MCSDKRN

Multicore SDK (MCSDK) Release Notes

Rev. 12 — 07 July 2020

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1 Overview

These are the release notes for the NXP Multicore Software Development Kit (MCSDK) version 2.8.0. This software package contains components for efficient work with multicore devices as well as for the multiprocessor communication.

2 What is new

- eRPC: Unit test code updated to handle service add and remove operations.
- eRPC: Several MISRA issues in rpmsg-based transports addressed.
- eRPC: Support MU transport unit testing.
- eRPC: Adding mbed os support.
- eRPC: Fixed Linux/TCP acceptance tests in release target.
- eRPC: Minor documentation updates, code formatting.
- erpcgen: Whitespace removed from C common header template.
- RPMsg-Lite: MISRA C-2012 violations fixed (7.4).
- RPMsg-Lite: Fix missing lock in rpmsg_lite_rx_callback() for QNX env.
- RPMsg-Lite: Correction of rpmsg_lite_instance structure members description.
- RPMsg-Lite: Address -Waddress-of-packed-member warnings in GCC9.
- RPMsg-Lite: Clang update to v10.0.0, code re-formatted.
- Supported evaluation boards (multicore examples):
  - LPCXpresso54114
  - LPCXpresso55S69
  - FRDM-K32L3A6
- Supported evaluation boards (multiprocessor examples):
  - FRDM-K22F
  - FRDM-K28FA
  - FRDM-K64F
  - FRDM-K66F
  - FRDM-K82F
  - FRDM-KL27Z
  - FRDM-KL43Z

3 Development tools

The Multicore SDK (MCSDK) version 2.8.0 was compiled and tested with these development tools:

- IAR Embedded Workbench for Arm® version 8.50.5
- MDK-ARM Microcontroller Development Kit (Keil)® version 5.31
- Makefiles support with GCC revision 9-2019q4-major from Arm Embedded
- MCUXpresso IDE v11.2.0

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/…
RPMsg-Lite	<MCSDK_dir>/rpmsg_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 (RPMsg-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
- low_power
- multicore_manager
- rpmsg_lite_pingpong
- rpmsg_lite_pingpong_rtos
- rpmsg_lite_pingpong_tzm

The eRPC multicore component can be leveraged for inter-processor communicaton 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
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

Table continues on the next page...

Table 2. Revision history (continued)

Revision number	Date	Substantive changes
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

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