

1 Overview

These are the release notes for the NXP Multicore Software Development Kit (MCSDK) version 2.10.0. This software package contains components for efficient work with multicore devices as well as for the multiprocessor communication.

2 What is new

- eRPC: Fix misra erpc c, GitHub PR #158.
- eRPC: Allow conditional compilation of message_loggers and pre_post_action.
- eRPC: New i2c_slave_transport transport introduced.
- eRPC: (D)SPI slave transports updated to avoid busy loops in rtos environments.
- erpcgen: Re-implement EnumMember::hasValue(), GitHub PR #159.
- erpcgen: Fixing several misra issues in shim code, erpcgen and unit tests updated, GitHub PR #156.
- erpcgen: Fix bison file, GitHub PR #156.
- RPMsg-Lite: Fixed incorrect description of the rpmsg_lite_get_endpoint_from_addr function.
- RPMsg-Lite: Updated RL_BUFFER_COUNT documentation.
- RPMsg-Lite: env_print macro adjusted to address MISRA 21.6 rule in MCUXpressoSDK projects.
- Supported evaluation boards (multicore examples):
 - LPCXpresso55S69
 - FRDM-K32L3A6
 - MIMXRT1170-EVK
 - MIMXRT1160-EVK
- Supported evaluation boards (multiprocessor examples):
 - FRDM-K22F
 - FRDM-K28FA
 - FRDM-K64F
 - FRDM-K66F
 - FRDM-KL27Z
 - FRDM-K32L2B

3 Development tools

The Multicore SDK (MCSDK) version 2.10.0 was compiled and tested with these development tools:

Contents

| | | |
|---|-------------------------------------|---|
| 1 | Overview..... | 1 |
| 2 | What is new..... | 1 |
| 3 | Development tools..... | 1 |
| 4 | Release contents..... | 2 |
| 5 | Multicore SDK release overview..... | 2 |
| 6 | Demo applications..... | 2 |
| 7 | Revision history..... | 3 |



- IAR Embedded Workbench for Arm[®] version 9.10.1
- MDK-ARM Microcontroller Development Kit (Keil)[®] version 5.34
- Makefiles support with GCC revision 9-2020q2-update from Arm Embedded
- MCUXpresso IDE v11.4.0

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>/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 (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

- 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 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 |
| 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 |

Table continues on the next page...

Table 2. Revision history (continued)

| Revision number | Date | Substantive changes |
|-----------------|---------|--|
| 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 | 06/2021 | Updated for the MCSDK 2.10.0 and MCUXpresso SDK 2.10.0 release |

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