

IEC60730B CM0 4.0

by: NXP Semiconductors

1 Introduction

IEC60730B_CM0_4_0 is the actual version of the core self-test library for NXP devices with the CM0+ core. The library is certified by VDE. It is dedicated for use in applications compliant with the Safety class B standard (specified by IEC 60730, IEC60335 and/or UL 60730, and UL 1998).

The library is released in a precompiled format, together with functional example projects and documentation describing the respective tests.

The library is created in close cooperation with the application team, who have vast experience in customer projects. We also take the feedback from our customers into consideration.

2 What is new

When compared to the previous version of the library, the main changes are:

- Functional examples are now available only in the MCUXpresso SDK as middleware packages.
- These new devices are added: LPC80x, LPC82x, LPC84x.
- Changed/simplified the API of the test routines.

2.1 Description

The supported devices are:

- MKV1x
- MKLxx
- MKExx
- MKE1xZ
- MK32W0x
- LPC80x
- LPC82x
- LPC84x

The supported/recommended IDEs:

- IAR v8.40 and higher
- Keil µVision V5.28 (C compiler V5.06) and higher
- MCUXpresso IDE V11.1 and higher

The tested components are:

- CPU registers

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- Program counter
- Variable memory (RAM)
- Invariable memory (flash)
- Clock
- Digital I/O
- Analog I/O
- Stack
- Watchdog
- Touch Sensing Interface (TSI)

3 Optimizations, improvements and changes:

3.1 Library

Changed the names of functions, input parameters, macros, and variables.

The tests that are not related to core and memory were unified across the devices with Arm cores.

The new functions due to the LPCs peripherals:

- Clock test: FS_CLK_WKT_LPC().
- Flash test: FS_CM0_FLASH_HW16_LPC()
- Digital I/O test: FS_DIO_Output_LPC()
 - FS_DIO_InputExt_LPC()
 - FS_DIO_ShortToSupplySet_LPC()
 - FS_DIO_ShortToAdjSet_LPC()
- Analog I/O test: FS_AIO_InputInit_LPC_ADC12()
 - FS_AIO_InputSet_LPC8XX()
 - FS_AIO_InputCheck_LPC8XX()
- Watchdog test: FS_WDOG_Setup_WWDT_LPC()
 - FS_WDOG_Check_WWDT_LPC()
 - FS_WDOG_Setup_WWDT_LPC_mrt()

3.2 Documentation

The documents for all test routines are merged into one document.

3.3 Examples

The example projects are available only in the MCUXpresso SDK as middleware.

To open an example:

- Go to <http://mcuxpresso.nxp.com>.
- Click [Select Development Board](#).
- Select the supported board and click to add the [Safety](#) middleware.

Optimizations, improvements and changes:

- Perform the SDK package build and download.

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