M0xxx12 - MK61FN1M0VMJ12, MK61FN1M0VMD12
- MK61FN1M0xxx15 - MK61FN1M0VMJ15, MK61FN1M0VMD15
- MK61FX512xxx12 - MK61FX512VMJ12, MK61FX512VMD12
- MK61FX512xxx15 - MK61FX512VMJ15, MK61FX512VMD15
- MK63FN1M0xxx12 - MK63FN1M0VLQ12, MK63FN1M0VMD12
- MK64FN1M0xxx12 - MK64FN1M0VLQ12, MK64FN1M0VMD12, MK64FN1M0VDC12, MK64FN1M0VLL12
- MK64FX512xxx12 - MK64FX512VLQ12, MK64FX512VMD12, MK64FX512VDC12, MK64FX512VLL12
- MK70FN1M0xxx12 - MK70FN1M0VMJ12

- MK70FN1M0xxx15 - MK70FN1M0VMJ15
 - MK70FX512xxx12 - MK70FX512VMJ12
 - MK70FX512xxx15 - MK70FX512VMJ15
2. Kinetis E CPU Components
- MKE02Z16xxx2 - MKE02Z16VLD2, MKE02Z16VLC2
 - MKE02Z16xxx4 - MKE02Z16VLD4, MKE02Z16VLC4
 - MKE02Z32xxx2 - MKE02Z32VLH2, MKE02Z32VQH2, MKE02Z32VLD2, MKE02Z32VLC2
 - MKE02Z32xxx4 - MKE02Z32VLH4, MKE02Z32VQH4, MKE02Z32VLD4, MKE02Z32VLC4
 - MKE02Z64xxx2 - MKE02Z64VLH2, MKE02Z64VQH2, MKE02Z64VLD2, MKE02Z64VLC2
 - MKE02Z64xxx4 - MKE02Z64VLH4, MKE02Z64VQH4, MKE02Z64VLD4, MKE02Z64VLC4
 - MKE04Z128xxx4 - MKE04Z128VLK4, MKE04Z128VLH4, MKE04Z128VQH4, MKE04Z128VLD4
 - MKE04Z64xxx4 - MKE04Z64VLK4, MKE04Z64VLH4, MKE04Z64VQH4, MKE04Z64VLD4
 - MKE04Z8xxx4 - MKE04Z8VFK4, MKE04Z8VWJ4, MKE04Z8VTG4
 - MKE06Z128xxx4 - MKE06Z128VLK4, MKE06Z128VLH4, MKE06Z128VQH4, MKE06Z128VLD4
 - MKE06Z64xxx4 - MKE06Z64VLK4, MKE06Z64VLH4, MKE06Z64VQH4, MKE06Z64VLD4
3. Kinetis EA CPU Components
- SKEAZ128xxx4 - SKEAZ128MLK4, SKEAZ128MLH4, SKEAZ128MLD4
 - SKEAZ64xxx4 - SKEAZ64MLK4, SKEAZ64MLH4, SKEAZ64MLD4
 - SKEAZN16xxx2 - SKEAZN16MLD2, SKEAZN16MLC2
 - SKEAZN32xxx2 - SKEAZN32MLH2, SKEAZN32MLD2, SKEAZN32MLC2
 - SKEAZN64xxx2 - SKEAZN64MLH2, SKEAZN64MLD2, SKEAZN64MLC2
 - SKEAZN8xxx4 - SKEAZN8MFK4, SKEAZN8MTG4
4. Kinetis L CPU Components
- MKL02Z16xxx4 - MKL02Z16VFM4, MKL02Z16VFK4, MKL02Z16VFG4
 - MKL02Z32xxx4 - MKL02Z32VFM4, MKL02Z32VFK4, MKL02Z32CAF4, MKL02Z32VFG4
 - MKL02Z8xxx4 - MKL02Z8VFG4
 - MKL04Z16xxx4 - MKL04Z16VLF4, MKL04Z16VFM4, MKL04Z16VLC4, MKL04Z16VFK4
 - MKL04Z32xxx4 - MKL04Z32VLF4, MKL04Z32VFM4, MKL04Z32VLC4, MKL04Z32VFK4
 - MKL04Z8xxx4 - MKL04Z8VFM4, MKL04Z8VLC4, MKL04Z8VFK4
 - MKL05Z16xxx4 - MKL05Z16VLF4, MKL05Z16VFM4, MKL05Z16VLC4, MKL05Z16VFK4
 - MKL05Z32xxx4 - MKL05Z32VLF4, MKL05Z32VFM4, MKL05Z32VLC4, MKL05Z32VFK4
 - MKL05Z8xxx4 - MKL05Z8VFM4, MKL05Z8VLC4, MKL05Z8VFK4
 - MKL14Z32xxx4 - MKL14Z32VLK4, MKL14Z32VLH4, MKL14Z32VFT4, MKL14Z32VFM4
 - MKL14Z64xxx4 - MKL14Z64VLK4, MKL14Z64VLH4, MKL14Z64VFT4, MKL14Z64VFM4
 - MKL15Z128xxx4 - MKL15Z128VLK4, MKL15Z128VLH4, MKL15Z128VFT4, MKL15Z128VFM4
 - MKL15Z32xxx4 - MKL15Z32VLK4, MKL15Z32VLH4, MKL15Z32VFT4, MKL15Z32VFM4
 - MKL15Z64xxx4 - MKL15Z64VLK4, MKL15Z64VLH4, MKL15Z64VFT4, MKL15Z64VFM4
 - MKL16Z128xxx4 - MKL16Z128VLH4, MKL16Z128VFT4, MKL16Z128VFM4
 - MKL16Z256xxx4 - MKL16Z256VLK4, MKL16Z256VLH4
 - MKL16Z32xxx4 - MKL16Z32VLH4, MKL16Z32VFT4, MKL16Z32VFM4
 - MKL16Z64xxx4 - MKL16Z64VLH4, MKL16Z64VFT4, MKL16Z64VFM4
 - MKL24Z32xxx4 - MKL24Z32VLK4, MKL24Z32VLH4, MKL24Z32VFT4, MKL24Z32VFM4
 - MKL24Z64xxx4 - MKL24Z64VLK4, MKL24Z64VLH4, MKL24Z64VFT4, MKL24Z64VFM4
 - MKL25Z128xxx4 - MKL25Z128VLK4, MKL25Z128VLH4, MKL25Z128VFT4, MKL25Z128VFM4
 - MKL25Z32xxx4 - MKL25Z32VLK4, MKL25Z32VLH4, MKL25Z32VFT4, MKL25Z32VFM4

- MKL25Z64xxx4 - MKL25Z64VLK4, MKL25Z64VLH4, MKL25Z64VFT4, MKL25Z64VFM4
 - MKL26Z128xxx4 - MKL26Z128VMC4, MKL26Z128VLL4, MKL26Z128VLH4, MKL26Z128VFT4, MKL26Z128VFM4
 - MKL26Z256xxx4 - MKL26Z256VMC4, MKL26Z256VLL4, MKL26Z256VLK4, MKL26Z256VLH4
 - MKL26Z32xxx4 - MKL26Z32VLH4, MKL26Z32VFT4, MKL26Z32VFM4
 - MKL26Z64xxx4 - MKL26Z64VLH4, MKL26Z64VFT4, MKL26Z64VFM4
 - MKL34Z64xxx4 - MKL34Z64VLL4, MKL34Z64VLH4
 - MKL36Z128xxx4 - MKL36Z128VMC4, MKL36Z128VLL4, MKL36Z128VLH4
 - MKL36Z256xxx4 - MKL36Z256VMC4, MKL36Z256VLL4, MKL36Z256VLH4
 - MKL36Z64xxx4 - MKL36Z64VLL4, MKL36Z64VLH4
 - MKL46Z128xxx4 - MKL46Z128VMC4, MKL46Z128VLL4, MKL46Z128VLH4
 - MKL46Z256xxx4 - MKL46Z256VMC4, MKL46Z256VLL4, MKL46Z256VLH4
5. Kinetis V CPU Components
- MKV10Z16xxx7 - MKV10Z16VLF7, MKV10Z16VFM7, MKV10Z16VLC7
 - MKV10Z32xxx7 - MKV10Z32VLF7, MKV10Z32VFM7, MKV10Z32VLC7
6. ColdFire+ CPU Components
- MCF51JF128 - MCF51JF128VHX, MCF51JF128VLH, MCF51JF128VHS
 - MCF51JF32 - MCF51JF32VHS, MCF51JF32VFM
 - MCF51JF64 - MCF51JF64VLF, MCF51JF64VHS
 - MCF51JG128 - MCF51JG128CFT, MCF51JG128CHS
 - MCF51JG256 - MCF51JG256CFT, MCF51JG256CHS
 - MCF51JG64 - MCF51JG64CFT, MCF51JG64CHS
 - MCF51JU128 - MCF51JU128VHX, MCF51JU128VLH, MCF51JU128VHS
 - MCF51JU32 - MCF51JU32VHS, MCF51JU32VFM
 - MCF51JU64 - MCF51JU64VLF, MCF51JU64VHS
 - MCF51QM128 - MCF51QM128VHX, MCF51QM128VLH, MCF51QM128VHS
 - MCF51QM32 - MCF51QM32VHS, MCF51QM32VFM
 - MCF51QM64 - MCF51QM64VLF, MCF51QM64VHS
 - MCF51QU128 - MCF51QU128VHX, MCF51QU128VLH, MCF51QU128VHS
 - MCF51QU32 - MCF51QU32VHS, MCF51QU32VFM
 - MCF51QU64 - MCF51QU64VLF, MCF51QU64VHS
7. Vybrid CPU Components
- MVF30NN151KU26 - MVF30NN151KU26
 - MVF50NN151MK40 - MVF50NN151MK40
 - MVF50NN151MK50 - MVF50NN151MK50
 - MVF51NN151MK50 - MVF51NN151MK50
 - MVF60NN151MK40 - MVF60NN151MK40
 - MVF60NN151MK50 - MVF60NN151MK50
 - MVF61NN151MK50 - MVF61NN151MK50
 - MVF62NN151MK40 - MVF62NN151MK40
 - SVF311R3KU2 - SVF311R3KU2
 - SVF312R3KU2 - SVF312R3KU2
 - SVF321R3KU2 - SVF321R3KU2
 - SVF322R3KU2 - SVF322R3KU2
 - SVF332R3KU2 - SVF332R3KU2
 - SVF511R3MK4 - SVF511R3MK4
 - SVF512R3MK4 - SVF512R3MK4
 - SVF521R3MK4 - SVF521R3MK4

- SVF522R2MK4 - SVF522R2MK4
- SVF522R3MK4 - SVF522R3MK4
- SVF532R3MK4 - SVF532R3MK4

8. Logical Device Driver Components

- ADC_LDD
- AnalogComp_LDD
- BitIO_LDD
- BitsIO_LDD
- CAN_LDD
- Capture_LDD
- CAU_LDD
- CMT_LDD
- CRC_LDD
- DAC_LDD
- DMA_LDD
- DMAChannel_LDD
- DMATransfer_LDD
- Ethernet_LDD
- EventCntr_LDD
- ExtInt_LDD
- Flash_LDD
- FreeCntr_LDD
- GPIO_LDD
- I2C_LDD
- LCDC_LDD
- NFC_LDD
- PPG_LDD
- PWM_LDD
- RealTime_LDD
- RNG_LDD
- RTC_LDD
- SDHC_LDD
- SegLCD_LDD
- Serial_LDD
- Shared_LDD
- SPIMaster_LDD
- SPISlave_LDD
- SSI_LDD
- TimeDate_LDD
- TimerInt_LDD
- TimerOut_LDD
- TimerUnit_LDD
- TSI_LDD
- USB_LDD
- WatchDog_LDD

9. High/Low level components

- ADC

- AsynchroSerial
- BasicProperties
- BitIO
- BitsIO
- ByteIO
- Capture
- ConsoleIO
- DAC
- DMAController
- EventCntr16
- EventCntr32
- EventCntr8
- ExternalFile
- ExtInt
- FreeCntr
- FreeCntr16
- FreeCntr32
- FreeCntr8
- FreescaleAnalogComp
- Internall2C
- InterruptVector
- IntFlash
- PPG
- PWM
- StringList
- SynchroMaster
- SynchroSlave
- TimeDate
- TimerInt
- TimerOut
- TSS_Library
- TwoKeys
- WatchDog

10. RTOS adapters for Logical Device Drivers

- Bareboard
- MQX
- MQXLite
- MQXLite_task

11. Peripheral Initialization Components

- Init_ACMP_VAR1
- Init_ADC_VAR0
- Init_ADC_VAR3
- Init_AIPS0_VAR0
- Init_AIPS1_VAR0
- Init_AXBS_VAR0
- Init_CAN_VAR0

- Init_CAN_VAR1
- Init_CMT_VAR0
- Init_COP_COLDFIREPLUS
- Init_COP_KINETIS
- Init_CRC_VAR0
- Init_DAC_VAR0
- Init_DAC_VAR4
- Init_DDR_KINETIS
- Init_DMA_VAR0
- Init_DMAMUX_VAR0
- Init_eDMA_VAR0
- Init_ENET_VAR0
- Init_EWM_VAR0
- Init_FB_VAR0
- Init_FMC_VAR0
- Init_FMC_VAR1
- Init_FTFL_VAR0
- Init_FTM_VAR0
- Init_FTM_VAR1
- Init_FTMR_VAR0
- Init_GPIO_VAR0
- Init_GPIO_VAR1
- Init_HSCMP_VAR0
- Init_I2C_VAR0
- Init_I2S_VAR0
- Init_I2S_VAR1
- Init_IRQ_VAR0
- Init_KBI_VAR0
- Init_LCDC_VAR0
- Init_LLWU_VAR0
- Init_LPTMR_VAR0
- Init_MCM_VAR2
- Init_MCM_VAR3
- Init_MPU_VAR0
- Init_MTIM_VAR0
- Init_NFC_VAR0
- Init_NVIC_VAR0
- Init_NVIC_VAR1
- Init_OPAMP_VAR0
- Init_PDB_VAR0
- Init_PGA_VAR0
- Init_PIT_VAR0
- Init_PMC_VAR0
- Init_PMC_VAR2
- Init_PORT_VAR0
- Init_PORT_VAR1
- Init_PWT_VAR0
- Init_RCM_VAR0

- Init_RGPIIO_VAR0
- Init_RNG_VAR0
- Init_RNG_VAR1
- Init_RTC_VAR0
- Init_RTC_VAR1
- Init_SCB_VAR0
- Init_SDHC_VAR0
- Init_SIM_VAR2
- Init_SIM_VAR3
- Init_SIM_VAR4
- Init_SLCD_VAR0
- Init_SMC_VAR0
- Init_SPI_VAR0
- Init_SPI_VAR1
- Init_SRTC_VAR0
- Init_SysTick_VAR0
- Init_TPM_VAR0
- Init_TRIAMP_VAR0
- Init_TSI_VAR0
- Init_TSI_VAR2
- Init_TSI_VAR3
- Init_UART_VAR0
- Init_USB_OTG_HS_VAR0
- Init_USB_OTG_VAR0
- Init_USBDCCD_VAR0
- Init_VREF_VAR0
- Init_WDOG_VAR0
- PinSettings

12. PDD Modules

- ADC_PDD
- ASRC_PDD
- CAN_PDD
- CCM_PDD
- CMP_PDD
- CMT_PDD
- COP_PDD
- CRC_PDD
- DAC_PDD
- DMAMUX_PDD
- DMA_PDD
- ENET_PDD
- EWM_PDD
- FMC_PDD
- FTFA_PDD
- FTFE_PDD
- FTFL_PDD
- FTMRE_PDD
- FTMRH_PDD

- FTM_PDD
- GIC_PDD
- GPIO_PDD
- I2C_PDD
- I2S_PDD
- IOMUXC_PDD
- IRQ_PDD
- KBI_PDD
- LCDC_PDD
- LCD_PDD
- LLWU_PDD
- LPTMR_PDD
- LPUART_PDD
- MCG_PDD
- MCM_PDD
- MSCAN_PDD
- NFC_PDD
- NVIC_PDD
- OCOTP_PDD
- OSC_PDD
- PDB_PDD
- PDD_Types
- PIT_PDD
- PMC_PDD
- PORT_PDD
- PWT_PDD
- RCM_PDD
- RNGA_PDD
- RNG_PDD
- RTC0_PDD
- RTC_PDD
- SAI_PDD
- SCB_PDD
- SDHC_PDD
- SIM_PDD
- SMC_PDD
- SPDIF_PDD
- SPI_PDD
- SysTick_PDD
- TPM_PDD
- TSI_PDD
- UART0_PDD
- UART_PDD
- USBDCD_PDD
- USBHS_PDD
- USB_PDD
- VREF_PDD
- WDOG_PDD

D. Processor Expert directory overview

ProcessorExpert\	
Beans\	- Components configuration files
Config\	- Actual configuration of Processor Expert(TM)
CPUs\	- CPU components configuration files
DOCs\	- Documentation and help files
Drivers\	- Contains component drivers
Help\	- Contains user guides
Lib\	- Contains platform depended static files
Lib\mqxlite	- Contains MQX-Lite source files
Projects\	- Demo, tutorial and test projects
other Processor Expert files	

E. Revision History

Processor Expert Software - Microcontrollers Driver Suite 10.4.1 Update (PEX version 10.4.18)

New Features:

- DDR Validation Tool for Vybrid processors has been added.
- Several improvements in PinSettings user interface.

Bug Fixes:

- ENGR00315167 - Fixed in component inspector 'Tabs view' wrong validation on allowed value range for Date or Time.
- ENGR00310645 - Linux home directory contained empty directory structure after creation of PEx project.
- ENGR00311282 - Fixed generation of ProjectInfo.xml: code path for static files were missing during fist code generation.
- ENGR00302967 - Fixed issue PEx hangs Eclipse for two minutes deleting a project after internal error during load.
- ENGR00314227 - Fixed issue with linked component was inserted twice to the project.
- ENGR00315100 - When CPU variant/package was switched in Component Inspector or Target Processor view, eclipse hanged.
- ENGR00312615 - Fixed issue with timing dialog - fixed list of values was initialized incorrectly.
- ENGR00314670 - When CPU variant/package was switched in Component Inspector or Target Processor view, eclipse hanged.
- ENGR00308990 - Fixed problem with deleting component while other components are in process of adding into project.
- ENGR00314897 - Updated configuration of Init_DDR_VYBRID component based on DDRMC documentation changes for VYBRID.
- ENGR00313770 - Fixed creation of PEx project for SKEA128xxx4, SKEAZ64xxx4 derivatives
- ENGR00313089 - ADC component now became correctly unavailable by Vybrid family.
- ENGR00315899 - Fixed problem with TSI EnableDevice PDD macro.
- ENGR00313816 - Fixed floating-point registers saving during context switch for Cortex-M4F devices.
- ENGR00312120 - Missing PEcfg_<CONFIGURATION_NAME> define generated to processor Cpu.h header.

- ENGR00309178 - Fixed ADC CFG2[MUXSEL] bit handling in ADC_LDD component. Problem occurred only in case of b-mux channel selection and only on MCUs that doesn't support pin settings.
- ENGR00308825 - Fixed Unexpected status of srcipt: Beans\ADC\ADC_LDD.chg, please contact freescale support
- ENGR00308573 - An error preventing successful generation of project set for IAR compiler and MQX operating system has been fixed.
- ENGR00308314 - Fixed CAN_LDD idle/busy state in the SendFrame() method. Now is checking every message buffer state separately.
- ENGR00307927 - Initialization sequence has been improved to avoid unwanted interrupt caused by settings MUX and IRQC bit groups at the same time.
- Fixed bug that interrupt was enabled in Init method although Enable in Init. code property was set to no.
- ENGR00307843 - An error preventing successful generation of project using MK64 cpu and FLASH_LDD component has been fixed.
- ENGR00306958 - Fixed reconfiguration of Init_DDR_VYBRID component DDR settings using 'Reconfigure...' menu option. The default settings obtained from the reconfigure wizard didn't work in DDR Validation tool on the Vybrid XTWR-VF65GS10 board.
- ENGR00304943 - Default code in TSS event was surrounded by #ifdef directives. TSS component does not report compilation error after its removal from project now.
- ENGR00304174 - Fixed an error in ADC component when more than 20 channels are used.
- ENGR00300762 - Range check error bug fixed.
- ENGR00314900 - Corrected bug in projects with AsynchroSerial component using low power UARTs (missing symbol SIM_PDD_SetClockSourceUART0()).
- ENGR00317168 - CPU component: Fixed clock settings related to external oscillator mode (FEE, FBE).
- ENGR00298490 - Fixed: Usage of 'Reconfigure ...' menu option for Init_DDR_VYBRID component may cause the whole DDR validation fails even though it previously succeeded.
- ENGR00316824 - Init() method of Serial_LDD component is always enabled. Checking state of Init() method for MQX removed from LDD script.
- ENGR00316059 - Fix of unnecessary project build after project re-opening.
- ENGR00318581 - Clock gate initialization moved after USB divider setting.
- ENGR00318859 - An internal error issued when MCM module configuration is enabled has been fixed.
- ENGR00309890 - Fixed defect: An internal error appears when generation of linker file is disabled.

Component Development Environment 1.7

New Features:

- ENGR00311146 - Support editing of folders for methods and events into CDE.
- ENGR00276516 - 'Enter' button in in the Target Project page in the New component wizard causes shift to the next page.
- ENGR00260876 - CDE supports C++ in generated drivers.
- CDE now supports adding new local Property Type File using context menu.

Bug Fixes:

- ENGR00310102 - Wrong predefined project name in KDS - fixed.
- ENGR00309872 - Missing 'Show CPU specific methods and events' check box when adding method or event into interface - fixed.
- ENGR00308450 - CDE now correctly reads all .tps files from encrypted PEx Data.
- ENGR00309876 - After the method/event parameter editing, it isn't moved to the end of parameters list in method/event implementation and declaration.
- ENGR00319484 - Fixed defect:
 - copy and then paste action (Property Type) implementation was corrupted (paste action tried to add Property Type to Property Types instead of Property Type File)
 - delete action tried to remove Property Type from wrong parent object

Processor Expert Software - Microcontrollers Driver Suite 10.4 (PEx version 10.4.00)

Newly supported derivatives in this release:

Kinetis E family:

- MKE06Z128xxx4, MKE06Z64xxx4
- MKE04Z128xxx4, MKE04Z64xxx4
- SKEAZ128xxx4, SKEAZ64xxx4

Component Development Environment 1.6:

New features:

- ENGR00290566 - 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.
- ENGR00281667 - Implemented context sensitive help for Export/Import Component, Deploy Component Wizard and Inheritance Wizard.

Fixed issues:

- ENGR00300792 - Fixed: Processor Expert hangs during creation of component requiring shared components that are configured via templates.
- ENGR00290299 - Fixed: Configuration Registers View is not refreshed when switching to another component allocating peripheral with the same name like the previous component from another project.
- ENGR00293019 - Fixed following error reported when re-imported Processor Expert ColdFireV1 project with peripheral initialization components:
ERROR: Peripheral Initialization component is not supported for selected target processor
- ENGR00297024 - Fixed configuration of the pin direction if user name (signal) is assigned to the pin.
- ENGR00286843 - Fixed: Disabled processor components display processor variants in drop down list from selected processor components.
- ENGR00286348 - Fixed deletion of multiple components.
- ENGR00298059 - Additional files were not deployed and exported

- ENGR00296016 - 'Get Text Value Index' value is displayed as expected in the Property's setting
- ENGR00295200 - After changing Property Type to 'Inherited component (interface)' cannot invoke Inheritance wizard - fixed.
- ENGR00295124 - Adding events and methods into interface fixed.
- ENGR00291672 - Fixed issue with adding file into workspace if it already exists
- ENGR00297319 - Changes in combo items in method editor are not saved into .bean - fixed
- ENGR00295254 - For 'Periphery' attribute is used combo in Property editor now and value from/to .bean file is loaded/saved correctly.
- ENGR00299149 - The 'Default Index' property for the Property/Item/Method/Event now saves properly.
- ENGR00293934 - Fixed the inherited driver generation.

F. Where to find information

This file contains last-minute information about Processor Expert Software – Processor Expert for Microcontrollers Driver Suite 10.4.2 Update

World Wide Web

<http://www.freescale.com/processorexpert>

<http://www.freescale.com/mqx>

<http://www.freescale.com>

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