
MCUXpresso SDK Release Notes Supporting evkmimxrt685

Change Logs

NXP Semiconductors



Contents

Driver Change Log

CLOCK	1
POWER	2
RESET	3
DSP	4
ACMP	4
CACHE	5
COMMON	5
FLEXSPI	7
FLEXSPI DMA Driver	9
LPADC	10
MU	11
SEMA42	12
USDHC	12

Middleware Change Log

DSP Audio Streamer	16
NatureDSP	16
emWin library	16
FatFs for MCUXpresso SDK	17
lwIP for MCUXpresso SDK	17
Multicore SDK	21

Title	Page No.
Host USDHC driver for MCUXpresso SDK	28
MMC Card driver for MCUXpresso SDK	29
SD Card driver for MCUXpresso SDK	31
SDIO Card driver for MCUXpresso SDK	34
USB stack for MCUXpresso SDK	36
EdgeFast Bluetooth Protocol Abstraction Layer Implementation for MCUXpresso SDK	41
EdgeFast Bluetooth PAL for MCUXpresso SDK	43

Component Change Log

CODEC	44
WM8904	45
CS42888	46
SERIAL_MANAGER	47

1 Driver Change Log

CLOCK

The current CLOCK driver version is 2.7.2.

- 2.7.2
 - Bug Fixes
 - * Added clock name array for PUF, HashCrypt and Casper.
- 2.7.1
 - Improvements
 - * Added lost comments for some enumerations.
- 2.7.0
 - Bug Fixes
 - * Updated enum sys_pll_mult_t and audio_pll_mult_t to fix the supported MULT values for PLLs.
 - * Supported more APIs for DSP core.
- 2.6.1
 - New feature
 - * Added CLOCK_SetClkinFreq API.
 - Other Changes
 - * Remove main_clk from UTICK, WWDT0/1 clock attach define.
 - Bug Fixes
 - * Fixed violations of MISRA C-2012 rules.
- 2.6.0
 - API change
 - * Added enableLowPower parameter in CLOCK_EnableSysOscClk().
 - * Added id parameter in CLOCK_GetSdioClkFreq().
 - Other Changes
 - * Fixed C++ build errors.
 - * Added sdio1 and flexcomm6,7 clock support.
 - * Added syspll pfd clock dividers define.
 - * Updated register access per the B0 header file's change.
 - * Added assert in CLOCK_SetFRGClk(), the FRG DIV should be always set to 0xFF according to User Manual.
- 2.5.0
 - New feature
 - * Moved SDK_DelayAtLeastUs function from clock driver to common driver.
- 2.4.1
 - Bug Fixes
 - * Avoided waiting REQFLAG when divider configured to HALT in CLOCK_SetClkDiv().
- 2.4.0
 - Modify Audio PLL mult parameter range.
 - Update get mclk_in api.

- 2.3.0
 - New feature
 - * Adding Deinit PLL&PFD API.
 - API change
 - * Add delay_us parameter in CLOCK_EnableSysOscClk()
- 2.2.0
 - Update I3C and SDIO clock get API.
 - Modify wwdt clock API name.
- 2.1.1
 - Update PLL initialization function.
- 2.1.0
 - New feature
 - * Adding new API CLOCK_DelayAtLeastUs() implemented by DWT to allow users set delay in unit of microsecond.
- 2.0.5
 - Clean up 3 USB clock enable APIs;
- 2.0.4
 - New feature
 - * add get mclk_in api.
 - Bug Fixes
 - * The SysTick clock value should not be divided except choose main clock.
- 2.0.3
 - Update according to UM 0.7.
- 2.0.2
 - some minor fixes.
- 2.0.0
 - initial version.

POWER

The current POWER driver version is 2.3.2.

- 2.3.2
 - Bug Fixes
 - * Fixed MISRA issue in function POWER_GetLibVersion.
- 2.3.1
 - Bug Fixes
 - * Fixed the return value of function countPartitionSwitches.
- 2.3.0
 - API change: POWER_SetLdoVoltageForFreq()
 - * Changed power_part_temp_range_t. 70C->85C.
 - * Added parameter power_volt_op_range_t.
 - * Changed main clock freq parameter to cpu clock freq.
 - * Added return value to indicate success or failure.

- Optimization
 - * Turn on all memory partitions simultaneously on deep sleep wakeup to save time.
- Release in source code instead of in library.
- 2.2.1
 - Exposed POWER_DisableLVD() and POWER_RestoreLVD() APIs in header.
 - Added PMIC_VDDCORE_RECOVERY_TIME_IGNORE macro for POWER_UpdatePmicRecoveryTime() API.
 - Adjusted main frequency table for SetXXXVoltageForFreq() API to match latest B0 data.
- 2.2.0
 - Added parameter to POWER_SetLdoVoltageForFreq to specify part temperature range.
- 2.1.0
 - Updated power library implementation for B0.
 - Added POWER_SetLvdFallingTripVoltage() API.
 - Added POWER_GetLvdFallingTripVoltage() API.
 - Added POWER_UpdatePmicRecoveryTime() API.
- 2.0.3
 - Updated PD_bits per the B0 header file's change.
- 2.0.2
 - Added POWER_SetPadVolRange() API
- 2.0.1
 - Add POWER_UpdateOscSettlingTime() API to set on-board system osc settling time.
- 2.0.0
 - initial version.

RESET

The current RESET driver version is 2.1.3.

- 2.1.3
 - Bug Fixes
 - * Added peripheral reset array for CASPER, PUF, HashCrypt, RNG.
- 2.1.2
 - Bug Fixes
 - * Fixed typo in _RSTCTL_RSTn enumeration's comment.
- 2.1.1
 - Bug Fixes
 - * Fixed MISRA C-2012 rule 10.6 and rule 16.4.
- 2.1.0
 - Updated register access per the B0 header file's change.
- 2.0.4
 - Add SDIO1 and Flexcomm6,7 support.
- 2.0.3
 - Rename RSTCTRL to RSTCTL.
- 2.0.2

- Update according to UM 0.7.
- 2.0.1
 - Update component full_name to "Reset Driver".
- 2.0.0
 - initial version.

DSP

The current DSP driver version is 2.1.1.

- 2.1.1
 - Fixed Misra issue.
- 2.1.0
 - Allowed multiple calls to DSP_Init.
 - Removed DSP clock gate operation.
- 2.0.1
 - Update DSP Init&Deinit function.
- 2.0.0
 - initial version.

ACMP

The current ACMP driver version is 2.0.6.

- 2.0.6
 - Bug Fixes
 - * Fixed the wrong comments, the DAC value should range from 0 to 255.
- 2.0.5
 - Bug Fixes
 - * Fixed the out-of-bounds error of Coverity caused by missing an assert sentence to avoid the return value of ACMP_GetInstance() exceeding the array bounds.
 - * Fixed the violations of MISRA C-2012 rules:
 - Rule 10.1, 14.4, 16.4, 17.7.
- 2.0.4
 - Bug Fixes
 - * Avoided changing w1c bit in ACMP_SetRoundRobinPreState().
- 2.0.3
 - New Features
 - * Added feature functions for usage of different power domains(1.8 V and 3 V). These functions are first enabled in ULP1. They are about:
 - ACMP_EnableLinkToDAC()
 - ACMP_SetDiscreteModeConfig()
 - ACMP_GetDefaultDiscreteModeConfig()
- 2.0.2

- Other Changes
 - * Changed coding style of peripheral base address from "s_acmpBases" to "s_acmpBase".
- 2.0.1
 - Bug Fixes
 - * Fixed bug regarding the function "ACMP_SetRoundRobinConfig". It will not continue execution but returns directly after disabling round robin mode.

CACHE

The current CACHE driver version is 2.0.4.

- 2.0.4
 - Improvement
 - * Disable cache policy feature on SoC without CACHE64_POLSEL IP.
 - Bug Fixes
 - * Fixed doxygen issue.
- 2.0.3
 - Bug Fixes
 - * Fixed violations of the MISRA C-2012 Rule 10.3.
- 2.0.2
 - Bug Fixes
 - * Fixed violations of the MISRA C-2012 Rule 10.1, 10.3, 10.4 and 14.4.
 - * Fixed doxygen issue.
- 2.0.1
 - Improvements
 - * Moved CLCR register configuration out of the while loop, it's unnecessary to repeat this operation.
- 2.0.0
 - Initial version.

COMMON

The current COMMON driver version is 2.3.2.

- 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.

FLEXSPI

The current FLEXSPI driver version is 2.3.5.

- 2.3.5
 - Bug Fixes
 - * Fixed violations of the MISRA C-2012 Rule 14.2.
- 2.3.4
 - Bug Fixes
 - * Updated flexspi_config_t structure and FlexSPI_Init to support new feature FSL_FEATURE_FLEXSPI_HAS_NO_MCR0_CONBINATION.
- 2.3.3
 - Bug Fixes
 - * Removed feature FSL_FEATURE_FLEXSPI_DQS_DELAY_PS for DLL delay setting. Changed to use feature FSL_FEATURE_FLEXSPI_DQS_DELAY_MIN to set slave delay target as 0 for DLL enable and clock frequency higher than 100MHz.
- 2.3.2

- Bug Fixes
 - * Fixed violations of the MISRA C-2012 Rule 8.4, 8.5, 10.1, 10.3, 10.4, 11.6 and 14.4.
- 2.3.1
 - Bug Fixes
 - * Wait for bus to be idle before using it as access to external flash with new setting in FLEXSPI_SetFlashConfig() API.
 - * Fixed the potential buffer overread and Tx FIFO overwrite issue in FLEXSPI_WriteBlocking.
- 2.3.0
 - New Features
 - * Added new API FLEXSPI_UpdateDllValue for users to update DLL value after updating flexspi root clock.
 - * Corrected grammatical issues for comments.
 - * Added support for new feature FSL_FEATURE_FLEXSPI_DQS_DELAY_PS in DLL configuration.
- 2.2.2
 - Bug Fixes
 - * Fixed violations of the MISRA C-2012 Rule 10.1, 10.3 and 10.4.
 - * Updated _flexspi_command from named enumerator into anonymous enumerator.
- 2.2.1
 - Bug Fixes
 - * Fixed violations of the MISRA C-2012 Rule 10.1, 10.3, 10.4, 10.8, 11.9, 14.4, 15.7, 16.4, 17.7, 7.3.
 - * Fixed IAR build warning Pe167.
 - * Fixed the potential buffer overwrite and Rx FIFO overread issue in FLEXSPI_ReadBlocking.
- 2.2.0
 - Bug Fixes
 - * Fixed flag name typos: kFLEXSPI_IpTxFifoWatermarkEmptyFlag to kFLEXSPI_IpTxFifoWatermarkEmptyFlag; kFLEXSPI_IpCommandExcutionDoneFlag to kFLEXSPI_IpCommandExecutionDoneFlag.
 - * Fixed comments typos such as sequencen->sequence, levle->level.
 - * Fixed FLSHCR2[ARDSEQID] field clean issue.
 - * Updated flexspi_config_t structure and FlexSPI_Init to support new feature FSL_FEATURE_FLEXSPI_HAS_NO_MCR0_ATDFEN and FSL_FEATURE_FLEXSPI_HAS_NO_MCR0_ARDFEN.
 - * Updated flexspi_flags_t structure to support new feature FSL_FEATURE_FLEXSPI_HAS_INTEN_AHBBUSERROREN.
- 2.1.1
 - Improvements
 - * Defaulted enable prefetch for AHB RX buffer configuration in FLEXSPI_GetDefaultConfig, which is align with the reset value in AHB RX BUFxCR0.
 - * Added software workaround for ERR011377 in FLEXSPI_SetFlashConfig; added some delay after DLL lock status set to ensure correct data read/write.
- 2.1.0

- New Features
 - * Added new API FLEXSPI_UpdateRxSampleClock for users to update read sample clock source after initialization.
 - * Added reset peripheral operation in FLEXSPI_Init if required.
- 2.0.5
 - Bug Fixes
 - * Fixed FLEXSPI_UpdateLUT cannot do partial update issue.
- 2.0.4
 - Bug Fixes
 - * Reset flash size to zero for all ports in FLEXSPI_Init; fixed the possible out-of-range flash access with no error reported.
- 2.0.3
 - Bug Fixes
 - * Fixed AHB receive buffer size configuration issue. The FLEXSPI_AHBRXBUFCR0_BUFSZ field should configure 64 bits size, and currently the AHB receive buffer size is in bytes which means 8-bit, so the correct configuration should be config->ahbConfig->buffer[i].bufferSize / 8.
- 2.0.2
 - New Features
 - * Supported DQS write mask enable/disable feature during set FLEXSPI configuration.
 - * Provided new API FLEXSPI_TransferUpdateSizeEDMA for users to update eDMA transfer size(SSIZE/DSIZE) per DMA transfer.
 - Bug Fixes
 - * Fixed invalid operation of FLEXSPI_Init to enable AHB bus Read Access to IP RX FIFO.
 - * Fixed incorrect operation of FLEXSPI_Init to configure IP TX FIFO watermark.
- 2.0.1
 - Bug Fixes
 - * Fixed the flag clear issue and AHB read Command index configuration issue in FLEXSPI_SetFlashConfig.
 - * Updated FLEXSPI_UpdateLUT function to update LUT table from any index instead of previous command index.
 - * Added bus idle wait in FLEXSPI_SetFlashConfig and FLEXSPI_UpdateLUT to ensure bus is idle before any change to FlexSPI controller.
 - * Updated interrupt API FLEXSPI_TransferNonBlocking and interrupt handle flow FLEXSPI_TransferHandleIRQ.
 - * Updated eDMA API FLEXSPI_TransferEDMA.
- 2.0.0
 - Initial version.

FLEXSPI DMA Driver

- 2.2.1
 - Bug Fixes
 - * Fixed violations of the MISRA C-2012 Rule 10.1, 10.3, 10.4, 10.8.

- 2.2.0
 - Bug Fixes
 - * Fixed violations of the MISRA C-2012 Rule 10.1, 10.3.
 - New Features
 - * Updated name of FLEXSPI_TransferGetTransferCountDMA API.
- 2.1.1
 - New Features
 - * Updated driver to support feature FSL_FEATURE_FLEXSPI_DMA_MULTIPLE_DES.
- 2.1.0
 - Bug Fixes
 - * Updated enumeration flexspi_dma_transfer_nsize_t and remove the unsupported items.
 - New Features
 - * Updated driver for deprecating the multiple linked descriptors inside FLEXSPI_TransferDMA, only up to one linked descriptor is needed according to hardware update.
- 2.0.0
 - Initial version.

LPADC

The current LPADC driver version is 2.6.0.

- 2.6.0
 - New feature
 - * Added API LPADC_EnableHardwareTriggerCommandSelection() to enable trigger commands controlled by ADC_ETC.
- 2.5.1
 - Bug Fixes
 - * Fixed some typos in Lpadc driver comments.
- 2.5.0
 - Improvements
 - * Added missing items to enable trigger interrupts.
- 2.4.0
 - New features
 - * Added APIs to get/clear trigger status flags.
- 2.3.0
 - Improvements
 - * Removed LPADC_MeasureTemperature() function for the LPADC supports different temperature sensor calculation equations.
- 2.2.1
 - Improvements
 - * Optimized LPADC_MeasureTemperature() function to support the specific series with flash solidified calibration value.
 - * Clean doxygen warnings.
 - Bug Fixes

- * Fixed violations of MISRA C-2012 rule 10.3, rule 10.8 and rule 17.7.
- 2.2.0
 - New Feature
 - * Added API LPADC_MeasureTemperature() to get correct temperature from the internal sensor.
 - Improvements
 - * Separated lpadc_conversion_resolution_mode_t with related feature macro.
 - Bug Fixes
 - * Fixed the violations of MISRA C-2012 rules:
 - Rule 10.3, 10.4, 10.6, 10.7 and 17.7.
- 2.1.1
 - Improvements
 - * Updated the gain calibration formula.
 - * Used feature to segregate the new item kLPADC_TriggerPriorityPreemptSubsequently.
- 2.1.0
 - New Features
 - * Added the API LPADC_SetOffsetValue() to support configure offset trim value manually.
 - * Added the API LPADC_DoOffsetCalibration() to do offset calibration independently.
 - Improvements
 - * Improved the usage of macros and removed invalid macros.
- 2.0.2
 - Improvements
 - * Added support for platforms with 2 FIFOs and different calibration measures.
- 2.0.1
 - Bug Fixes
 - * Ensured the API LPADC_SetConvCommandConfig configure related registers correctly.
- 2.0.0
 - Initial version.

MU

The Current MU driver version is 2.1.0.

- 2.1.0
 - Improvements
 - * Added new enum mu_msg_reg_index_t.
- 2.0.7
 - Bug Fixes
 - * Fixed MU_GetInterruptsPending bug that can not get general interrupt status.
- 2.0.6
 - Bug Fixes
 - * Fixed violations of the MISRA C-2012 rules 17.7.
- 2.0.5
 - Bug Fixes

- * Fixed violations of the MISRA C-2012 rules 14.4, 15.5.
- 2.0.4
 - Improvements
 - * Improved for the platforms which don't support reset assert interrupt and get the other core power mode.
- 2.0.3
 - Bug fixes
 - * MISRA C-2012 issue fixed.
 - Fixed rules, containing: rule-10.3, rule-14.4, rule-15.5.
- 2.0.2
 - Improvements
 - * Added support for MIMX8MQx.
- 2.0.1
 - Improvements
 - * Added support for MCIMX7Ux_M4.
- 2.0.0
 - Initial version.

SEMA42

The current SEMA42 driver version is 2.0.3.

- 2.0.3
 - Improvements
 - * Changed to implement SEMA42_Lock base on SEMA42_TryLock.
- 2.0.2
 - Bug Fixes
 - * Fixed violations of the MISRA C-2012 rules 17.7.
- 2.0.1
 - Bug Fixes
 - * Fixed violations of the MISRA C-2012 rules 10.3, 10.4, 14.4, 18.1.
- 2.0.0
 - Initial version.

USDHC

The current USDHC driver version is 2.8.1.

- 2.8.01
 - Bug Fixes
 - * Fixed violations of MISRA C-2012 rule 11.9.
- 2.8.0
 - Improvements
 - * Fixed the mmc boot transfer failed issue which is caused by the Dma complete interrupt

- not enabled.
- * Marked api USDHC_AdjustDelayForManualTuning as deprecated and added new api USDHC_SetTuningDelay/USDHC_GetTuningDelayStatus.
- * Improved the manual tuning flow according to specification.
- * Added memory address conversion to support buffers which could only be accessed using alias address by non-core masters.
- * Fixed violations of MISRA C-2012 rule 10.4.
- 2.7.0
 - Improvements
 - * Added api USDHC_TransferScatterGatherADMANonBlocking to support scatter gather transfer.
 - * Added feature FSL_FEATURE_USDHC_REGISTER_HOST_CTRL_CAP_HAS_NO_RETUNING_TIME_COUNTER for re-tuning time counter field in HOST_CTRL_CAP register.
 - Bug Fixes
 - * Fixed violations of MISRA C-2012 rule 11.9, 10.1, 10.3, 10.4, 8.4.
- 2.6.0
 - Improvements
 - * Added api USDHC_SetStandardTuningCounter to support adjust tuning counter of Standard tuning.
- 2.5.1
 - Improvements
 - * Used different status code for command and data interrupt callback.
 - * Added cache line invalidate for receive buffer in driver IRQ handler to fix CM7 speculative access issue.
- 2.5.0
 - Improvements
 - * Added new api USDHC_SetStrobeDllOverride for HS400 strobe dll override mode delay taps configurations.
 - * Corrected the STROBE DLL configurations sequence.
- 2.4.0
 - Improvements
 - * Added feature macro for read/write burst length.
 - Disabled redundant interrupt per different transfer request.
 - Disabled interrupt and reset command/data pointer in handle when transfer completes.
 - Bug Fixes
 - * Fixed violations of MISRA C-2012 rule 11.9, 15.7, 4.7, 16.4, 10.1, 10.3, 10.4, 11.3, 14.4, 10.6, 17.7, 16.1, 16.3.
 - * Fixed PA082 build warning.
 - * Fixed logically dead code Coverity issue.
- 2.3.0
 - Improvements
 - * Added USDHC_SetDataConfig API to support manual tuning.
 - * Removed the limitation that source clock must be bigger than the target in function USDHC_SetSdClock by using source clock frequency as target directly.

- * Added peripheral reset in USDHC_Init function.
 - * Added tuning reset support in function USDHC_Reset function.
- 2.2.8
 - Bug Fixes
 - * Fixed out-of bounds write in function USDHC_ReceiveCommandResponse.
- 2.2.7
 - Improvements
 - * Added API USDHC_GetEnabledInterruptStatusFlags and used in USDHC_Transfer-HandleIRQ.
 - * Removed useless member interruptFlags in usdhc_handle_t.
- 2.2.6
 - Improvements
 - * Added address align check for ADMA descriptor table address.
 - * Changed USDHC_ADMA1_DESCRIPTOR_MAX_LENGTH_PER_ENTRY to (65536-4096) to make sure the data address is 4KB align for a transfer which need more than one ADMA1 descriptor.
- 2.2.5
 - Bug Fixes
 - * Fixed MDK 66-D warning.
- 2.2.4
 - Bug Fixes
 - * Fixed issue that real clock frequency wss mismatched with target clock frequency, which was caused by an incorrect prescaler calculation.
 - New Features
 - * Added control macro to enable/disable the CLOCK code in current driver.
- 2.2.3
 - Bug Fixes
 - * Fixed issue where AMDA did not disable with DMAEN clear.
 - Improvements
 - * Improved set clock function to check the output frequency range.
 - * Dynamic set SDCLKFS during DDR enable or disable.
- 2.2.2
 - Improvements
 - * Improved read transfer cache maintain operation, combined clean, and invalidated them into one function.
- 2.2.1
 - Bug Fixes
 - * Disabled the invalidate cache operation for tuning.
- 2.2.0
 - Improvements
 - * Improved USDHC to support MMC boot feature.
- 2.1.3
 - Bug Fixes
 - * Fixed MISRA issue.
- 2.1.2

- Bug Fixes
 - * Fixed Coverity issue.
 - * Added base address and userData parameter for all callback functions.
- 2.1.1
 - Improvements
 - * Added cache maintain operation.
 - * Added timeout status check for the DATA transfer which ignore error.
 - * Added feature macro for SDR50/SDR104 mode.
 - * Removed useless IRQ handler from different platforms.
- 2.1.0
 - Improvements
 - * Integrated tuning into transfer function.
 - * Added strobe DLL feature.
 - * Added enableAutoCommand23 in data structure.
 - * Removed enable card clock function because the controller would handle the clock on/off.
- 2.0.0
 - Initial version.

2 Middleware Change Log

DSP Audio Streamer

The current version of DSP Audio Streamer is 2.6p2.

- 2.6p2
 - Update to version 2.6p2 (2.6 patch)
- 2.6p1
 - Update to version 2.6p1 (2.6 patch release 1)
- 2.6
 - Update to version 2.6 GA
- 2.0
 - Initial version of DSP Audio Streamer

NatureDSP

The current version of NatureDSP is 4.1.0.

- 4.1.0
 - Updated to 4.1.0 version of NatureDSP from Cadence for HiFi4 DSP. Library built with nxp-rt600_RI2021_8_newlib build configuration.
- 4.0.0
 - Initial version of NatureDSP from Cadence for HiFi4 DSP.

emWin library

The currently supported version is 6.24

- v6.24_rev1
 - recompiled cm33 library with fpu single precision
 - added cm7_sp library for Cortex M7 with sp fpu for IAR
- v6.24
 - upgraded to v6.24
- v6.16c
 - upgraded to v6.16c
 - updated temperature_control demo generated by AppWizard
- v6.14d
 - upgraded to v6.14d
- v6.10f
 - upgraded to v6.10f

FatFs for MCUXpresso SDK

Current version is FatFs R0.14b_rev0.

- R0.14b_rev0
 - Upgraded to version 0.14b
- R0.14a_rev0
 - Upgraded to version 0.14a
 - Applied patch ff14a_p1.diff and ff14a_p2.diff
- R0.14_rev0
 - Upgraded to version 0.14
 - Applied patch ff14_p1.diff and ff14_p2.diff
- R0.13c_rev0
 - Upgraded to version 0.13c
 - Applied patches ff_13c_p1.diff, ff_13c_p2.diff, ff_13c_p3.diff and ff_13c_p4.diff.
- R0.13b_rev0
 - Upgraded to version 0.13b
- R0.13a_rev0
 - Upgraded to version 0.13a. Added patch ff_13a_p1.diff.
- R0.12c_rev1
 - Add NAND disk support.
- R0.12c_rev0
 - Upgraded to version 0.12c and applied patches ff_12c_p1.diff and ff_12c_p2.diff.
- R0.12b_rev0
 - Upgraded to version 0.12b.
- R0.11a
 - Added glue functions for low-level drivers (SDHC, SDSPI, RAM, MMC). Modified diskio.c.
 - Added RTOS wrappers to make FatFs thread safe. Modified syscall.c.
 - Renamed ffconf.h to ffconf_template.h. Each application should contain its own ffconf.h.
 - Included ffconf.h into diskio.c to enable the selection of physical disk from ffconf.h by macro definition.
 - Conditional compilation of physical disk interfaces in diskio.c.

lwIP for MCUXpresso SDK

Lightweight IP (lwIP) is a small independent implementation of the TCP/IP protocol suite. Source code included in this SDK is based on development version 2.2.0.dev taken from 3rd party lwIP GIT repository. The webpage <https://git.savannah.nongnu.org/cgit/lwip.git> allows to browse the repository and also contains URLs for its cloning. The development versions (X.Y.Z.dev) do not refer to a single source code snapshots. To avoid ambiguity, change log below contains SHA-1 hashes of GIT commits used when importing the code into the SDK.

- 2.2.0_rev6
 - New features:
 - * Ported lwIP 2.2.0.dev (2022-03-25, branch: master, SHA-1: 124dc0a64ef5d7c14a27e3115e5888df65)

- to MCUXpresso SDK.
 - * Implemented leaving of multicast groups on ENET and ENET QOS.
- 2.2.0_rev5
 - New features:
 - * Ported lwIP 2.2.0.dev (2021-05-11, branch: master, SHA-1: 7ec4e9be304e7f8953740f10b2c810a292) to MCUXpresso SDK.
 - * LPC ENET adaptation layer allocates more buffers for frame reception now. Previously the number of receive buffers was determined by ENET_RXBD_NUM, which defaults to 5. It is determined by ENET_RXBUFF_NUM now, which is 2 * ENET_RXBD_NUM by default. Increase was needed because the actual version of LPC ENET driver always hold ENET_RXBD_NUM number of buffers and few additional buffers are needed for passing zero-copy frame data to lwIP. If this takes too much memory in your application, you can counteract by decreasing PBUF_POOL_SIZE, since PBUF_POOL is used only for transmission when LPC ENET, Kinetis ENET or ENET QOS is used.
- 2.2.0_rev4
 - New features:
 - * Ported lwIP 2.2.0.dev (2021-03-05, branch: master, SHA-1: 0056522cc974d2be2005c324f37187b5b3) to KSDK 2.0.0.
 - * LWIP_DHCP_DOES_ACD_CHECK option default changed to 0 (disabled):
 - Although the ACD check makes getting IP address from DHCP more robust, it added several seconds delay at startup of all applications which use DHCP.
 - This feature was not present in earlier versions of lwIP.
 - * ENET QOS adaptation layer - implemented zero-copy on receive.
 - * Kinetis ENET and ENET QOS adaptation layers allocate more buffers for frame reception now. Previously the number of receive buffers was determined by ENET_RXBD_NUM, which defaults to 5. It is determined by ENET_RXBUFF_NUM now, which is 2 * ENET_RXBD_NUM by default. Increase was needed because the actual version of Kinetis ENET and ENET QOS drivers always hold ENET_RXBD_NUM number of buffers and few additional buffers are needed for passing zero-copy frame data to lwIP. If this takes too much memory in your application, you can counteract by decreasing PBUF_POOL_SIZE, since PBUF_POOL is used only for transmission when Kinetis ENET or ENET QOS is used.
 - * Removed ethernetif_config_t.non_dma_memory field which was required to configure memory ranges unusable by ENET DMA on LPC devices. The setting has been replaced by BOARD_ENET_NON_DMA_MEMORY_ARRAY macro.
- 2.2.0_rev3
 - New features:
 - * Ported lwIP 2.2.0.dev (2020-07-07, branch: master, SHA-1: c385f31076b27efb8ee37f00cb5568783a) to KSDK 2.0.0.
- 2.2.0_rev2
 - New features:
 - * Kinetis ENET adaptation layer - implemented zero-copy on receive.
 - * lwiperf - counter of transferred bytes extended from 32 to 64 bit
 - Bug fixes:
 - * Fixed restarting Auto IP from DHCP.

- 2.2.0_rev1
 - New features:
 - * Ported lwIP 2.2.0.dev (2019-12-12, branch: master, SHA-1: 555812dcec38c9a2ef1ef9b31816291549 to KSDK 2.0.0.
 - * Implemented LWIP_ASSERT_CORE_LOCKED related functions in sys_arch.c. It can be enabled in lwipopts.h:


```

              · #define LWIP_ASSERT_CORE_LOCKED() sys_check_core_locking()
              · #define LWIP_MARK_TCPIP_THREAD() sys_mark_tcpip_thread()
              // if NO_SYS == 0
              · #define LOCK_TCPIP_CORE() sys_lock_tcpip_core() // if NO_SYS == 0 and LWIP_TCPIP_CORE_LOCKING == 1
              · #define UNLOCK_TCPIP_CORE() sys_unlock_tcpip_core() // if NO_SYS == 0 and LWIP_TCPIP_CORE_LOCKING == 1
              
```
- 2.1.2_rev5
 - New features:
 - * Implemented TCP_USER_TIMEOUT socket option.
 - * Implemented SIOCOUTQ ioctl.
- 2.1.2_rev4
 - New features:
 - * Ported lwIP 2.1.3.dev (2019-02-27, branch: STABLE-2_1_x, SHA-1: 1bb6e7f52de1cd86be0eed31e3 to KSDK 2.0.0.
 - * Updated sys_thread_new implementation and comment.
 - * Kinetis ENET adaptation layer - reading frames into a pbuf chain is conditionally compiled only when a single pbuf from pool cannot hold maximum frame size (PBUF_POOL_BUFSIZE >= maximum frame size). Avoiding this code also reduces stack size requirements by about 1.5 kilobytes.
 - Bug fixes:
 - * Fixes in ethernetif_linkoutput() in enet_ethernetif_lpc.c:
 - Removed access to possibly freed pbuf.
 - Call pbuf_free() when transmit buffers not available.
 - When copying pbuf chain, updating the number of necessary transmit buffers to wait for, which can be often smaller in the copy.
 - * When CGI script is reading POST data by chunks, the loop in httpsrv_read() may cause blocking in receive function waiting for more data at the end of the stream
 - HTTPSrv_cgi_read() - added limiting of the last chunk length according to content length to avoid undesired blocking
 - * Applied AUTOIP patch <https://savannah.nongnu.org/patch/?9847> - with modification to support multiple network interfaces.
 - * Fixed buffer overflow in httpsrv when application provided CGI script does not handle the whole content of POST request
 - Removed LwipMibCompiler contrib application as it contained LGPL licensed files in Sharp-SnmpLib.
- 2.1.2_rev3
 - New features:
 - * lwiperf updated with UDP client/server support from the patch 9751 (<https://github.com/lwip/lwip/pull/9751>)

[://savannah.nongnu.org/patch/?9751](http://savannah.nongnu.org/patch/?9751))

- 2.1.2_rev2
 - Bug fixes:
 - * Fixed lwiperf_abort() in lwiperf.c to correctly close connections and free resources
- 2.1.2_rev1
 - New features:
 - * Ported lwIP 2.1.2 (2018-11-22, SHA-1: 159e31b689577dbf69cf0683bbaffbd71fa5ee10) to KSDK 2.0.0.
 - * Ported lwIP-contrib 2.1.0 (2018-09-24, SHA-1: 35b011d4cf4c4b480f8859c456587a884ec9d287) to KSDK 2.0.0.
- 2.0.3_rev1
 - New features:
 - * Ported lwIP 2.0.3 (2017-09-15, SHA-1: 92f23d6ca0971a32f2085b9480e738d34174417b) to KSDK 2.0.0.
- 2.0.2_rev1
 - New features:
 - * Ported lwIP 2.0.2 (2017-03-13, SHA-1: c0862d60746e2d1ceae69af4c6f24e469570ecef) to KSDK 2.0.0.
- 2.0.0_rev3
 - New features:
 - * Ported lwIP 2.0.0 (2016-11-10, SHA-1: 216bf89491815029aa15463a18744afa04df58fe) to KSDK 2.0.0.
- 2.0.0_rev2
 - New features:
 - * Ported lwIP 2.0.0 RC2 (2016-08-08, SHA-1: b1dfd00f9233d124514a36a8c8606990016f2ad4) to KSDK 2.0.0.
- 2.0.0_rev1
 - New features:
 - * Ported lwIP 2.0.0 RC0 (2016-05-26) to KSDK 2.0.0.
 - * Changed lwIP bare-metal examples to use poll-driven approach instead of interrupt-driven one.
- 1.4.1_rev2
 - New features:
 - * Enabled critical sections in lwIP.
 - Bug fixes:
 - * Fixed default lwIP packet-buffer size to be able to accept a maximum size frame from the ENET driver.
 - * Fixed possible drop of multi-frame packets during transmission.
- 1.4.1_rev1
 - New features:
 - * Ported lwIP 1.4.1 to KSDK 2.0.0.

Multicore SDK

The current version of Multicore SDK is 2.12.0.

- 2.12.0
 - Multicore SDK component versions:
 - * embedded Remote Procedure Call (eRPC) v1.9.1
 - * eRPC generator (erpcgen) v.1.9.1
 - * Multicore Manager (MCMgr) v4.1.2
 - * RPMsg-Lite v4.0.0
 - New features:
 - * 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 rpmsg_lite_wait_for_link_up() in rpmsg_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:UniqueIdChecker.cpp:156:104:'sort' was not declared, GitHub PR #265.
 - * MCMgr: Update mcmgr_stop_core_internal() implementations to set core state to kMC-MGR_ResetCoreState.

- * RPMsg-Lite: Introduce new `rpmsg_lite_wait_for_link_up()` API function - this allows to avoid using busy loops in rtos environments, GitHub PR #21.
- * RPMsg-Lite: Adjust `rpmsg_lite_is_link_up()` to return `RL_TRUE/RL_FALSE`.
- 2.11.1
 - Multicore SDK component versions:
 - * embedded Remote Procedure Call (eRPC) v1.9.0
 - * eRPC generator (erpcgen) v.1.9.0
 - * Multicore Manager (MCMgr) v4.1.1
 - * RPMsg-Lite v3.2.1
 - New features:
 - * RPMsg-Lite: Add support for custom shared memory arrangement per the `RPMsg_Lite` instance.
- 2.11.0
 - Multicore SDK component versions:
 - * embedded Remote Procedure Call (eRPC) v1.9.0
 - * eRPC generator (erpcgen) v.1.9.0
 - * Multicore Manager (MCMgr) v4.1.1
 - * RPMsg-Lite v3.2.0
 - New features:
 - * eRPC: Improving template usage, GitHub PR #153.
 - * eRPC: `run_clang_format.py` cleanup, GitHub PR #177.
 - * eRPC: Build TCP transport setup code into `liberpc`, GitHub PR #179.
 - * eRPC: Fix multiple definitions of `g_client` error, GitHub PR #180.
 - * eRPC: Fix `memset` past end of buffer in `erpc_setup_mbf_static.cpp`, GitHub PR #184.
 - * eRPC: Fix deprecated error with newer `pytest` version, GitHub PR #203.
 - * eRPC: Allow used `LIBUSBSIO` device index being specified from the Python command line argument.
 - * eRPC, `erpcgen`: Static allocation support and usage of `rpmsg` static FreeRTOSs related API, GitHub PR #168, #169.
 - * `erpcgen`: Remove redundant module imports in `erpcgen`, GitHub PR #196.
 - * RPMsg-Lite: Improve static allocations - allow OS-specific objects being allocated statically, GitHub PR #14.
 - * RPMsg-Lite: Minor Misra and typo corrections, GitHub PR #19, #20.
- 2.10.0
 - Multicore SDK component versions:
 - * embedded Remote Procedure Call (eRPC) v1.8.1
 - * eRPC generator (erpcgen) v.1.8.1
 - * Multicore Manager (MCMgr) v4.1.1
 - * RPMsg-Lite v3.1.2
 - New features:
 - * eRPC: Fix misra `erpc c`, GitHub PR #158.
 - * eRPC: Allow conditional compilation of `message_loggers` and `pre_post_action`.
 - * eRPC: New `i2c_slave_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.
- 2.9.0
 - Multicore SDK component versions:
 - * embedded Remote Procedure Call (eRPC) v1.8.0
 - * eRPC generator (erpcgen) v1.8.0
 - * Multicore Manager (MCMgr) v4.1.1
 - * RPMsg-Lite v3.1.1
 - New features:
 - * eRPC: Support win32 thread, GitHub PR #108.
 - * eRPC: Add mbed support for `malloc()` and `free()`, GitHub PR #92.
 - * eRPC: Update makefile.
 - * eRPC: Fixed warnings and error with using MessageLoggers, GitHub PR #127.
 - * eRPC: Extend error msg for python server service handle function, GitHub PR #132.
 - * eRPC: Update CMSIS UART transport layer to avoid busy loops in rtos environments, introduce semaphores.
 - * eRPC: Introduced pre and post callbacks for eRPC call, GitHub PR #131.
 - * eRPC: Introduced new USB CDC transport.
 - * eRPC: Introduced new Linux spidev-based transport.
 - * eRPC: SPI transport update to allow usage without handshaking GPIO.
 - * eRPC: Native *WIN32 erpc serial transport and threading*.
 - * *eRPC: Arbitrator deadlock fix, TCP transport updated, TCP setup functions introduced, GitHub PR #121.*
 - * *eRPC: Update of matrix_multiply.py example: Add -serial and -baud argument, GitHub PR #137.*
 - * *eRPC: Added formatting extension for VSC, GitHub PR #134.*
 - * *eRPC: Update of .clang-format, GitHub PR #140.*
 - * *eRPC: Update of erpc_framed_transport.cpp: return error if received message has zero length, GitHub PR #141.*
 - * *eRPC, erpcgen: Fixed error messages produced by -Wall -Wextra -Wshadow -pedantic-errors compiler flags, GitHub PR #136, #139.*
 - * *eRPC, erpcgen: Core re-formatted using Clang version 10.*
 - * *erpcgen: Enable deallocation in server shim code when callback/function pointer used as out parameter in IDL.*
 - * *erpcgen: Removed '\$' character from generated symbol name in '\$union' suffix, GitHub PR #103.*
 - * erpcgen: Resolved mismatch between C++ and Python for callback index type, GitHub PR #111.
 - * erpcgen: Python generator improvements, GitHub PR #100, #118.

- * erpcgen: Fixed error messages produced by -Wall -Wextra -Wshadow -pedantic-errors compiler flags, GitHub PR #136.
- * erpcgen: Introduce ustring type for unsigned char and force cast to char*, GitHub PR #125.
- * RPMsg-Lite: Introduced RL_ALLOW_CONSUMED_BUFFERS_NOTIFICATION config option to allow opposite side notification sending each time received buffers are consumed and put into the queue of available buffers.
- * RPMsg-Lite: Added environment layers for Threadx.
- 2.8.0
 - Multicore SDK component versions:
 - * embedded Remote Procedure Call (eRPC) v1.7.4
 - * eRPC generator (erpcgen) v1.7.4
 - * Multicore Manager (MCMgr) v4.1.0
 - * RPMsg-Lite v3.1.0
 - New features:
 - * 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.
- 2.7.0
 - Multicore SDK component versions:
 - * embedded Remote Procedure Call (eRPC) v1.7.3
 - * eRPC generator (erpcgen) v1.7.3
 - * Multicore Manager (MCMgr) v4.1.0
 - * RPMsg-Lite v3.0.0
 - New features:
 - * eRPC: Improved the test_callbacks logic to be more understandable and to allow requested callback execution on the server side.
 - * eRPC: TransportArbitrator::prepareClientReceive modified to avoid incorrect return value type.
 - * eRPC: The ClientManager and the ArbitratedClientManager updated to avoid performing client requests when the previous serialization phase fails.
 - * erpcgen: Generate the shim code for destroy of statically allocated services.
 - * MCMgr: Code adjustments to address MISRA C-2012 Rules
 - * RPMsg-Lite: MISRA C-2012 violations fixed, incl. data types consolidation.
 - * RPMsg-Lite: Code formatted
- 2.6.0

- Multicore SDK component versions:
 - * embedded Remote Procedure Call (eRPC) v1.7.2
 - * eRPC generator (erpcgen) v.1.7.2
 - * Multicore Manager (MCMgr) v4.0.3
 - * RPMsg-Lite v2.2.0
- New features:
 - * eRPC: Improved support of const types.
 - * eRPC: Fixed Mac build.
 - * eRPC: Fixed serializing python list.
 - * eRPC: Documentation update.
 - * eRPC: Add missing doxygen comments for transports.
 - * RPMsg-Lite: Added configuration macro `RL_DEBUG_CHECK_BUFFERS`.
 - * RPMsg-Lite: Several MISRA violations fixed.
 - * RPMsg-Lite: Added environment layers for QNX and Zephyr.
 - * RPMsg-Lite: Allow environment context required for some environments (controlled by the `RL_USE_ENVIRONMENT_CONTEXT` configuration macro).
 - * RPMsg-Lite: Data types consolidation.
 - * MCMgr: Documentation updated to describe handshaking in a graphic form.
 - * MCMgr: Minor code adjustments based on static analysis tool findings
- 2.5.0
 - Multicore SDK component versions:
 - * embedded Remote Procedure Call (eRPC) v1.7.1
 - * eRPC generator (erpcgen) v.1.7.1
 - * Multicore Manager (MCMgr) v4.0.2
 - * RPMsg-Lite v2.0.2
 - New features:
 - * RPMsg-Lite, MCMgr: Align porting layers to the updated MCUXpressoSDK feature files.
 - * eRPC: Fixed semaphore in static message buffer factory.
 - * erpcgen: Fixed MU received error flag.
 - * erpcgen: Fixed tcp transport.
- 2.4.0
 - Multicore SDK component versions:
 - * embedded Remote Procedure Call (eRPC) v1.7.0
 - * eRPC generator (erpcgen) v.1.7.0
 - * Multicore Manager (MCMgr) v4.0.1
 - * RPMsg-Lite v2.0.1
 - New features:
 - * eRPC: Improved code size of generated code.
 - * eRPC: Generating crc value is optional.
 - * eRPC: Fixed CMSIS Uart driver. Removed dependency on KSDK.
 - * eRPC: List names are based on their types. Names are more deterministic.
 - * eRPC: Service objects are as a default created as global static objects.
 - * eRPC: Added missing doxygen comments.
 - * eRPC: Forbid users use reserved words.
 - * eRPC: Removed outByref for function parameters.

- * eRPC: Added support for 64bit numbers.
- * eRPC: Added support of program language specific annotations.
- * eRPC: Optimized code style of callback functions.
- * RMPMsg-Lite: New API `rpmsg_queue_get_current_size()`
- * RMPMsg-Lite: Fixed bug in interrupt handling for `lpc5411x`, `lpc5410x`
- * RMPMsg-Lite: Code adjustments based on static analysis tool findings
- 2.3.1
 - Multicore SDK component versions:
 - * embedded Remote Procedure Call (eRPC) v1.6.0
 - * eRPC generator (erpcgen) v.1.6.0
 - * Multicore Manager (MCMgr) v4.0.0
 - * RMPMsg-Lite v1.2.0
 - New features:
 - * eRPC: Improved code size of generated code.
 - * eRPC: Improved eRPC nested calls.
 - * eRPC: Improved eRPC list length variable serialization.
 - * eRPC: Added `@nullable` support for scalar types.
 - * MCMgr: Added new `MCMGR_TriggerEventForce()` API.
- 2.3.0
 - Multicore SDK component versions:
 - * embedded Remote Procedure Call (eRPC) v1.5.0
 - * eRPC generator (erpcgen) v.1.5.0
 - * Multicore Manager (MCMgr) v3.0.0
 - * RMPMsg-Lite v1.2.0
 - New features:
 - * eRPC: Added support for unions type non-wrapped by structure.
 - * eRPC: Added callbacks support.
 - * eRPC: Added support `@external` annotation for functions.
 - * eRPC: Added support `@name` annotation.
 - * eRPC: Added Messaging Unit transport layer.
 - * eRPC: Added RMPMSG Lite RTOS TTY transport layer.
 - * eRPC: Added version verification and IDL version verification between eRPC code and eRPC generated shim code.
 - * eRPC: Added support of shared memory pointer.
 - * eRPC: Added annotation to forbid generating `const` keyword for function parameters.
 - * eRPC: Added python matrix multiply example.
 - * eRPC: Added nested call support.
 - * eRPC: Added struct member "byref" option support.
 - * eRPC: Added support of forward declarations of structures
 - * eRPC: Added Python RMPMsg Multiendpoint kernel module support
 - * eRPC: Added eRPC sniffer tool
 - * MCMgr: Unused API removed
 - * MCMgr: Added the ability for remote core monitoring and event handling
 - * RMPMsg-Lite: Several source files renamed to avoid conflicts with other middleware sw components

- * RPMsg-Lite: Added the ability to use Multicore Manager (MCMGR) as the IPC interrupts router
- 2.2.0
 - Multicore SDK component versions:
 - * embedded Remote Procedure Call (eRPC) v1.4.0
 - * eRPC generator (erpcgen) v.1.4.0
 - * Multicore Manager (MCMgr) v2.0.1
 - * RPMsg-Lite v1.1.0
 - New features:
 - * eRPC: win_flex_bison.zip for windows updated.
 - * eRPC: Use one codec (instead of inCodec outCodec).
 - * eRPC: New RPMsg-Lite Zero Copy (RPMsgZC) transport layer.
 - * MCMgr: code updated to be Misra compliant.
 - * RPMsg-Lite: Added macros for packed structures (compiler.h).
 - * RPMsg-Lite: Improved interrupt handling in platform layer.
 - * RPMsg-Lite: Changed RL_BUFFER_SIZE definition.
 - * RPMsg-Lite: Fix of double initialization of vring shared data structure.
 - * RPMsg-Lite: Support for the multi-instance.
- 2.1.0
 - Multicore SDK component versions:
 - * embedded Remote Procedure Call (eRPC) v1.3.0
 - * eRPC generator (erpcgen) v.1.3.0
 - New features:
 - * eRPC: New annotation types introduced (@length, @max_length, ...).
 - * eRPC: Support for running both erpc client and erpc server on one side.
 - * eRPC: New transport layers for (LP)UART, (D)SPI.
 - * eRPC: Error handling support.
- 2.0.0
 - Multicore SDK component versions:
 - * embedded Remote Procedure Call (eRPC) v1.2.0
 - * eRPC generator (erpcgen) v.1.2.0
 - * Multicore Manager (MCMgr) v2.0.0
 - * RPMsg-Lite v1.0.0
 - New features:
 - * Multicore SDK support for lpcxpresso54114 board added.
 - * RPMsg component of the Open-AMP framework re-implemented and the RPMsg-Lite version introduced.
 - * eRPC source directory organization changed.
 - * Many eRPC improvements.
- 1.1.0
 - Multicore SDK component versions:
 - * embedded Remote Procedure Call (eRPC) v1.1.0
 - * Multicore Manager (MCMgr) v1.1.0
 - * Open-AMP / RPMsg based on SHA1 ID 44b5f3c0a6458f3cf80 rev01
 - New features:

- * Multicore SDK 1.1.0 ported to KSDK 2.0.0.
- * Python support added into eRPC.
- 1.0.0
 - Multicore SDK component versions:
 - * embedded Remote Procedure Call (eRPC) v1.0.0
 - * Multicore Manager (MCMgr) v1.0.0
 - * Open-AMP / RPMMsg based on SHA1 ID 44b5f3c0a6458f3cf80 rev00

Host USDHC driver for MCUXpresso SDK

The current driver version is 2.6.2.

- 2.6.2
 - Bug Fixes
 - * Added clock force on during standard tuning to fix the card access not stable after initialization.
- 2.6.1
 - Improvements
 - * Increased the delay after enable DAT3 detect card feature to fix the misdetect issue.
- 2.6.0
 - Improvements
 - * Removed deprecated api in SDHC host driver.
 - * Added SDMMCHOST_ConvertDataToLittleEndian api.
 - * Added capability/maxBlockCount/maxBlockSize in host decription.
 - * Improved the manual tuning flow according to specification.
 - * Added mutual exclusive access for function init/deinit/reset/transfer function.
 - * Fixed violations of MISRA C-2012 rule 10.1, 10.4, 16.3, 4.7.
- 2.5.3
 - Bug Fixes
 - * Corrected the DAT3 detect card flow by PULL down the DAT3 pin firstly and then enable the host DAT3 function.
- 2.5.2
 - Improvements
 - * Improved DAT3 card detect mechanism to avoid card false detection.
- 2.5.1
 - Improvements
 - * Enabled DAT3 card detect interrupt in function SDMMCHOST_PollingCardDetectStatus to support DAT3 re-detect card.
- 2.5.0
 - Improvements
 - * Added cache line size alignment maintain for the read transfer.
 - * Added FSL_FEATURE_HAS_L1CACHE to enable cache maintain operation for the soc has LMEM cache.
 - Bug Fixes

- * Fixed violations of MISRA C-2012 rule 11.9, 15.7, 4.7, 16.4, 10.1, 10.3, 10.4, 11.3, 14.4, 10.6, 17.7, 16.1, 16.3.
- 2.4.0
 - Improvements
 - * Added cache maintain functionality in the host driver.
 - * Enabled DAT3 card detect feature.
 - * Increase the default STD tuning counter to 60 to cover range of the tuning window.
 - * Added host instance capability macro.
 - * Added clear card inserted/removed event when card removed/inserted interrupt generated.
- 2.3.0
 - Improvements
 - * Merged the host controller driver from polling/freertos/interrupt to non_blocking/blocking.
 - * Added SDMMC OSA layer to support muxtex access/event/delay.
- 2.2.14
 - Bug Fixes
 - * Fixed uninitialized value Coverity issue.
- 2.0.0
 - Initial version

MMC Card driver for MCUXpresso SDK

The current driver version is 2.5.0.

- 2.5.0
 - Improvements
 - * Added api MMC_SetSleepAwake to support enter/exit sleep state.
 - * Added new api MMC_PollingCardStatusBusy for application polling card status.
 - * Removed deprecated api in mmc driver and mark MMC_HostReset as deprecated.
 - * Improved the read/write/erase function flow.
 - * Added mutual exclusive access for init/deinit/read/write/erase function.
 - * Fixed violations of MISRA C-2012 rule 4.7, 17.7, 10.7, 10.4, 13.5, 14.4, 10.6.
- 2.4.1
 - Improvements
 - * Improved the voltage window argument of CMD1 according to host capability instead of use card ocr directly.
 - * Added host HS200/HS400/8bit bus width capability validation during card initialization.
 - * Used cache line size align buffer for MMC relate api.
 - * Increased the CMD13 timeout count to avoid polling CMD13 time out issue.
 - Bug Fixes
 - * Fixed violations of MISRA C-2012 rule 11.9, 15.7, 4.7, 16.4, 10.1, 10.3, 10.4, 11.3, 14.4, 10.6, 17.7, 16.1, 16.3.
- 2.4.0
 - Improvements
 - * Added new apis MMC_EnableCacheControl/MMC_FlushCache to support cache feature.

- 2.3.1
 - Improvements
 - * Removed the dead loop while polling DAT0 and CMD13 instead of using timeout mechanism.
 - * Added card state check before switching to HS400 to improve the emmc initialization stability.
 - * Removed the redundant operation of memset internal buffer in MMC_WrtiteBlocks function.
 - Bug Fixes
 - * Fixed the sandisk emmc always busy while sending CMD1 without supported voltage provide in argument.
- 2.3.0
 - Improvements
 - * Deprecated api MMC_PowerOnCard/MMC_PowerOffCard by api MMC_SetCardPower.
 - * Added internalBuffer in mmc_card_t and removed rawCid/rawCsd/rawExtendedCsd.
 - * Added retuning support during data transfer under HS200 mode.
 - * Increased the read/write blocks failed retry times for stability.
 - * Added delay while retry the CMD1 for stability.
 - * Added legacy card support, the card not support CMD6, CMD8.
- 2.2.13
 - Improvements
 - * Used the boot mode value instead of boot mode mask value as the parameter of MMC_SetBootConfig to improve user experience.
 - * Removed dynamic voltage switch feature for mmc, according to JEDEC standard, the voltage should be fixed after power up.
- 2.2.12
 - Improvement
 - * Increased the CMD1 retry times in the MMC card driver to improve driver compatibility.
 - Bug Fixes
 - * Fixed the build warning by changing the old style function declaration static status_t inline to static inline status_t(found by adding -Wold-style-declaration in armgcc build flag).
 - * Fixed the fall through build warning by adding SUPPRESS_FALL_THROUGH_WARNING() in mmc driver.
- 2.2.7
 - Bug Fixes
 - * Fixed MDK 66-D warning.
- 2.2.6
 - Improvements
 - * Saved MMC OCR registers while sending CMD1 with argument 0.
 - Bug Fixes
 - * Added MMC_PowerOn function in which there is delay function after powerup sdcard. Otherwise, the card initialization by fail.
- 2.2.5
 - Improvements
 - * Added SDMMC_ENABLE_SOFTWARE_TUNING to enable/disable software tuning

and it is disabled by default.

- 2.2.4
 - Bug Fixes
 - * Fixed DDR mode data sequence miss issue, which is caused by NIBBLE_POS.
 - Improvements
 - * Increased g_sdmmc 512byte to improve the performance when application use a non-word align data buffer address.
 - * Used OCR access mode bits to determine the mmccard high capacity flag.
- 2.2.3
 - Bug Fixes
 - * Added response check for send operation condition command. If not checked, the card may occasionally init fail.
- 2.2.1
 - Improvements
 - * Improved MMC Boot feature.
- 2.2.0
 - Improvements
 - * Optimized tuning/mmc switch voltage/mmc select power class/mmc select timing function.
 - * Added strobe dll for mmc HS400 mode.
 - * Added write complete wait operation for MMC_Write to fix command timeout issue.
- 2.1.2
 - Improvements
 - * Improved SDMMC to support eMMC v5.0.
 - Bug Fixes
 - * Fixed incorrect comparison between count and length in MMC_ReadBlocks/MMC_WriteBlocks.
- 2.1.1
 - Bug Fixes
 - * Fixed the block range boundary error when transferring data to MMC card.
- 2.1.0
 - Improvements
 - * Optimized the function of setting maximum data bus width for MMC card.
- 2.0.0
 - Initial version

SD Card driver for MCUXpresso SDK

The current driver version is 2.4.0.

- 2.4.0
 - Improvements
 - * Removed deprecated api in sd driver.
 - * Added new api SD_PollingCardStatusBusy for application polling card status.

- * Improved the read/write/erase function flow.
- * Improved the signal line voltage switch flow.
- * Added powerOnDelayMS/powerOffDelayMS in sd_usr_param_t to allow redefine the default power on/off delay.
- * Added mutual exclusive access for init/deinit/read/write/erase function.
- * Fixed the driver strength configurations missed when timing mode switch to non SDR50/-SDR104 mode.
- * Fixed violations of MISRA C-2012 rule 4.7, 17.7, 10.7, 10.4, 13.5, 14.4.
- 2.3.3
 - Improvements
 - * Added host SDR timing mode capability validation during card initialization.
 - * Added pilling card ready for data status when transfer data failed.
 - * Used cache line size align buffer for SD initialization api.
 - Bug Fixes
 - * Fixed violations of MISRA C-2012 rule 11.9, 15.7, 4.7, 16.4, 10.1, 10.3, 10.4, 11.3, 14.4, 10.6, 17.7, 16.1, 16.3.
- 2.3.2
 - Improvements
 - * Moved power off function after card detect in SD_Init for DAT3 detect card feature.
- 2.3.1
 - Improvements
 - * Removed the dead loop while polling DAT0 and CMD13 instead of using timeout mechanism.
- 2.3.0
 - Improvements
 - * Marked api SD_HostReset/SD_PowerOnCard/SD_PowerOffCard/SD_WaitCardDetect-Status as deprecated.
 - * Added new api SD_SetCardPower/SD_PollingCardDetectStatus/SD_HostDoReset.
 - * Added internalBuffer in sd_card_t and removed rawCid/rawCsd/rawScr.
 - * Added retuning support during data transfer under SDR50/SDR104 mode.
 - * Increased the read/write blocks failed retry times for stability.
 - * Added delay while retry the ACMD41 for stability.
- 2.2.12
 - Improvements
 - * Increased the sd io driver strength for SD2.0 card.
 - Bug Fixes
 - * Fixed the build warning by changing the old style function declaration static status_t inline to static inline status_t(found by adding -Wold-style-declaration in armgcc build flag).
- 2.2.10
 - Bug Fixes
 - * Added event value check for all the FreeRTOS events to fix program hangs when a card event occurs before create.
- 2.2.7
 - Bug Fixes
 - * Fixed MDK 66-D warning.

- 2.2.5
 - Improvements
 - * Added SD_ReadStatus api to get 512bit SD status.
 - * Added error log support in sdcard functions.
 - * Added SDMMC_ENABLE_SOFTWARE_TUNING to enable/disable software tuning and it is disabled by default.
- 2.2.4
 - Bug Fixes
 - * Fixed DDR mode data sequence miss issue, which is caused by NIBBLE_POS.
 - Improvements
 - * Increased g_sdmmc 512byte to improve the performance when application use a non-word align data buffer address.
 - * Enabled auto cmd12 for SD read/write.
- 2.2.3
 - Bug Fixes
 - * Added response check for send operation condition command. If not checked, the card may occasionally init fail.
- 2.2.1
 - Improvements
 - * Kept SD_Init function for forward compatibility.
- 2.2.0
 - Improvements
 - * Separated the SD/MMC/SDIO init API to xxx_CardInit/xxx_HostInit.
 - * SD_Init/SDIO_Init will be deprecated in the next version.
- 2.1.6
 - Improvements
 - * Enhanced SD IO default driver strength.
- 2.1.5
 - Bug Fixes
 - * Fixed Coverity issue.
 - * Fixed SD v1.x card write fail issue. It was caused by the block length set error.
 - * Fixed card cannot detect dynamically.
- 2.1.3
 - Bug Fixes
 - * Fixed Non high-speed sdcard init fail at switch to high speed.
 - Improvements
 - * Added Delay for SDCard power up.
- 2.1.2
 - Improvements
 - * Improved SDMMC to support SD v3.0.
- 2.1.1
 - Bug Fixes
 - * Fixed the bit mask error in the SD card switch to high speed function.
 - Improvements
 - * Optimized the SD card initialization function.

- 2.1.0
 - Bug Fixes
 - * Changed the callback mechanism when sending a command.
 - * Fixed the performance low issue when transferring data.
 - Improvements
 - * Changed the name of some error codes returned by internal function.
 - * Merged all host related attributes to one structure.
- 2.0.0
 - Initial version.

SDIO Card driver for MCUXpresso SDK

The current driver version is 2.4.0.

- 2.4.0
 - Improvements
 - * Removed deprecated api in sdio driver.
 - * Improved the signal line voltage switch flow.
 - * Added powerOnDelayMS/powerOffDelayMS in sdio_usr_param_t to allow redefine the default power on/off delay.
 - * Added mutual exclusive access for init/deinit/direct/extend function.
 - * Fixed violations of MISRA C-2012 rule 4.7, 17.7, 10.1, 12.2.
- 2.3.3
 - Bug Fixes
 - * Fixed logical dead code coverity issue.
 - Improvements
 - * Removed deprecated api in sdio driver.
- 2.3.2
 - Improvements
 - * Added host SDR timing mode capability validation during card initialization.
 - * Used cache line size align buffer for SDIO initialization api.
 - Bug Fixes
 - * Fixed violations of MISRA C-2012 rule 11.9, 15.7, 4.7, 16.4, 10.1, 10.3, 10.4, 11.3, 14.4, 10.6, 17.7, 16.1, 16.3.
- 2.3.1
 - Improvements
 - * Moved power off function after card detect in SD_Init for DAT3 detect card feature.
- 2.3.0
 - Improvements
 - * Marked api SDIO_HostReset/SDIO_PowerOnCard/SDIO_PowerOffCard/SDIO_Wait-CardDetectStatus as deprecated.
 - * Added new api SDIO_SetCardPower/SDIO_PollingCardDetectStatus/SDIO_HostDo-Reset.
 - * Added internalBuffer in sdio_card_t for card register content extract and improve the data

- access efficiency.
 - * Added retry function after switch to target timing failed in SDIO_SelectBusTiming.
 - * Changed default bus clock from 400KHZ to 25MHZ.
- 2.2.13
 - Improvements
 - * Removed the sdio card interrupt from sdio host initialization, since the card interrupt enablement should be determined by application.
 - Bug Fixes
 - * Fixed Out-of-bounds write Coverity issue.
- 2.2.12
 - Improvements
 - * Added manual tuning function for looking for the tuning window automatically.
 - * Fixed the build warning by changing the old style function declaration static status_t inline to static inline status_t(found by adding -Wold-style-declaration in armgcc build flag).
 - * Fixed the fall through build warning by adding SUPPRESS_FALL_THROUGH_WARNING() in sdio driver.
- 2.2.11
 - Bug Fixes
 - * Added check card async interrupt capability in function SDIO_GetCardCapability.
 - * Fixed OUT OF BOUNDS access in function SDIO_IO_Transfer.
- 2.2.10
 - Bug Fixes
 - * Fixed SDIO card driver get an incorrect io number when the card io number is bigger than 2.
 - Improvements
 - * Added SDIO 3.0 support.
 - * Added API SDIO_IO_RW_Direct for direct read/write card register access.
- 2.2.9
 - Improvements
 - * Added API SDIO_SetIOIRQHandler/SDIO_HandlePendingIOInterrupt to handle multi io pending IRQ.
- 2.2.8
 - Improvements
 - * Updated sdmmc to support SDIO interrupt.
 - * Added API SDIO_GetPendingInterrupt to get the pending io interrupt.
- 2.2.7
 - Bug Fixes
 - * Fixed MDK 66-D warning.
- 2.2.6
 - Improvements
 - * Added an unify transfer interface for SDIO.
 - Bug Fixes
 - * Fixed Wrong pointer address used by SDMMCHOST_Init.
- 2.1.5
 - Improvements

- * Improved SDIO card init sequence and add retry option for SDIO_SwitchToHighSpeed function.
- 2.1.4
 - Improvements
 - * Added Go_Idle function for SDIO card.
- 2.0.0
 - Initial version.

USB stack for MCUXpresso SDK

The current version of USB stack is 2.8.2.

- 2.8.2
 - Improvement:
 - * Fix noise issue of UAC 3.1, UAC 5.1, UAC 7.1 on usb audio speaker demo.
 - * Fix the issue that incorrect PC behavior when ejecting USB MSC devices.
 - * Update the EHCI controller driver to support RW610 that does not rely on PHY driver, especially for low power feature.
 - * Update the USB_HostHelperParseAlternateSetting to fix the wrong interface parse.
 - * Update dev_composite_hid_audio_unified_bm demo to support independent mute/unmute and volume control.
- 2.8.1
 - Improvement:
 - * update USB audio demos to use audio component (components).
 - * Add the checking of function call return value.
 - * Add audio multiple channels demo (usb_device_composite_audio_multi_ch_unified) on RT600 audio board.
 - * Fix audio noise on sync mode and improve overflow/underflow checking method.
 - * Support UAC 3.1, 5.1 and 7.1 on audio speaker demo.
 - * Set USB device CDC demo not to depend on DTR setting from host.
 - * Support MCUX toolchain on some RTxxx platforms.
- 2.8.0
 - Improvement:
 - * Fix the USB device stack vulnerability issues.
 - * Update the audio PLL and FRO adjustment codes for audio examples in RTxxx, LP-C54xxx and LPC55xxx.
 - * Improve the USB PD AMS collision avoidance.
 - * Improve IP3511 controller driver's dedicated ram allocation.
 - * Change the USB_DATA_ALIGN_SIZE to 4 because the controller driver uses the dedicated RAM to do memcpy.
 - New features:
 - * Enable USB host audio recorder demo for multiple boards.
- 2.7.0
 - Improvement:

- * Use new feedback solution and low latency playback for usb device speaker demo and unified demos. Add underflow and overflow protection.
- * Optimize hard code for usb audio demos.
- * Update Unconstrained Power field in the Sink Capabilities Message according to the external power state.
- * Fix CVE-2021-38258 and CVE-2021-38260
- New features:
 - * Enable USB host video demo for mutiple boards.
 - * Enable USB device MTP demo for mutiple boards.
 - * Add PPS message to usb pd stack.
- 2.6.1
 - Improvement:
 - * rename sdcard as disk for all of sdcard demos. For ramdisk demos, they are not changed.
 - * add wrapper for all of disk demos to support emmc.
- 2.6.0
 - Improvement:
 - * Added more ufi event to support dynamic sdcard capacity.
 - * Passed MISRA-2012 mandatory and required rules.
 - Except rule 17.2 in host hub and otg stack.
 - Except rule 5.1, rule 5.4, rule 21.1 and rule 21.2.
 - * Re-implemented USB components and supported NPW.
 - * Improved IP3511 controller driver's cancelling transfer function.
 - * Enabled the audio2.0 defaultly for device audio demos.
 - * Enabled the host audio2.0 function in host audio class driver and host audio speaker demo.
 - New features:
 - * enable two USB controllers in one USB host mouse demo which named as host_hid_mouse_dual.
 - * enable UAC 5.1 for usb device audio speaker demo.
- 2.5.0
 - Improvement:
 - * Integrated sdk components (OSA, Timer, GPIO and serial_manager) to USB stack and demos.
 - * Improved the ip3511 driver throughput.
 - * Improved audio initialization codes after SDK audio drivers update.
 - * Improved auido to support the audio2.0 in win10.
 - * Add one "enumeration fail" callback event to host stack.
- 2.4.2
 - Improvement:
 - * Put the USB controller data and transfer buffer to noncache section, removed the setting that sets the whole ocram and sdram as noncached.
 - * Separated composite audio examples' channel,sample rate,format parameters from commom macro to in dedicated macro and out dedicated macro.
 - * replaced USB_PrepareData with USB_AudioRecorderGetBuffer.
- 2.4.1
 - New features:

- * Added enumeration fail callback to host stack when the attached device's enumeration failed.
- 2.4.0
 - Improvement:
 - * Device Charger Detection (DCD) software architecture was refactored.
 - New features:
 - * Enabled Device Charger Detection (DCD) on RT1060.
 - * Enabled Device Charger Detection on RT600.
 - * Enabled host battery charger function on RT600.
- 2.3.0
 - New features:
 - * Added host video camera support. example: usb_host_video_camera
 - * Added a new device example. example: usb_device_composite_cdc_hid_audio_unified
- 2.2.0
 - New features:
 - * Added device DFU support.
 - * Supported OM13790DOCK on LPCXpresso54018.
 - * Added multiple logical unit support in msc class driver, updated usb_device_lba_information_struct_t to support this.
 - * Supported multiple transfers for host ISO on IP3516HS.
 - Bug fixes:
 - * Fixed device ip3511 prime data length than maxpacket size issue.
 - * Initialized interval attribute in usb_device_endpoint_struct_t/usb_device_endpoint_init_struct_t.
 - * Removed unnecessary header file in device CDC class driver, removed unnecessary usb_echo, and added DEBUG macro for necessary usb_echo in device CDC class driver.
 - * Fixed device IP3511HS unfinished interrupt transfer missing issue.
- 2.1.0
 - New features:
 - * Added host RNDIS support. example: lwip_dhcp_usb
 - * Enabled USB 3.0 support on device stack.
 - * Power Delivery feature: Added OM13790HOST support; Added auto policy feature; Printed e-marked cable information;
- 2.0.1
 - Bug fixes:
 - * Fixed some USB issues: Fixed MSC CV test failed in MSC examples.
 - * Changed audio codec interfaces.
- 2.0.0
 - New features:
 - * PTN5110N support.
 - Bug fix:
 - * Added some comments, fixed some minor USB issues.
- 1.9.0
 - New features:
 - * Examples:

- usb_pd_alt_mode_dp_host
- 1.8.2
 - Updated license.
- 1.8.1
 - Bug fix:
 - * Verified some hardware issues, support aruba_flashless.
- 1.8.0
 - New features:
 - * Examples:
 - usb_device_composite_cdc_vcom_cdc_vcom
 - usb_device_composite_hid_audio_unified
 - usb_pd_sink_battery
 - Changed usb_pd_battery to usb_pd_charger_battery.
 - Bug fix:
 - * Code clean up, removed some irrelevant code.
- 1.7.0
 - New features:
 - * USB PD stack support.
 - Examples:
 - * usb_pd
 - * usb_pd_battery
 - * usb_pd_source_charger
- 1.6.3
 - Bug fix: -IP3511_HS driver control transfer sequence issue, enabled 3511 ip cv test.
- 1.6.2
 - New features:
 - * Multi instance support.
- 1.6.1
 - New features:
 - Changed the struct variable address method for device_video_virtual_camera and host_phdc_manager.
- 1.6.0
 - New features:
 - * Supported Device Charger Detect feature on usb_device_hid_mouse.
- 1.5.0
 - New features:
 - * Supported controllers
 - OHCI (Full Speed, Host mode)
 - IP3516 (High Speed, Host mode)
 - IP3511 (High Speed, Device mode)
 - * Examples:
 - usb_lpm_device_hid_mouse
 - usb_lpm_device_hid_mouse_lite
 - usb_lpm_host_hid_mouse
- 1.4.0

- New features:
 - * Examples:
 - usb_device_hid_mouse/freertos_static
 - usb_suspend_resume_device_hid_mouse_lite
- 1.3.0
 - New features:
 - * Supported roles
 - OTG
 - * Supported classes
 - CDC RNDIS
 - * Examples
 - usb_otg_hid_mouse
 - usb_device_cdc_vnic
 - usb_suspend_resume_device_hid_mouse
 - usb_suspend_resume_host_hid_mouse
- 1.2.0
 - New features:
 - * Supported controllers
 - LPC IP3511 (Full Speed, Device mode)
- 1.1.0
 - Bug fix:
 - * Fixed some issues in USB certification.
 - * Changed VID and Manufacturer string to NXP.
 - New features:
 - * Supported classes
 - Pinter
 - * Examples:
 - usb_device_composite_cdc_msc_sdcard
 - usb_device_printer_virtual_plain_text
 - usb_host_printer_plain_text
- 1.0.1
 - Bug fix:
 - * Improved the efficiency of device audio speaker by changing the transfer mode from interrupt to DMA, thus providing the ability to eliminate the periodic noise.
- 1.0.0
 - New features:
 - * Supported roles
 - Device
 - Host
 - * Supported controllers:
 - KHCI (Full Speed)
 - EHCI (High Speed)
 - * Supported classes:
 - AUDIO
 - CCID

- CDC
- HID
- MSC
- PHDC
- VIDEO

* Examples:

- usb_device_audio_generator
- usb_device_audio_speaker
- usb_device_ccid_smart_card
- usb_device_cdc_vcom
- usb_device_cdc_vnic
- usb_device_composite_cdc_msc
- usb_device_composite_hid_audio
- usb_device_composite_hid_mouse_hid_keyboard
- usb_device_hid_generic
- usb_device_hid_mouse
- usb_device_msc_ramdisk
- usb_device_msc_sdcard
- usb_device_phdc_weighscale
- usb_device_video_flexio_ov7670
- usb_device_video_virtual_camera
- usb_host_audio_speaker
- usb_host_cdc
- usb_host_hid_generic
- usb_host_hid_mouse
- usb_host_hid_mouse_keyboard
- usb_host_msd_command
- usb_host_msd_fatfs
- usb_host_phdc_manager
- usb_keyboard2mouse
- usb_pin_detect_hid_mouse

EdgeFast Bluetooth Protocol Abstraction Layer Implementation for MCU-Xpresso SDK

The current version is 1.2.1.

- 1.2.1
 - Improvement:
 - * Fix autopts issues.
 - * Support creating audio streaming without calling in handsfree_ag.
 - New features:
 - * Enable EVKMIMXRT1040.
 - * Support muRata modules on EVKMIMXRT1040, EVKBIMXRT1050 and EVKBIMXR-

T1060.

- 1.2.0
 - Improvement:
 - * Updated to Zephyr Bluetooth 3.0.0
 - * Fix autopts issues.
 - New features:
 - * Enable EVKBIMXRT1050
 - * Enable peripheral_beacon on all boards.
- 1.1.1
 - New features:
 - * Enable peripheral_beacon example in EVKMIMXRT1170 board.
- 1.1.0
 - Improvement:
 - * Updated to Zephyr Bluetooth 2.6.0
 - * change fixed wireless_uart central and peripheral role number to flexiable number.
- 1.0.0
 - New features:
 - * Enable SMP Pairing and Bonding feature for BLE
 - * Enable AVRCP
 - * Enable L2CAP for BR
 - * Add examples wireless_uart and edgefast_bluetooth_shell
 - * Enable data signing, GATT caching, GATT service changed features
 - * Enable data len update, whitelist, phy update
 - * Enable privacy mode
 - * Enable setting for bonding
 - * Enable A2DP content protection/recovery/reporting/delay reporting/header compression/multiplexing services.
 - Improvement:
 - * Enhance SPP to support multiple connection
 - * Use LittleFS to manage the NVM.
 - * Improve A2DP APIs and implementation.
 - Add endpoint callbacks to struct bt_a2dp_endpoint.
 - Add content protection/recovery/reporting/delay reporting/header compression/multiplexing related fields to struct bt_a2dp_endpoint and struct bt_a2dp_control_cb.
 - Upgrade struct a2dp_configure_result to struct bt_a2dp_endpoint_configure_result.
 - Add deconfigured callback.
 - Change sink_start_play callback to start_play callback.
 - Change sink_suspend_play callback to stop_play callback.
 - Add bt_a2dp_disconnect API.
 - Remove bt_a2dp_register_control_callback API.
 - Change bt_a2dp_configure API's callback.
 - Add peer_endpoint to bt_a2dp_configure_endpoint API.
 - Change bt_a2dp_src_start to bt_a2dp_start.
 - Change bt_a2dp_src_suspend to bt_a2dp_stop.
 - Remove bt_a2dp_get_configured_peer_endpoint.

- Change the parameter as endpoint for the APIs: `bt_a2dp_deconfigure`, `bt_a2dp_start`, `bt_a2dp_stop`, `bt_a2dp_reconfigure`, `bt_a2dp_src_media_write` and `bt_a2dp_snk_media_sync`.
 - Add new APIs for content protection/delay reporting services: `bt_a2dp_set_cp_header`, `bt_a2dp_set_initial_delay_report` and `bt_a2dp_send_delay_report`.
- 0.1.0
 - New features:
 - * Initialization version

EdgeFast Bluetooth PAL for MCUXpresso SDK

The current version is 1.2.0.

- 1.2.0 (Based on Zephyr V3.0, commit: 4f8d78ceeb436e82f528511998515f6fc137c6cd)
 - New features:
 - * Update the header files to Zephyr V3.0 base.
- 1.1.0 (Based on Zephyr V2.6, commit: 2595cce7143cd34bc9e35405de4968dc58052692)
 - New features:
 - * Update the header files to Zephyr V2.6 base.
- 1.0.0 (Based on Zephyr V2.5, commit: dabf23758417fd041fec2a2a821d8f526afac29d)
 - New features:
 - * Update the header files to Zephyr V2.5 base.
- 0.1.0 (Based on Zephyr V2.4, tag: v2.4.0)
 - New features:
 - * Initialization version

3 Component Change Log

CODEC

The current codec common driver version is 2.3.1.

- 2.3.1
 - Bug Fixes
 - * Fixed violations of MISRA C-2012 rule 16.1,16.3.
- 2.3.0
 - Improvements
 - * Added enum `_codec_volume_capability` for `CODEC_SetVolume/CODEC_SetMute` to cover more volume configurations.
- 2.2.2
 - Bug Fixes
 - * Fixed the typo in codec common driver.
- 2.2.1
 - Bug Fixes
 - * Fixed violations of MISRA C-2012 rule 10.3, 8.3, 10.7, 17.7.
- 2.2.0
 - Improvements
 - * Used `HAL_CODEC_HANDLER_SIZE` which is determined by low level driver instead of use `CODEC_HANDLE_SIZE` for the codec device handle definition.
- 2.1.1
 - Improvements
 - * Supported all of the codec in the codec adapter.
 - * Modified the codec handle definition to improve user experience.
 - * Modified the capability member type from entity to pointer in codec handle.
 - Bug Fixes
 - * Fixed the Coverity issue regrading array compared against 0.
- 2.1.0
 - Deprecated APIs
 - * `CODEC_GetMappedFormatBits`
 - * `CODEC_I2C_WriteReg`
 - * `CODEC_I2C_ReadReg`
 - * `CODEC_I2C_ModifyReg`
 - * `CODEC_SetEncoding`
 - new APIs
 - * `CODEC_SetPower`
 - * `CODEC_SetVolume`
 - * `CODEC_SetMute`
 - * `CODEC_SetPlay`
 - * `CODEC_SetRecord`
 - * `CODEC_SetRecordChannel`

- * CODEC_ModuleControl
- new features
 - * Removed duplicate members in codec_handle_t and codec_config_t.
 - * Added codec_config_t pointer in codec_handle_t.
 - * Added codec capability flag in codec_handle_t.
 - * Used codec adapter instead of function pointer in codec common driver.
- 2.0.1
 - Added delayMs function pointer in codec handle.
- 2.0.0
 - Initial version.

WM8904

The current wm8904 driver version is 2.5.1.

- 2.5.1
 - Bug Fixes
 - * Fixed invalid clock divider issue generated from WM8904_SetMasterClock api
 - * Replace ‘__REV16’ with general implementation to swap bytes in a short variable.
- 2.5.0
 - Improvements
 - * Added master clock configuration support in function WM8904_SetAudioFormat.
 - * Align the sysclk paramter definition for the WM8904_SetAudioFormat/WM8904_SetMasterClock.
 - * Added api WM8904_SetDACVolume to support adjust DAC volume.
 - * Fixed the MISRA-2012 violation of 12.2, 10.3.
- 2.4.4
 - Bug Fixes
 - * Added the 11.025kHz/22.05kHz/44.1kHz samplerate support on codec WM8904.
 - * Fixed the MISRA-2012 violation of 4.7.
- 2.4.3
 - Bug Fixes
 - * Fixed the MISRA-2012 violations.
 - Fixed rule 8.6, 9.3, 10.1, 10.3, 10.4, 10.7, 10.8, 11.8, 11.9, 14.4, 16.1, 16.3, 16.4, 17.7, 20.9.
- 2.4.2
 - Bug Fixes
 - * Corrected the volume setting function behavior in wm8904 driver, support range align with its specification range.
 - * Corrected the volume setting function behavior in wm8904 adapter, support range 0 - 100, 0 for mute, 100 for maximum volume.
- 2.4.1
 - Bug Fixes
 - * Fixed the bit width register field overwritten issue.

- 2.4.0
 - New features
 - * Added flt support in wm8904 driver.
- 2.3.0
 - Improvements
 - * Added new API WM8904_SetMasterClock to support BCLK/LRCLK output mode.
- 2.1.0
 - new APIs
 - * WM8904_ReadRegister
 - * WM8904_WriteRegister
 - * WM8904_ModifyRegister
 - * WM8904_SetRecord
 - * WM8904_SetPlay
 - * WM8904_SetRecordChannel
 - * WM8904_SetModulePower
 - * WM8904_SetChannelVolume
 - * WM8904_SetChannelMute

New features

- Removed dependency on codec common driver.
- Added dependency on codec i2c.

Bug Fixes

- Fixed unchecked return value in WM8904_Deinit.
- Fixed the alignment fault issue by adding __NOP between continuous memory access.

2.0.3

- Bug Fixes
 - Fixed issue that wm8904 register access function truncated return value.

2.0.2

- Bug Fixes
 - Fixed using uninitialized value format.fsRatio when calling WM8904_UpdateFormat.

2.0.1

- Added WM8904_CheckAudioFormat API.
- Changed the second parameter's name of WM8904_SetAudioFormat to sysclk.

2.0.0

- Initial version.

CS42888

The current cs42888 driver version is 2.1.3

- 2.1.3

- Improvements
 - * Removed the assertion for codec reset function pointer.
- 2.1.2
 - Improvements
 - * Corrected the volume setting function behavior in CS42888 adapter, support range 0 - 100, 0 for mute, 100 for maximum volume.
 - Bug Fixes
 - * Fixed violations of MISRA C-2012 rule 4.7, 10.3, 8.3, 10.7, 17.7.
 - * Corrected the channel index during setting AIN volume in CS42888_Init.
- 2.1.1
 - Improvements
 - * Used software delay with delayMs pointer not provided by application.
 - * Fixed error status overwrite issue in CS42888_Init function.
 - * Removed dependency on codec common driver.
 - * Added API CS42888_SelectFunctionalMode/CS42888_SetChannelMute.
 - * Added dependency on codec i2c.
- 2.1.0
 - Improvements
 - * Unified CS42888 codec driver interface.
 - * Bug Fixes
 - Corrected the ADC/DAC functional mode macro definition.
 - Added TDM and OLM mode support in the function CS42888_SetProtocol.
- 2.0.0
 - Initial version.

SERIAL_MANAGER

The current Serial_Manager component version is 1.0.2.

- 1.0.2
 - Add SerialManager_WriteTimeDelay()/SerialManager_ReadTimeDelay() for serial manager's read/write non-blocking mode.
- 1.0.1
 - Add prefixing fsl_component_XXX/fsl_adapter_XXX.
- 1.0.0
 - Initial version

How to Reach Us:**Home Page:**

nxp.com

Web Support:

nxp.com/support

Information in this document is provided solely to enable system and software implementers to use NXP products. There are no express or implied copyright licenses granted hereunder to design or fabricate any integrated circuits based on the information in this document.

NXP makes no warranty, representation, or guarantee regarding the suitability of its products for any particular purpose, nor does NXP assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters that may be provided in NXP data sheets and/or specifications can and do vary in different applications, and actual performance may vary over time. All operating parameters, including "typicals," must be validated for each customer application by customer's technical experts. NXP does not convey any license under its patent rights nor the rights of others. NXP sells products pursuant to standard terms and conditions of sale, which can be found at the following address: nxp.com/SalesTermsandConditions.

While NXP has implemented advanced security features, all products may be subject to unidentified vulnerabilities. Customers are responsible for the design and operation of their applications and products to reduce the effect of these vulnerabilities on customer's applications and products, and NXP accepts no liability for any vulnerability that is discovered. Customers should implement appropriate design and operating safeguards to minimize the risks associated with their applications and products.

NXP, the NXP logo, NXP SECURE CONNECTIONS FOR A SMARTER WORLD, Freescale, the Freescale logo, Kinetis, Processor Expert, and Tower are trademarks of NXP B.V. All other product or service names are the property of their respective owners. Arm, Cortex, Keil, Mbed, Mbed Enabled, and Vision are trademarks or registered trademarks of Arm Limited (or its subsidiaries) in the US and/or elsewhere. The related technology may be protected by any or all of patents, copyrights, designs and trade secrets. All rights reserved. Oracle and Java are registered trademarks of Oracle and/or its affiliates. The Power Architecture and Power.org word marks and the Power and Power.org logos and related marks are trademarks and service marks licensed by Power.org.

© 2021 NXP B.V.

