



MCSDKRN

Multicore SDK (MCSDK) Release Notes

Rev. 16 — 30 June 2022

Release notes

Document information

Information	Content
Keywords	NXP Multicore Software Development Kit, MCSDK, Multicore, SDK
Abstract	This document is the release notes for NXP Multicore Software Development Kit (MCSDK).



1 Overview

These are the release notes for the NXP Multicore Software Development Kit (MCSDK) version 2.12.0. This software package contains components for efficient work with multicore devices as well as for the multiprocessor communication.

2 What is new

- eRPC: Construct the USB CDC transport, rather than a client, GitHub PR #220.
- eRPC: Fix premature import of package, causing failure when attempting installation of Python library in a clean environment, GitHub PR #38, #226.
- eRPC: Improve python detection in make, GitHub PR #225.
- eRPC: Fix several warnings with deprecated call in pytest, GitHub PR #227.
- eRPC: Fix freeing union members when only default need be freed, GitHub PR #228.
- eRPC: Fix making test under Linux, GitHub PR #229.
- eRPC: Assert costumizing, GitHub PR #148.
- eRPC: Fix corrupt clientList bug in TransportArbitrator, GitHub PR #199.
- eRPC: Fix build issue when invoking g++ with -Wno-error=free-nonheap-object, GitHub PR #233.
- eRPC: Fix inout cases, GitHub PR #237.
- eRPC: Remove ERPC_PRE_POST_ACTION dependency on return type, GitHub PR #238.
- eRPC: Adding NULL to ptr when codec function failed, fixing memcpy when fail is present during deserialization, GitHub PR #253.
- eRPC: MessageBuffer usage improvement, GitHub PR #258.
- eRPC: Get rid for serial and enum34 dependency (enum34 is in python3 since 3.4 (from 2014)), GitHub PR #247.
- eRPC: Several MISRA violations addressed.
- eRPC: Fix timeout for Freertos semaphore, GitHub PR #251.
- eRPC: Use of rmsg_lite_wait_for_link_up() in rmsg_lite based transports, GitHub PR #223.
- eRPC: Fix codec nullptr dereferencing, GitHub PR #264.
- erpcgen: Fix two syntax errors in erpcgen Python output related to non-encapsulated unions, improved test for union, GitHub PR #206, #224.
- erpcgen: Fix serialization of list/binary types, GitHub PR #240.
- erpcgen: Fix empty list parsing, GitHub PR #72.
- erpcgen: Fix templates for malloc errors, GitHub PR #110.
- erpcgen: Get rid of encapsulated union declarations in global scale, improve enum usage in unions, GitHub PR #249, #250.
- erpcgen: Fix compile error:UniquelIdChecker.cpp:156:104:'sort' was not declared, GitHub PR #265.
- MCMgr: Update mcmgr_stop_core_internal() implementations to set core state to kMCMGR_ResetCoreState.
- RPMsg-Lite: Introduce new rmsg_lite_wait_for_link_up() API function - this allows to avoid using busy loops in rtos environments, GitHub PR #21.
- RPMsg-Lite: Adjust rmsg_lite_is_link_up() to return RL_TRUE/RL_FALSE.
- Supported evaluation boards (multicore examples):
 - LPCXpresso55S69
 - FRDM-K32L3A6

- MIMXRT1170-EVK
- MIMXRT1160-EVK
- Supported evaluation boards (multiprocessor examples):
 - FRDM-K22F
 - FRDM-K32L2B
 - MIMXRT685-EVK
 - MIMXRT1060-EVK
 - MIMXRT1170-EVK

3 Development tools

The Multicore SDK (MCSDK) version 2.12.0 was compiled and tested with these development tools:

- IAR Embedded Workbench for Arm[®] version 9.30.1
- MDK-ARM Microcontroller Development Kit (Keil)[®] version 5.37
- Makefiles support with GCC revision 10.3-2021.10 from Arm Embedded
- MCUXpresso IDE v11.6.0

4 Release contents

This table describes the release contents. Not all MCUXpresso SDK packages contain the whole set of these components.

Table 1. Release contents

Deliverable	Location
Multicore SDK location within the MCUXpresso SDK folder structure	<MCUXpressoSDK_install_dir>/middleware/multicore/...
Documentation	<MCUXpressoSDK_install_dir>/docs/multicore/...
Embedded Remote Procedure Call component	<MCSDK_dir>/erpc/...
Multicore Manager component	<MCSDK_dir>/mcmgr/...
RPMmsg-Lite	<MCSDK_dir>/rpmmsg_lite/...
Multicore demo applications	<MCUXpressoSDK_install_dir>/boards/<board_name>/multicore_examples/...
Multiprocessor demo applications	<MCUXpressoSDK_install_dir>/boards/<board_name>/multiprocessor_examples/...

5 Multicore SDK release overview

Together, the Multicore SDK (MCSDK) and the MCUXpresso SDK (SDK) form a framework for the development of software for NXP multicore devices. The MCSDK release consists of the following elementary software components for multicore:

- Embedded Remote Procedure Call (eRPC)
- Multicore Manager (MCMGR) - included just in SDK for multicore devices
- Remote Processor Messaging - Lite (RPMmsg-Lite) - included just in SDK for multicore devices

The MCSDK is also accompanied with documentation and several multicore and multiprocessor demo applications.

6 Demo applications

The multicore demo applications demonstrate the usage of the MCSDK software components on supported multicore development boards. The following multicore demo applications are located together with other MCUXpresso SDK examples in the `<MCUXpressoSDK_install_dir>/boards/<board_name>/multicore_examples...` subdirectories.

- erpc_matrix_multiply_mu
- erpc_matrix_multiply_mu_rtos
- erpc_matrix_multiply_rpmsg
- erpc_matrix_multiply_rpmsg_rtos
- erpc_two_way_rpc_rpmsg_rtos
- freertos_message_buffers
- hello_world
- multicore_manager
- rpmsg_lite_pingpong
- rpmsg_lite_pingpong_rtos
- rpmsg_lite_pingpong_tzm

The eRPC multicore component can be leveraged for inter-processor communication and remote procedure calls between SoCs / development boards. The following multiprocessor demo applications are located together with other MCUXpresso SDK examples in the `<MCUXpressoSDK_install_dir>/boards/<board_name>/multiprocessor_examples...` subdirectories.

- erpc_client_matrix_multiply_spi
- erpc_server_matrix_multiply_spi
- erpc_client_matrix_multiply_uart
- erpc_server_matrix_multiply_uart
- erpc_server_dac_adc
- erpc_remote_control

7 Revision history

This table summarizes revisions to this document.

Table 2. Revision history

Revision number	Date	Substantive changes
0	09/2015	Initial release
1	03/2016	Updated for the KSDK 2.0.0 and the MCSDK 1.1.0
2	08/2016	Updated for the MCSDK 2.0.0 and the LPCXpresso54114 support
3	09/2016	Updated for the MCSDK 2.1.0
4	03/2017	Updated for the MCSDK 2.2.0
5	06/2017	Updated for the MCSDK 2.2.1 and the LPCXpresso54102 support
7	11/2017	Updated for the MCSDK 2.3.0 and MCUXpresso SDK 2.3.0 release
8	05/2018	Updated for the MCSDK 2.4.0 and MCUXpresso SDK 2.4.0 release

Table 2. Revision history...continued

Revision number	Date	Substantive changes
9	12/2018	Updated for the MCSDK 2.5.0 and MCUXpresso SDK 2.5.0 release
10	06/2019	Updated for the MCSDK 2.6.0 and MCUXpresso SDK 2.6.0 release
11	12/2019	Updated for the MCSDK 2.7.0 and MCUXpresso SDK 2.7.0 release
12	07/2020	Updated for the MCSDK 2.8.0 and MCUXpresso SDK 2.8.0 release
13	11/2020	Updated for the MCSDK 2.9.0 and MCUXpresso SDK 2.9.0 release
14	01 June 2021	Updated for the MCSDK 2.10.0 and MCUXpresso SDK 2.10.0 release
15	12 November 2021	Updated for the MCSDK 2.11.0 and MCUXpresso SDK 2.11.0 release
16	30 June 2022	Updated for the MCSDK 2.12.0 and MCUXpresso SDK 2.12.0 release

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