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# **MCUXpresso SDK Release Notes Supporting Ipcxpresso804**

**Change Logs**

**NXP Semiconductors**



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## Middleware Change Log

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# 1 Driver Change Log

## CLOCK

The current CLOCK driver version is 2.3.3.

- 2.3.3
  - Improvements
    - \* Added lost comments for some enumerations.
- 2.3.2
  - Improvements
    - \* Used "offsetof" macro to get the offset of the structure element from the beginning of the structure.
- 2.3.1
  - Bug Fixes
    - \* Fixed MISRA C-2012 rule 10.1, rule 10.4, rule 10.8, rule 16.4 and so on.
- 2.3.0
  - New feature:
    - \* Moved SDK\_DelayAtLeastUs function from clock driver to common driver.
- 2.2.0
  - Replace the delay function
- 2.1.0
  - New feature
    - \* Adding new API CLOCK\_DelayAtLeastUs() to implement a delay function which allows users to set delay in unit of microsecond.
- 2.0.3
  - add api to get uart clock frequency.
  - add api to set fractional multiplier value.
- 2.0.2
  - some minor fixes.
- 2.0.0
  - initial version.

## POWER

The current POWER driver version is 2.1.0.

- 2.1.0
  - New features
    - \* Added BOD control APIs.
- 2.0.4
  - Bug Fixes
    - \* Fixed the typo "Enbale", correcting it as "Enable".
- 2.0.3

- Bug Fixes
    - \* Fixed doxygen warnings(remove wrong character in annotation).
- 2.0.2
  - New Features
    - \* Added the Enable/DisableDeepSleepIRQ() to enable/disable pin wake up.
- 2.0.1
  - Improvements
    - \* Updated power drive to support PMU.
- 2.0.0
  - initial version.

## RESET

The current RESET driver version is 2.0.1.

- 2.0.1
  - Update component full\_name to "Reset Driver".
- 2.0.0
  - initial version.

## COMMON

The current COMMON driver version is 2.4.0.

- 2.4.0
  - New Features
    - \* Added EnableIRQWithPriority, IRQ\_SetPriority, and IRQ\_ClearPendingIRQ for ARM.
    - \* Added MSDK\_EnableCpuCycleCounter, MSDK\_GetCpuCycleCount for ARM.
- 2.3.3
  - New Features
    - \* Added NETC into status group.
- 2.3.2
  - Improvements
    - \* Make driver aarch64 compatible
- 2.3.1
  - Bug Fixes
    - \* Fixed MAKE\_VERSION overflow on 16-bit platforms.
- 2.3.0
  - Improvements
    - \* Split the driver to common part and CPU architecture related part.
- 2.2.10
  - Bug Fixes
    - \* Fixed the ATOMIC macros build error in cpp files.
- 2.2.9

- Bug Fixes
    - \* Fixed MISRA C-2012 issue, 5.6, 5.8, 8.4, 8.5, 8.6, 10.1, 10.4, 17.7, 21.3.
    - \* Fixed SDK\_Malloc issue that not allocate memory with required size.
- 2.2.8
  - Improvements
    - \* Included stddef.h header file for MDK tool chain.
  - New Features:
    - \* Added atomic modification macros.
- 2.2.7
  - Other Change
    - \* Added MECC status group definition.
- 2.2.6
  - Other Change
    - \* Added more status group definition.
  - Bug Fixes
    - \* Undef \_\_VECTOR\_TABLE to avoid duplicate definition in cmsis\_clang.h
- 2.2.5
  - Bug Fixes
    - \* Fixed MISRA C-2012 rule-15.5.
- 2.2.4
  - Bug Fixes
    - \* Fixed MISRA C-2012 rule-10.4.
- 2.2.3
  - New Features
    - \* Provided better accuracy of SDK\_DelayAtLeastUs with DWT, use macro SDK\_DELAY\_USE\_DWT to enable this feature.
    - \* Modified the Cortex-M7 delay count divisor based on latest tests on RT series boards, this setting lets result be closer to actual delay time.
- 2.2.2
  - New Features
    - \* Added include RTE\_Components.h for CMSIS pack RTE.
- 2.2.1
  - Bug Fixes
    - \* Fixed violation of MISRA C-2012 Rule 3.1, 10.1, 10.3, 10.4, 11.6, 11.9.
- 2.2.0
  - New Features
    - \* Moved SDK\_DelayAtLeastUs function from clock driver to common driver.
- 2.1.4
  - New Features
    - \* Added OTFAD into status group.
- 2.1.3
  - Bug Fixes
    - \* MISRA C-2012 issue fixed.
      - Fixed the rule: rule-10.3.
- 2.1.2

- Improvements
  - \* Add `SUPPRESS_FALL_THROUGH_WARNING()` macro for the usage of suppressing fallthrough warning.
- 2.1.1
  - Bug Fixes
    - \* Deleted and optimized repeated macro.
- 2.1.0
  - New Features
    - \* Added IRQ operation for XCC toolchain.
    - \* Added group IDs for newly supported drivers.
- 2.0.2
  - Bug Fixes
    - \* MISRA C-2012 issue fixed.
      - Fixed the rule: rule-10.4.
- 2.0.1
  - Improvements
    - \* Removed the implementation of `LPC8XX Enable/DisableDeepSleepIRQ()` function.
    - \* Added new feature macro switch "FSL\_FEATURE\_HAS\_NO\_NONCACHEABLE\_SECTION" for specific SoCs which have no noncacheable sections, that helps avoid an unnecessary complex in link file and the startup file.
    - \* Updated the `align(x)` to **attribute**(aligned(x)) to support MDK v6 armclang compiler.
- 2.0.0
  - Initial version.

## SPI

The current SPI driver version is 2.0.5.

- 2.0.5
  - Bug Fixes
    - \* Fixed bug that the transfer configuration does not take effect after the first transfer.
- 2.0.4
  - Bug Fixes
    - \* Fixed the issue that when transfer finish callback is invoked TX data is not sent to bus yet.
- 2.0.3
  - Improvements
    - \* Added timeout mechanism when waiting certain states in transfer driver.
    - \* Fixed MISRA 10.4 issue.
- 2.0.2
  - Bug Fixes
    - \* Fixed Coverity issue of incrementing null pointer in `SPI_MasterTransferNonBlocking`.
    - \* Fixed MISRA issues.
      - Fixed rules 10.1, 10.3, 10.4, 10.6, 14.4.
  - New Features

- \* Added enumeration for dataWidth.
- 2.0.1
  - Bug Fixes
    - \* Added wait mechanism in SPI\_MasterTransferBlocking() API, which checks if master SPI becomes IDLE when the EOT bit is set before returning. This confirms that all data will be sent out by SPI master.
    - \* Fixed the bug that the EOT bit couldn't be set when only one frame was sent in polling mode and interrupt transfer mode.
  - New Features
    - \* Added macro gate "FSL\_SDK\_ENABLE\_SPI\_DRIVER\_TRANSACTIONAL\_APIS" to enable/disable the transactional APIs, which helps reduce the code size when no nonblocking transfer is used. Enabled default configuration.
    - \* Added a control macro to enable/disable the RESET and CLOCK code in current driver.
- 2.0.0
  - Initial version.

## USART

The current USART driver version is 2.5.0.

- 2.5.0
  - New Features
    - \* Supported new feature of rx idle timeout.
- 2.4.0
  - Improvements
    - \* Used separate data for TX and RX in usart\_transfer\_t.
  - Bug Fixes
    - \* Fixed bug that when ring buffer is used, if some data is received in ring buffer first before calling USART\_TransferReceiveNonBlocking, the received data count returned by USART\_TransferGetReceiveCount is wrong.
- 2.3.0
  - New Features
    - \* Modified usart\_config\_t, USART\_Init and USART\_GetDefaultConfig APIs so that the hardware flow control can be enabled during module initialization.
- 2.2.0
  - Improvements
    - \* Added timeout mechanism when waiting for certain states in transfer driver.
    - \* Fixed MISRA 10.4 issues.
- 2.1.1
  - Bug Fixes
    - \* Fixed the bug that in USART\_SetBaudRate best\_diff rather than diff should be used to compare with calculated baudrate.
    - \* Eliminated IAR pa082 warnings from USART\_TransferGetRxRingBufferLength and USART\_TransferHandleIRQ.

- \* Fixed MISRA issues.
- Improvements
  - \* Rounded up the calculated sbr value in USART\_SetBaudRate to achieve more accurate baudrate setting.
  - \* Modified USART\_ReadBlocking so that if more than one receiver errors occur, all status flags will be cleared and the most severe error status will be returned.
- 2.1.0
  - New Features
    - \* Added new APIs to allow users to configure the USART continuous SCLK feature in synchronous mode transfer.
- 2.0.1
  - Bug Fixes
    - \* Fixed the repeated reading issue of the STAT register while dealing with the IRQ routine.
  - New Features
    - \* Added macro gate "FSL\_SDK\_ENABLE\_USART\_DRIVER\_TRANSACTIONAL\_APIS" to enable/disable the transactional APIs, which helps reduce the code size when no nonblocking transfer is used. Enabled default configuration.
    - \* Added a control macro to enable/disable the RESET and CLOCK code in current driver.
    - \* Added macro switch gate "FSL\_SDK\_USART\_DRIVER\_ENABLE\_BAUDRATE\_AUTO\_GENERATE" to enable/disable the baud rate to generate automatically. Disabling this feature will help reduce the code size to a certain degree. Default configuration enables auto generating of baud rate.
    - \* Added the check of baud rate while initializing the USART. If the baud rate calculated is not precise, the software assertion will be triggered.
    - \* Added a new API to allow users to enable the CTS, which determines whether CTS is used for flow control.
- 2.0.0
  - Initial version.

## SWM

The current SWM driver version is 2.1.1.

- 2.1.1
  - Bug Fixes
    - \* MISRA C-2012 issue fixed: rule 10.1 and 10.3.
- 2.1.0
  - New Features
    - \* Supported Flextimer function pin assign.
- 2.0.2
  - Bug Fixes
    - \* MISRA C-2012 issue fixed: rule 14.3.
- 2.0.1
  - Bug Fixes



- \* MISRA C-2012 issue fixed: rule 10.1, 10.3, and 10.4.
- 2.0.0
  - Initial version.
  - The API SWM\_SetFixedMovablePinSelect() is targeted at the device that has PINASSIGNFIXED0 register, such as LPC804.

## **SYSCON**

The current SYSCON driver version is 2.0.1.

- 2.0.1
  - Bug Fixes
    - \* Fixed issue for MISRA-2012 check.
      - Fixed rule 10.4.
- 2.0.0
  - Initial version.

## 2 Middleware Change Log

### FreeMASTER Communication Driver

Current version is 3.0.6. Visit <https://www.nxp.com/freemaster> for more information. Reach out for a support at <https://community.nxp.com/community/freemaster>.

- 3.0.0
  - Initial version of FreeMASTER driver reworked from a standalone package to MCUXpresso SDK middleware.
  - This driver version supports new version V4 of FreeMASTER serial communication protocol.
  - Supports UART, LPUART, USART, MINIUSART, FlexCAN, USB-CDC and JTAG/BDM communication.
  - Initial version was tested with the following boards: evkmimxrt1060, frdmk64f, frdmk15z, frdmk128z, lpcxpresso54628 lpcxpresso55s69, lpcxpresso845max and twrk64f120m.
  - Use with FreeMASTER PC Host tool version 2.5 or later.
- 3.0.1
  - FreeMASTER driver extended to support wide range of Kinetis, LPC and i.MX-RT platforms.
  - Low-level communication drivers also available for few non-SDK NXP platforms like S12Z, S32x and more.
  - Use with FreeMASTER PC Host tool version 3.0 or later.
- 3.0.2
  - FreeMASTER driver support of DSC56F800EX and S12 platforms extended.
  - Removed dependency on C99 compiler features.
  - Use with FreeMASTER PC Host tool version 3.0.2 or later.
- 3.0.3
  - General update for SDK 2.9.0
  - fmstr\_any demo added to selected platforms - use with MCUXpresso SDK and FreeMASTER peripheral configuration tool.
  - New example.pmp project file embedded into application flash storage.
  - USB-CDC implementation fixed, new JTAG EOnCE communication interface added to DSC 56F800E family.
  - Use with FreeMASTER PC Host tool version 3.0.3 or later. Version 3.1.x is recommended.
- 3.0.4
  - Fixed component dependency logic of FreeMASTER driver.
  - Use with FreeMASTER PC Host tool version 3.1.x
- 3.0.5
  - General update for SDK 2.11 and 2.12
  - New TCP and UDP support with lwIP stack
  - New communication over Segger RTT interface
  - Add fmstr\_net and fmstr\_wifi examples for selected i.MX-RT platforms
  - Add fmstr\_rtt example for selected platforms
  - Fixed negative recorder threshold trigger processing
- 3.0.6

- General update for SDK 2.13
- Use of new Ethernet MDIO driver concept.
- Support of ENET and NETC Ethernet modules in the fmstr\_net example application.

## **SAFETY\_IEC60730B for KSDK**

Current version is 1.1.0

- 1.1.0
  - Initial version.

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