32-bit MCU SDK 5.3.5.0

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This document contains the changes in the 5.3.5.0 version compared to the 5.2.2.0 version released in Q2 2017. The 32-bit MCU SDK 5.3.5.0 is installed with Gecko SDK Suite 2.1.0 in Simplicity Studio for EFM32 products. For detailed changelog for the different components in the MCU SDK then see the various changelog txt files that are placed inside the MCU SDK install location.

1 Release Highlights

1.1 Gecko HAL & Driver:

- Capacitive Sensing Library (CSLIB) support for EFM32 Giant Gecko 11
- LCD support for EFM32 Giant Gecko 11
- New SLEEP driver functionality for fast sleep mode re-entry and advanced application clock control
- ARM mbed TLS: updated to upstream release v2.5.1 and simplified Silicon Labs preemption plug-in

1.2 New EFM32 example applications:

- Si72xx Hall Effect Magnetic Sensor EXP board support with example applications for EFM32 Happy Gecko
- New example applications for EFM32 Giant Gecko 11
- Segger SystemView support in all Micrium OS based example applications

1.3 Using This Release

32-bit MCU SDK 5.3.5.0 is installed with Gecko SDK Suite 2.1.0 in Simplicity Studio for EFM32 and EZR32 products. This release contains the following.

- Gecko HAL & Driver (a part of the Gecko Platform component)
- EFM32 example applications

1.4 Support

Development Kit customers are eligible for training and technical support. You can use the Silicon Laboratories web site https://www.silabs.com/products/mcu/32-bit to obtain information about all EFM32 Microcontroller products and services, and to sign up for product support.

You can contact Silicon Laboratories support at http://www.silabs.com/support

2 Added Items

2.1 Gecko HAL & Driver:

- ARM mbed TLS
  - Added a simple device manager, which will opportunistically allocate the available devices. Therefore, mbedtls_device_init and mbedtls_device_set_instance are no longer provided. All device management now happens internally in the mbed TLS plugins.
- SLEEP driver (EMDRV) extensions
  - Only doing clock save/restore when going into EM2 or EM3
  - Added possibility for controlling sleep entry from the sleep callback
  - Added new callback for advanced application control of HF clock restore on energy mode wakeup
  - Added new init function SLEEP_InitEx() and deprecated SLEEP_Init()
- Capacitive Sensing Library (CSLIB)
  - Support for EFM32 Giant Gecko 11
  - CSLIB example application for EFM32 Giant Gecko 11

2.2 EFM32 example applications:

- EMLIB CAN bus, CSLIB, spectrum analyzer, Micrium OS Shell and Micrium OS web microphone example applications for EFM32 Giant Gecko 11

3 Fixed Issues

3.1 Gecko HAL & Driver:

- EMLIB
  - Fixed bug when fetching VDAC calibration value
  - Fixed bug when tuning HFXO for external clock
  - Corrected invalid parameter in CORE_YIELD_CRITICAL and ATOMIC macros
  - Fixed bug that could cause incorrect IDs in CAN messages
  - Corrected CAN bus filter configuration (CAN_MIR_MASK register)
  - Fixed description of GPIO_ExtIntConfig() and GPIO_IntConfig() in em_gpio.c
  - Corrected reload of default calibration trims in OPAMP_Enable() for Series 0.
  - Updated PLFRCO trim values.
  - Fixed bug in GPIO pin validation to enable PD9 on BGM121 module products
  - Added missing LDMA signal definitions for EFM32 Giant Gecko 11

3.2 EFM32 example applications:

- Corrected issue that caused EZR32 Wonder Gecko examples applications to contain incorrect Simplicity Studio project files
- Fixed non-unique MAC address in Ethernet examples (Micrium Net)
- helges_demo for EFM32 Giant Gecko 11 updated for better user experience
- Fixed EFM32 Giant Gecko 11 DHCP address status bug in micriumos_net demo

4 Changed Items

4.1 Gecko HAL & Driver:

- EMLIB
  - Various changes to move code towards MISRAC 2012 complience.
- ARM mbed TLS
  - Updated to upstream release v2.5.1. More info from ARM available at https://tls.mbed.org/tech-updates/releases/mbedtls-2.5.1-2.1.8-and-1.3.20-released
  - Implemented thread-safety using the mbedTLS threading API. This means that when compiling with MBEDTLS_THREADING_C, one should call mbedtls_threading_set_alt... with the used OS's functions, and declare mbedtls_threading_mutex_t to be the used OS's mutex primitive. If not instrumenting an RTOS, mbed TLS will be a single-threaded, blocking library.

5 Removed Items

5.1 Gecko HAL & Driver:

- ARM mbed TLS
  - Removed generic device preemption and SL_PAL to optimize for simplicity. The only functions instrumented and allowed to preempt are the Bluetooth helper functions.
  - Removed/updated Class 1 and Class 2 plugins in favor of one unified HAL.
  - Removed asynch extensions to reduce the divergence from mainline mbed TLS.
  - Removed test module sl_timing.

6 Deprecated Items

6.1 Gecko HAL & Driver:

Complete deprecated API lists for each family can be found in online documentation. For example:

EFM32 Giant Gecko 11: http://devtools.silabs.com/dl/documentation/doxygen/5.3.2/efm32gg11/html/deprecated.html

EFR32 Mighty Gecko 12: http://devtools.silabs.com/dl/documentation/doxygen/5.3.2/efr32mg12/html/deprecated.html