MCUXSDKIMX8DXLRN

MCUXpresso SDK Release Notes for EVK-MIMX8DXL

Rev. 0 — December 30, 2020 Release Notes

Contents

1 Overview

The MCUXpresso Software Development Kit (SDK) is a collection of software enablement for microcontrollers that includes peripheral drivers, high-level stacks including other middleware packages multicore support and integrated RTOS support for FreeRTOSTM OS. In addition to the base enablement, the MCUXpresso SDK is augmented with demo applications, driver example projects, and API documentation to help the customers quickly leverage the support of the MCUXpresso SDK

For more details about MCUXpresso SDK, see MCUXpresso-SDK: Software Development Kit.

2 MCUXpresso SDK

As part of the MCUXpresso software and tools, MCUXpresso SDK is the evolution of Kinetis SDK, includes support for both LPC and i.MX System-on-Chips (SoC). The same drivers, APIs, and middleware are still available with support for Kinetis, LPC, and i.MX silicon. The MCUXpresso SDK adds support for the MCUXpresso IDE, an Eclipse-based toolchain that works with all MCUXpresso SDKs. Easily import your SDK into the new toolchain to access to all of the available components, examples, and demos for your target silicon. In addition to the MCUXpresso IDE, support for the MCUXpresso Config Tools allows easy cloning of existing SDK examples and demos, allowing users to leverage the existing software examples provided by the SDK for their own projects.

NOTE

In order to maintain compatibility with legacy Freescale code, the filenames and the source code in MCUXpresso SDK containing the legacy Freescale prefix **FSL** has been left as is. The **FSL** prefix has been redefined as the NXP Foundation Software Library. It is suggested to keep the downloaded SDK archive in the root directory of your drive to avoid any unexpected build issues caused by deep path of files.

3 Development tools

The MCUXpresso SDK was compiled and tested with these development tools:

- IAR Embedded Workbench for Arm version 8.50.6
- Makefiles support with GCC revision 9-2020-q2-update from Arm Embedded
- System Controller FirmWare (SCFW): See the SCU firmware package link provided in the corresponding Linux Release Notes document

4 Supported development systems

This release supports boards and devices listed in Table 1. The boards and devices in bold were tested in this release.

Table 1. Supported MCU devices and development boards

Development boards	MCU devices
MCIMX8DXL-EVK	IMX8DL1AVNFZ, IMX8SL1AVNFZ

5 Release contents

Table 2 provides an overview of the MCUXpresso SDK release package contents and locations.

Table 2. Release contents

Deliverable	Location
Boards	*<install_dir>/boards*
CMSIS Arm Cortex®-M header files, DSP library source	*<install_dir>/CMSIS*
CMSIS drivers	*<install_dir>/devices/<device_name>/cmsis_drivers*
Cortex Microcontroller Software Interface Standard (CMSIS) driver examples	*<install_dir>/boards/<board_name>/cmsis_driver_examples*
cpp_template	*<install_dir>/middleware/multicore/erpc/erpcgen/src/cpptemplate*
Demo applications	*<install_dir>/boards/<board_name>/demo_apps*
Documentation	*<install_dir>/docs*
Driver examples	*<install_dir>/boards/<board_name>/driver_examples*
Driver, SoC header files, extension header files and feature header files, utilities	*<install_dir>/devices/<device_name>*
Multicore examples	*<install_dir>/boards/<board_name>/multicore_examples*
Multicore stack	*<install_dir>/middleware/multicore*
Peripheral Drivers	*<install_dir>/devices/<device_name>/drivers*
RTOS examples	*<install_dir>/boards/<board_name>/rtos_examples*
RTOS Kernel Code	*<install_dir>/rtos*
Tools	*<install_dir>/tools*
Utilities such as debug console	*<install_dir>/devices/<device_name>/utilities*

6 MCUXpresso SDK release package

The MCUXpresso SDK release package content is aligned with the silicon subfamily it supports. This includes the boards, CMSIS, devices, documentation, middleware, and RTOS support.

6.1 Device support

The device folder contains the whole software enablement available for the specific System-on-Chip (SoC) subfamily. This folder includes clock-specific implementation, device register header files, device register feature header files, CMSIS derived device SVD, and the system configuration source files. Included with the standard SoC support are folders containing peripheral drivers, toolchain support, and a standard debug console.

The device-specific header files provide a direct access to the microcontroller peripheral registers. The device header file provides an overall SoC memory mapped register definition. The folder also includes the feature header file for each peripheral on the microcontroller.

The toolchain folder contains the startup code and linker files for each supported toolchain. The startup code is a CMSIS compliant startup code that efficiently transfers the code execution to the `main()` function.

6.1.1 Board support

The boards folder provides the board-specific demo applications, driver examples, RTOS, and middleware examples.

6.1.2 Demo applications and other examples

The demo applications demonstrate the usage of the peripheral drivers to achieve a system level solution. Each demo application contains a readme file that describes the operation of the demo and required setup steps.

The driver examples demonstrate the capabilities of the peripheral drivers. Each example implements a common use case to help demonstrate the driver functionality.

6.2 Middleware

6.2.1 RTOS

The MCUXpresso SDK is integrated with FreeRTOS OS.

6.2.2 CMSIS

The MCUXpresso SDK is shipped with the standard CMSIS development pack, including the prebuilt libraries.

7 MISRA compliance

All MCUXpresso SDK drivers and USB stack comply to MISRA 2012 rules with exceptions in Table 3.

Table 3. MISRA exceptions

Exception rules	Description
Directive 4.4	Sections of code should not be **commented out**.
Directive 4.5	Identifiers in the same name space with overlapping visibility should be typographically unambiguous.
Directive 4.6	Typedefs that indicate size and signedness should be used in place of the basic numerical types.
Directive 4.8	If a pointer to a structure or union is never dereferenced within a translation unit, then the implementation of the object should be hidden.
Directive 4.9	A function should be used in preference to a function-like macro where they are interchangeable.
Directive 4.13	Functions which are designed to provide operations on a resource should be called in an appropriate sequence.
Rule 1.2	Language extensions should not be used.
Rule 2.3	A project should not contain unused type declarations.
Rule 2.4	A project should not contain unused tag declarations.

Table continues on the next page...

Table 3. MISRA exceptions (continued)

Exception rules	Description
Rule 2.5	A project should not contain unused macro declarations.
Rule 2.6	A function should not contain unused label declarations.
Rule 2.7	There should be no unused parameters in functions.
Rule 4.2	Trigraphs should not be used.
Rule 5.1	External identifiers shall be distinct.
Rule 5.4	Macro identifiers shall be distinct.
Rule 5.9	Identifiers that define objects or functions with internal linkage should be unique.
Rule 8.7	Functions and objects should not be defined with external linkage if they are referenced in only one translation unit.
Rule 8.9	An object should be defined at block scope if its identifier only appears in a single function.
Rule 8.11	When an array with external linkage is declared, its size should be explicitly specified.
Rule 8.13	A pointer should point to a const-qualified type whenever possible.
Rule 10.5	The value of an expression should not be cast to an inappropriate essential type.
Rule 11.4	A conversion should not be performed between a pointer to object and an integer type.
Rule 11.5	A conversion should not be performed from pointer to void into pointer to object.
Rule 12.1	The precedence of operators within expressions should be made explicit.
Rule 12.3	The comma operator should not be used.
Rule 12.4	Evaluation of constant expressions should not lead to unsigned integer wrap-around.
Rule 13.3	A full expression containing an increment (`++`) or decrement (`--`) operator should have no other potential side effects other than that caused by the increment or decrement operator.
Rule 15.4	There should be no more than one break or go to statement used to terminate any iteration statement.
Rule 17.5	The function argument corresponding to a parameter declared to have an array type shall have an appropriate number of elements.
Rule 17.8	A function parameter should not be modified.
Rule 19.2	The union keyword should not be used.
Rule 20.1	`#include` directives should only be preceded by preprocessor directives or comments.
Rule 20.10	The `#` and `##` preprocessor operators should not be used.
Rule 21.1	`#define` and `#undef` shall not be used on a reserved identifieror reserved macro name.
Rule 21.2	A reserved identifier or macro name shall not be declared.
Rule 21.12	The exception handling features of `<fenv.h>` should not be used.

8 Known issues

8.1 Blue color bit5 always connected to GND

This is because panel pin **B5** is connected to GND, to make the `DISP_EN` signal work on REV.B board.

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Date of release: December 30, 2020

Document identifier: MCUXSDKIMX8DXLRN

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