Freescale Semiconductor, Inc.
Release Notes

Processor Expert for Kinetis 3.0.1 Release Notes

1 Overview

Processor Expert for Kinetis is a rapid application design tool for Freescale Kinetis devices. It combines easy-to-use component-based application creation with an expert knowledge system. The tool can generate code for IAR ARM C Compiler, Keil ARM C/C++ Compiler or GNU C Compiler.

This update provides an additional content for Processor Expert for Kinetis 3.0.0

This is an incremental update of Processor Expert for Kinetis 3.0.0. You need to have Processor Expert for Kinetis 3.0.0 installed in order to be able to apply this update.

Contents

2 Installation instructions

1. Run KDS 3.0.0 / 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. PEx for Kinetis 3.0.1).
5. Click on the Archive... button and find the PEx_for_Kinetis_3.0.1.zip.
6. Select the Processor Expert for Kinetis 3.0.1 item (Group items by category option has to be enabled).
7. Continue with the wizard. Accept the license agreement during the installation process.
8. Restart Eclipse.

3 Target system configurations

This product has been tested on the following system configurations:

3.1 Operating Systems

- Windows 7 32-bit, 64-bit
- Windows 8 64-bit
- Linux Ubuntu 14.04 64-bit
- RHEL 6.2 64-bit
- Linux CentOS 6.4 64-bit
- Mac OS X 10.10.3 Yosemite

3.2 Eclipse versions

- 3.7 (Indigo)
- 4.2 (Juno)
- 4.3 (Kepler)
- 4.4 (Luna)

3.3 Third party Integrated Development Environments

- Atollic True Studio 5.3
- Emprog ThunderBench C/C++ for ARM Cortex 3.70

3.4 Java Runtime Environment versions

- 1.7
- 1.8

4 Supported Compilers and Toolchains

- GNU C Compiler
- IAR ARM C Compiler
- Keil ARM C/C++ Compiler
- GNU ARM Eclipse Plug-ins

5 Product Contents

5.1 Supported Boards

- FRDM-K22F
- FRDM-K64F
- FRDM-KL46Z
- TWR-K22F120M
- TWR-K60D100M
- TWR-K64F120M
- TWR-KV10Z32
- TWR-KV31F120M

5.2 Supported Processors

5.2.1 Kinetis K Processor 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 - MK10DX128VMC7, MK10DX128VLL7, MK10DX128VLK7, MK10DX128VLH7
- MK10DX128Zxxx10 - MK10DX128ZVLQ10, MK10DX128ZVMD10
- MK10DX256xxx10 - MK10DX256VLQ10, MK10DX256VMD10
- MK10DX256xxx7 - MK10DX256VMC7, MK10DX256VLL7, MK10DX256VLK7, MK10DX256VLH7
- MK10DX256Zxxx10 - MK10DX256ZVLQ10, MK10DX256ZVMD10
- MK10DX32xxx5 - MK10DX32VLH5, MK10DX32VMP5, MK10DX32VFT5, MK10DX32VLF5, MK10DX32VFM5
- MK10DX64xxx5 - MK10DX64VLH5, MK10DX64VMP5, MK10DX64VFT5, MK10DX64VLF5, MK10DX64VFM5

- MK10DX64xxx7 - MK10DX64VMC7, MK10DX64VLK7, MK10DX64VLH7
- MK10FN1M0xxx12 - MK10FN1M0VLQ12, MK10FN1M0VMD12
- MK10FX512xxx12 - MK10FX512VLQ12, MK10FX512VMD12
- MK11DN512Axxx5 - MK11DN512AVMC5, MK11DN512AVLK5
- MK11DN512xxx5 - MK11DN512VMC5, MK11DN512VLK5
- MK11DX128Axxx5 - MK11DX128AVMC5, MK11DX128AVLK5
- MK11DX128xxx5 - MK11DX128VMC5, MK11DX128VLK5
- MK11DX256Axxx5 - MK11DX256AVMC5, MK11DX256AVLK5
- 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 - MK20DX128VMC7, MK20DX128VLL7, MK20DX128VLK7, MK20DX128VLH7
- MK20DX128Zxxx10 - MK20DX128ZVLQ10, MK20DX128ZVMD10
- MK20DX256xxx10 - MK20DX256VLQ10, MK20DX256VMD10, MK20DX256VMC10, MK20DX256VLL10, MK20DX256VLK10
- MK20DX256xxx7 - MK20DX256VMC7, MK20DX256VLL7, MK20DX256VLK7, MK20DX256VLH7
- MK20DX256Zxxx10 - MK20DX256ZVLQ10, MK20DX256ZVMD10, MK20DX256ZVMB10, MK20DX256ZVMC10, MK20DX256ZVLL10, MK20DX256ZVLK10
- MK20DX32xxx5 - MK20DX32VLH5, MK20DX32VMP5, MK20DX32VFT5, MK20DX32VLF5, MK20DX32VFM5
- MK20DX64xxx5 - MK20DX64VLH5, MK20DX64VMP5, MK20DX64VFT5, MK20DX64VLF5, MK20DX64VFM5
- MK20DX64xxx7 - MK20DX64VMC7, MK20DX64VLK7, MK20DX64VLH7

- MK20FN1M0xxx12 - MK20FN1M0VLQ12, MK20FN1M0VMD12
- MK20FX512xxx12 - MK20FX512VLQ12, MK20FX512VMD12
- MK21DN512Axxx5 - MK21DN512AVMC5, MK21DN512AVLK5
- MK21DN512xxx5 - MK21DN512VMC5, MK21DN512VLK5
- MK21DX128Axxx5 - MK21DX128AVMC5, MK21DX128AVLK5
- MK21DX128xxx5 - MK21DX128VMC5, MK21DX128VLK5
- MK21DX256Axxx5 - MK21DX256AVMC5, MK21DX256AVLK5
- MK21DX256xxx5 - MK21DX256VMC5, MK21DX256VLK5
- MK21FN1M0Axxx12 - MK21FN1M0AVLQ12, MK21FN1M0AVMD12, MK21FN1M0AVMC12
- MK21FN1M0xxx12 - MK21FN1M0VLQ12, MK21FN1M0VMD12, MK21FN1M0VMC12
- MK21FX512Axxx12 - MK21FX512AVLQ12, MK21FX512AVMD12, MK21FX512AVMC12
- MK21FX512xxx12 - MK21FX512VLQ12, MK21FX512VMD12, MK21FX512VMC12
- MK22DN512xxx5 - MK22DN512VMC5, MK22DN512VLK5, MK22DN512VLH5
- MK22DX128xxx5 - MK22DX128VMC5, MK22DX128VLK5, MK22DX128VLH5, MK22DX128VLF5
- MK22DX256xxx5 - MK22DX256VMC5, MK22DX256VLK5, MK22DX256VLH5, MK22DX256VLF5
- MK22FN128xxx10 - MK22FN128VDC10, MK22FN128VLL10, MK22FN128VLH10, MK22FN128VMP10
- MK22FN128xxx12 - MK22FN128CAH12
- MK22FN1M0xxx12 - MK22FN1M0VLQ12, MK22FN1M0VMD12, MK22FN1M0VMC12, MK22FN1M0VLL12, MK22FN1M0VLK12, MK22FN1M0VLH12
- MK22FN256xxx12 - MK22FN256VDC12, MK22FN256VLL12, MK22FN256CAH12, MK22FN256VLH12, MK22FN256VMP12
- MK22FN512xxx12 - MK22FN512VDC12, MK22FN512VLL12, MK22FN512VLH12
- 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 - MK30DX128VMC7, MK30DX128VLL7, MK30DX128VLK7, MK30DX128VLH7
- MK30DX128Zxxx10 - MK30DX128ZVLQ10, MK30DX128ZVMD10
- MK30DX256xxx10 - MK30DX256VLQ10, MK30DX256VMD10
- MK30DX256xxx7 - MK30DX256VMC7, MK30DX256VLL7, MK30DX256VLK7, MK30DX256VLH7
- MK30DX256Zxxx10 - MK30DX256ZVLQ10, MK30DX256ZVMD10

- MK30DX64xxx7 - MK30DX64VMC7, MK30DX64VLK7, MK30DX64VLH7
- MK40DN512xxx10 - MK40DN512VLQ10, MK40DN512VMD10, MK40DN512VMC10, MK40DN512VLL10, MK40DN512VLK10
- MK40DN512Zxxx10 - MK40DN512ZVLQ10, MK40DN512ZVMD10, MK40DN512ZVMB10, MK40DN512ZVMC10, MK40DN512ZVLL10, MK40DN512ZVLK10
- MK40DX128xxx10 - MK40DX128VLQ10, MK40DX128VMD10
- MK40DX128xxx7 - MK40DX128VMC7, MK40DX128VLL7, MK40DX128VLK7, MK40DX128VLH7
- MK40DX128Zxxx10 - MK40DX128ZVLQ10, MK40DX128ZVMD10
- MK40DX256xxx10 - MK40DX256VLQ10, MK40DX256VMD10
- MK40DX256xxx7 - MK40DX256VMC7, MK40DX256VLL7, MK40DX256VLK7, MK40DX256VLH7
- MK40DX256Zxxx10 - MK40DX256ZVLQ10, MK40DX256ZVMD10
- MK40DX64xxx7 - MK40DX64VMC7, MK40DX64VLK7, MK40DX64VLH7
- MK50DN512xxx10 - MK50DN512CLQ10, MK50DN512CMD10, MK50DN512CMC10, MK50DN512CLL10
- MK50DN512Zxxx10 - MK50DN512ZCLQ10, MK50DN512ZCMD10, MK50DN512ZCMC10, MK50DN512ZCLL10
- MK50DX128xxx7 - MK50DX128CMC7, MK50DX128CLK7, MK50DX128CLH7
- MK50DX256xxx10 - MK50DX256CMD10, MK50DX256CMC10, MK50DX256CLL10, MK50DX256CLK10
- MK50DX256xxx7 - MK50DX256CMC7, MK50DX256CLL7, MK50DX256CLK7
- MK50DX256Zxxx10 - MK50DX256ZCMB10, MK50DX256ZCMC10, MK50DX256ZCLL10, MK50DX256ZCLK10
- MK51DN256xxx10 - MK51DN256CLQ10, MK51DN256CMD10
- MK51DN256Zxxx10 - MK51DN256ZCLQ10, MK51DN256ZCMD10
- MK51DN512xxx10 - MK51DN512CLQ10, MK51DN512CMD10, MK51DN512CMC10, MK51DN512CLL10
- MK51DN512Zxxx10 - MK51DN512ZCLQ10, MK51DN512ZCMD10, MK51DN512ZCMC10, MK51DN512ZCLL10
- MK51DX128xxx7 - MK51DX128CMC7, MK51DX128CLK7, MK51DX128CLH7
- MK51DX256xxx10 - MK51DX256CMC10, MK51DX256CLL10, MK51DX256CLK10
- MK51DX256xxx7 - MK51DX256CMC7, MK51DX256CLL7, MK51DX256CLK7
- MK51DX256Zxxx10 - MK51DX256ZCMB10, MK51DX256ZCMC10, MK51DX256ZCLL10, MK51DX256ZCLK10
- MK52DN512xxx10 - MK52DN512CLQ10, MK52DN512CMD10
- MK52DN512Zxxx10 - MK52DN512ZCLQ10, MK52DN512ZCMD10
- MK53DN512xxx10 - MK53DN512CLQ10, MK53DN512CMD10
- MK53DN512Zxxx10 - MK53DN512ZCLQ10, MK53DN512ZCMD10

- MK53DX256xxx10 - MK53DX256CLQ10, MK53DX256CMD10
- MK53DX256Zxxx10 - MK53DX256ZCLQ10, MK53DX256ZCMD10
- MK60DN256xxx10 - MK60DN256VLQ10, MK60DN256VMD10, MK60DN256VMC10, MK60DN256VLL10
- MK60DN256Zxxx10 - MK60DN256ZVLQ10, MK60DN256ZVMD10, MK60DN256ZVMC10, MK60DN256ZVLL10
- MK60DN512xxx10 - MK60DN512VLQ10, MK60DN512VMD10, MK60DN512VMC10, MK60DN512VLL10
- MK60DN512Zxxx10 - MK60DN512ZVLQ10, MK60DN512ZVMD10, MK60DN512ZVMC10, MK60DN512ZVLL10
- MK60DX256xxx10 - MK60DX256VLQ10, MK60DX256VMD10, MK60DX256VMC10, MK60DX256VLL10
- MK60DX256Zxxx10 - MK60DX256ZVLQ10, MK60DX256ZVMD10, MK60DX256ZVMC10, MK60DX256ZVLL10
- 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

5.2.2 Kinetis E Processor 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

5.2.3 Kinetis EA Processor Components

- SKEAZ128xxx4 - SKEAZ128MLK4, SKEAZ128MLH4, SKEAZ128MLD4
- SKEAZ64xxx4 - SKEAZ64MLK4, SKEAZ64MLH4, SKEAZ64MLD4
- SKEAZN16xxx2 - SKEAZN16MLD2, SKEAZN16MLC2
- SKEAZN32xxx2 - SKEAZN32MLH2, SKEAZN32MLD2, SKEAZN32MLC2
- SKEAZN64xxx2 - SKEAZN64MLH2, SKEAZN64MLD2, SKEAZN64MLC2
- SKEAZN8xxx4 - SKEAZN8MFK4, SKEAZN8MTG4

5.2.4 Kinetis L Processor 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

5.2.5 Kinetis V Processor Components

- MKV10Z16xxx7 - MKV10Z16VLF7, MKV10Z16VFM7, MKV10Z16VLC7
- MKV10Z32xxx7 - MKV10Z32VLF7, MKV10Z32VFM7, MKV10Z32VLC7
- MKV31F128xxx10 - MKV31F128VLL10, MKV31F128VLH10
- MKV31F256xxx12 - MKV31F256VLL12, MKV31F256VLH12
- MKV31F512xxx12 - MKV31F512VLL12, MKV31F512VLH12

5.2.6 Kinetis W Processor Components

- MKW01Z128xxx4 - MKW01Z128CHN4
- MKW21D256xxx5 - MKW21D256VHA5
- MKW21D512xxx5 - MKW21D512VHA5
- MKW22D512xxx5 - MKW22D512VHA5
- MKW24D512xxx5 - MKW24D512VHA5

5.3 Logical Device Driver Components

- ADC_LDD
- AnalogComp_LDD

- ASRC_LDD
- BitIO_LDD
- BitsIO_LDD
- CAN_LDD
- Capture_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
- OCOTP_LDD
- PPG_LDD
- PWM_LDD
- RealTime_LDD
- RNG_LDD
- RTC_LDD
- SDHC_LDD
- SegLCD_LDD
- Serial_LDD
- Shared_LDD
- SPDIF_LDD
- SPIMaster_LDD
- SPISlave_LDD
- SSI_LDD
- TimeDate_LDD
- TimerInt_LDD
- TimerOut_LDD
- TimerUnit_LDD
- TSI_LDD
- USB_LDD
- WatchDog_LDD

5.4 High level components

- ADC

- AsynchroSerial
- BasicProperties
- BitIO
- BitsIO
- ByteIO
- Capture
- ConsoleIO
- DAC
- EventCntr16
- EventCntr32
- EventCntr8
- ExternalFile
- ExtInt
- FreeCntr
- FreeCntr16
- FreeCntr32
- FreeCntr8
- Term
- FreeMASTER
- FreescaleAnalogComp
- InternalI2C
- InterruptVector
- IntFLASH
- PPG
- PWM
- StringList
- SynchroMaster
- SynchroSlave
- TimeDate
- TimerInt
- TimerOut
- TSS_Library
- TwoKeys
- WatchDog

5.5 RTOS adapters for Logical Device Drivers

- Bareboard
- MQX
- MQXLite

5.6 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_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_RGPIO_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_USBDCD_VAR0
- Init_VREF_VAR0
- Init_WDOG_VAR0
- PinSettings

5.7 Physical Device Driver 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
- 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
- WDOG_PDD

6 Processor Expert directory overview

The ProcessorExpert files and folders are located in the eclipse folder of your Eclipse IDE:

`eclipse\ProcessorExpert`

There are the following files and subfolders:

Folder Name	**Description**
Beans	Legacy embedded component definitions
Config	Processor Expert and New Project Wizard configuration files
CPUs	Legacy processor components folder
DOCs	Items for generated online help
Drivers	Legacy embedded component driver scripts
Help	User documentation
lib	Libraries
licenses	Licenses of used third party SW components
Repositories	Predefined component repositories
File Name	**Description**
license.htm	End User License Agreement
PEx_for_Kinetis_3.0.0_Release_Notes.pdf	This document
SW-Content-Register-PEx-for-Kinetis-3.0.0.txt	Software Content Register

7 Known Problems and Limitations

ID	Description	Workaround
-	Low Eclipse Java heap limit	Open file {KDS}\eclipse\kinetis-design-studio.ini and find option -Xmx. By default the option is set to 512MB (-Xmx512m). Increase the amount to 768MB, e.g. change the option to –Xmx768m, save the file and restart KDS. It is not recommended to set maximum heap size over 1GB. Even value –Xmx1024m may cause KDS will not start on some older computers, because Java verifies the memory is available during startup even it is not needed yet.
PEXCORE-1163	Timing dialog clock configuration validation can't be disabled In some cases, when specific clock configuration settings are in conflict with settings of particular component which uses timing dialog a false error message is showed in the timing dialog even if the clock configuration causing the error is disabled for the component.	Remove conflict between clock configuration and component timing settings.
PEXCORE-1144	In PinSetings custom view an Undo and Redo commands (Ctrl + Z and Ctrl + Y) don’t work properly for renamed pins. If pin is renamed and Undo is applied all previous changes made in PinSettings are lost and Redo command restores only last changed pin name.	Change pin names manually.
PEXCORE-1136	Processor Expert in Atollic True Studio: Empty toolchain settings in project created with Kinetis SDK and Processor expert disabled	Set up the toolchain manually.
PEXMCU-2378	Init_I2S component - cannot configure "Serial master clock pin" on the MK22FN512 device.	1. In the component inspector of the Init_I2S component, open the context menu of the Pin property in the Serial Master clock pin group and select "Enable Automatic". The selection of the pin is cleared and an error is reported (no pin selected). 2. Open Component Inspector of the PinSettings, select Collapsed View Mode, I2S tab and select the required pin in the "I2S0 > MCLK - Master clock property". The pin is selected and properly routed and the selected pin is also displayed in the Pin property in the Init_I2S component.

<table>
<tr><td>PEXMCU-2371</td><td>Incorrect linker flag settings after conversion from SDK 1.1 to SDK 1.2 in KDS 3.0

You would face the following linker error if you built a KSDK+PEx project based on KSDK 1.1, upgraded by the KDS Upgrade Assistant and switched to KSDK 1.2:

<code>arm-none-eabi-g++: fatal error: d:/freescale/kds_2.9.0402_rc3/toolchain/bin/../lib/gcc/arm-none-eabi/4.8.4/../../../../arm-none-eabi/lib/nano.specs: attempt to rename spec 'link' to already defined spec 'nano_link'</code></td><td>Turn off the "Use newlib-nano" checkbox in Project Properties -> C/C++ Build -> Settings -> Tool Settings -> Cross ARM C++ Linker -> Miscellaneous panel.</td></tr>
<tr><td>PEXMCU-2234</td><td>Processor Expert in Atollic True Studio:

A Processor Expert linked project cannot be successfully built in Atollic True Studio 5.2 and later.</td><td>Follow these steps after the Processor Expert code generation action:
1. Open Project Properties
2. Go to C/C++ General -> Paths and Symbols , select tab "Source Location"
3. Either add Static_Code to the list of folders or remove all entries and add the root folder of the project
4. Build the project
5. In order to remove warnings about duplicated include paths go to the project properties -> C/C++ Build -> Settings, the Tool Settings tab, the Compiler Includes panel and remove duplicated entries.</td></tr>
<tr><td>PEXMCU-2234</td><td>Processor Expert in Atollic True Studio:

Warning about duplicated include paths are reported when building a Processor Expert project in Atollic True Studio 5.2 and later.</td><td>After the Processor Expert code generation action go to the project properties -> C/C++ Build -> Settings, the Tool Settings tab, the Compiler Includes panel and remove duplicated entries.</td></tr>
<tr><td>KDS-269</td><td>Processor Expert in Atollic True Studio:

Error messages like these can be reported from the project build process for some processors:

<code>Interrupt Service Routines cannot be coded in Thumb mode</code>

<code>Selected processor does not support Thumb mode …</code>

It is because some Atollic Trues Studio MCU part names doesn’t correspond to Processor Expert MCU part names:

<table><tr><th>PEx part name</th><th>True Studio part name</th></tr></table></td><td>Manually select the correct device part name:
1. Open project properties
2. Go to C/C++ Build -> Settings,
3. Page Target Settings verify whether the Microcontroller combo box contain correct MCU part name. If not, manually set the correct value.
4. Confirm dialog with OK
5. Clean & Build the project</td></tr>
</table>

	<table><tr><td>MKW01Z128xxx4</td><td>MKW01Z128</td></tr><tr><td>SKEAZ128xxx4</td><td>SKEAZ128xxxx</td></tr><tr><td>SKEAZ64xxx4</td><td>SKEAZ64xxxx</td></tr><tr><td>SKEAZN16xxx2</td><td>SKEAZN16xxxx</td></tr><tr><td>SKEAZN32xxx2</td><td>SKEAZN32xxxx</td></tr><tr><td>SKEAZN64xxx2</td><td>SKEAZN64xxxx</td></tr><tr><td>SKEAZN8xxx4</td><td>SKEAZN8xxxx</td></tr></table>	
PEXMCU-2006 PEXMCU-1954 PEXMCU-531	TSS component does not work out of the box. It even can report errors from the Processor Expert Code Generation process or form building process for some devices.	It is not recommended to use the TSS Library component. It is obsolete and no longer maintained. We recommend to use a new Freescale Touch library. See more at: http://www.freescale.com/touchsw Some TSS component's problems can be resolved following information in this Freescale Community's thread: https://community.freescale.com/message/435546#435546
PEXMCU-2407	Enable Processor Expert for existing C project feature: Errors about inability to update the main module are reported from the code generation process when this feature is used for projects configured for the IAR compiler.	Rename or remove the original main module. Processor Expert will generate a new main module with the necessary synchronization marks.
PEXMCU-2441	Flash_LDD component: the Erase() method doesn't work correctly on devices where there are sectors of different size. The method will use one same size for all sectors and thus it will not work correctly on flash blocks with different size of sector.	Use the EraseBlock() method instead of the Erase() method.
PEXMCU-2511	Export of Processor Expert projects to uVision doesn't work for some Kinetis. uVision uses wrong MCU IDs for these derivatives.	Change MCU ID in the generated ProjectInfo.xml file, element <DeviceID>. For example change <DeviceID>MKW01Z128xxx4</DeviceID> to <DeviceID>MKW01Z128xxx5</DeviceID>.

8 Revision history

The table below describes changes of Processor Expert for Kinetis 3.0.1 from Processor Expert for Kinetis 3.0.0.

Processor Expert	
ID	**Description**
-	CMSIS header files have been updated to version 4.10. These headers are included in KDS project when both Kinetis SDK and Processor Expert are disabled.
PEXMCU-2640	Fixed defect: Debug sessions using a PEMicro debug configuration cannot be launched for some devices due to incorrectly set target device in the debug configuration.
PEXCORE-1012	Fixed defect: It is not possible to change a compiler in a Processor Expert project in a processor component on the Build option tab when the Component Inspector Classic view is used.

The table below describes changes of Processor Expert for Kinetis 3.0.0 from Microcontrollers Driver Suite 10.4.2 from which Processor Expert for Kinetis 3.0.0 has been derived from.

Processor Expert	
ID	**Description**
-	Component repository model has been used for storing all processor and embedded component. All Processor Expert components are now stored in component repositories. This allows to use component with same name/version, if they are stored in different repository. Reference to the component is stored in the Processor Expert project (.pe file). If the reference is not valid, or not included, Processor Expert will find component automatically and if there are more components or component version does not match, Processor Expert will inform you. All changes are also logged, you can find them in Console view. Note: When importing a project created in previous versions of Processor Expert for KDS or Driver Suite user is asked whether to replace components in the project by components from repositories. The components need to be replaced in other to allow those projects to be used in Processor Expert for Kinetis 3.0

	
-	Undo/Redo feature has been added.
-	The Atollic GCC toolchain has been supported.
PEXCORE-765	Processor Expert Command line interface has been added.
PEXCORE-390 PEXCORE-692	A possibility to export binary or source files into .pef/.peb and import source files from .pef/.peb files has been added.
-	Device Initialization mode has been removed.
PEXCORE-256	A possibility to export initialization values of register (from the Configuration Registers view) to text file has been added.
PEXMCU-2035	Fixed defect: EnterCritical() and ExitCritical() are not properly generated for the Keil compiler.
PEXCORE-828	Fixed defect: The segger*.launch configuration executed directly from the context menu, does not work for the first time. When the "Run - Debug Configurations ..." dialog is used, the debugger itself adds some default settings and the debug works. After that the *.lunch can be used from the context menu
-	DMATransfer_LDD component has been marked deprecated. This component is deprecated and it is not recommended to use it in new projects.
PEXMCU-756	Fixed defect: 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.
PEXMCU-158	Fixed defect: Projects with SDK mcu's cannot be built in IAR Embedded Workbench. Note: IAR Systems company incorporated the new feature to IAR workbench that fetches the type of the CPU from ProjectInfo.xml of the PEx project and defines it as preprocessor symbol for compilation. It is available in EWARM 7.30.3.
PEXMCU-199	Fixed defect: When the Enable PEx for existing C project feature is used for an existing bare board project the project cannot be compiled.
-	The CAU_LDD component has been removed. Workaround: Use MMCAU library directly without CAU_LDD component. For more information see the MMCAU library documentation.
PEXCORE-419	Fixed defect: Project file paths with parenthesis prevent PEx from generating code.
PEXMCU-1129	Fixed defect: PEx projects (no SDK) have not correct startup for C++ projects
PEXMCU-782	Fixed defect: Init_FTM component does not allow user to select pins on some processors.
PEXCORE-534	Fixed defect: It is not possible to debug in flash using the IAR plugin with MK22FN128xxx10. There is typographic error in MCU name which is used by IAR: MK22FN128xx10 -> should be xxx in name :MK22FN128xxx10 Note: IAR Systems company fixed the device name in EWARM-CD-7303-8062.
PEXMCU-1276	Fixed defect: The CAN_LDD component code doesn't build when using with MQX-Lite. The structure <Name>_TDeviceData in the CAN_LDD header file is missing members, like SavedBusOffISRSettings.
PEXMCU-2237	Fixed defect: DMAChannel_LDD component: IDE stops responding when the 10th DMA channel is added.
PEXMCU-2127	Fixed defect: SSI_LDD component gives an error "error: 'I2S_PDD_PLL_CLK' undeclared".
PEXMCU-1167	Fixed defect: Ethernet_LDD: Clock gate of port B is not initialized in the Init() method the component. Then the gating of port B is missing and it is causing a hard fault in component initialization. Related Freescale Community thread: https://community.freescale.com/message/455447

PEXCORE-987	Fixed defect: MQXLite component does not work on Linux. Related Freescale Community thread: https://community.freescale.com/thread/349340
PEXMCU-1539	Fixed defect: KE0x / KEA devices: The initial value for the slow internal reference clock in the CPU component is incorrectly set to 32.768kHz. The correct value for these devices is 37.5kHz.
PEXMCU-1678	K64F: Initialization of the IRC48MHz has been fixed. Related Freescale Community thread: https://community.freescale.com/message/467441
Component Development Environment (CDE)	
ID	**Description**
PEXCDE-125	Adding inherited/shared components from system directory into the list of components when exporting to .PEupd has been supported.
PEXCDE-128	Fixed defect: Event procedure name disappears in CDE
PEXCDE-136	Fixed defect: Home, End and other keys don't work.
PEXCDE-144	Fixed defect: Content of a component could disappear from CDE views if the component inherits other component(s) and you rename it.
PEXCDE-172	Fixed defect: 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.
PEXCDE-144	Fixed defect: Content of a component could disappear from CDE views if the component inherits other component(s) and you rename it.
PEXCDE-208	Fixed defect: Deploy doesn't work if project is linked.
PEXCDE-212	Fixed defect: CDE changes Components version after load/save.
PEXCDE-227	Fixed defect: Multiline hints are not processed properly.
PEXCORE-493	Fixed defect: CDE does not write Declarations section into the .bean file, thus the method prototype is not shown in the Processor Expert for the methods.

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