



# **Release Notes for ADuCM302x EZ-KIT Board Support Package 1.0.6**

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Thank you for installing the ADuCM302x EZ-KIT Board Support Package (BSP). The BSP provides software and documentation in support of the ADuCM302x EZ-KIT development board.

The BSP is designed to work with IAR Embedded Workbench software development tools.

For more details on IAR, please visit <http://www.iar.com>. The BSP provides comprehensive software support for the ADuCM302x EZ-KIT development, including drivers and services. The BSP also provides comprehensive examples which demonstrate the on-chip drivers and services. The device driver and services documentation is part of the BSP.

# 1 ADuCM302x EZ-KIT Board Support Package v1.0.6 Release

## Notes

### 1.1 Release Testing

BSP examples have been tested with ADZS-UCM3029 EZ version 1.1, BOM 1.4

### 1.2 Release Dependencies

Requires IAR Embedded Workbench version 7.40.1.

### 1.3 Changes in v1.0.6

- adxl363 example is updated and can now be used with DMA enabled. It is also possible to run this example in low power mode now.
- SPI driver is fixed and user can initiate one byte DMA reads in SPI Read command mode.
- UART driver is fixed to support baudrates ranging from 200 baud to 3M baud.
- I2C transactions involving repeated start condition which triggers bus fault handler due to NACK is now handled inside the I2C driver.

## 2 ADuCM302x EZ-KIT Board Support Package v1.0.5 Release

### Notes

#### 2.1 Release Testing

BSP examples have been tested with ADZS-UCM3029 EZLITE version 1.1, BOM 1.4

#### 2.2 Release Dependencies

Requires IAR Embedded Workbench version 7.40.1.

#### 2.3 Changes in v1.0.5

This release addresses an issue where the flash programmer did not initialize ECC data during flash writing, leading to the processor becoming unresponsive after programming.

- This release provides a replacement flash programmer for use with the IAR Embedded Workbench environment. (issue ADUCS07-620)
- CCES 2.6.0 provides a replacement flash programmer for use with the CCES environment. (issue CCES-17233)
- A related release provides a replacement flash programmer for use with the Keil Vision environment. (issue ADUCK07-135)

## 3 ADuCM302x EZ-KIT Board Support Package v1.0.4 Release

### Notes

#### 3.1 Release Testing

BSP examples have been tested with ADZS-UCM3029 EZLITE version 1.1, BOM 1.4

#### 3.2 Release Dependencies

Requires IAR Embedded Workbench version 7.40.1.

#### 3.3 Changes in v1.0.4

- A dedicated API is provided in ADXL363 driver to support FIFO read operation which is demonstrated in adxl363 BSP example.
- Interrupts enabled through `adi_spi_SetInterruptMask()` may result in returning multiple interrupts simultaneously through callback, so user can use bitwise operators along with enums to extract the events occurred.
- It is possible to set SPI device as slave by default using Static configuration. It should be taken care that `ENABLE`, `TX_UNDERFLOW` and `MISO_ENABLE` for that particular SPI instance should also be enabled using Static Configuration.
- External Interrupt handler is modified such that interrupts are now cleared at the start of the handler i.e. before callback so that we don't miss any interrupts that occur during the callback execution.

#### 3.4 Known issues with the ADuCM302x EZ-KIT Board Support Package (BSP)

- SPI Read command mode doesn't work if one byte is read from slave using DMA. In general, SPI DMA does not support 1 byte Rx transfer size. It is recommended to use core mode for reading one byte when using DMA.
- **ADUCS07-568:** Whenever an I2C read transaction is using repeated start condition, a NACK is received and a Bus Fault is triggered.

## 4 ADuCM302x EZ-KIT Board Support Package v1.0.3 Release

### Notes

#### 4.1 New example added

1	CycleCount	This is a basic example which calculates the value of cyclecount for a non blocking I2C API
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#### 4.2 Release Testing

BSP examples have been tested with ADZS-UCM3029 EZLITE version 1.1, BOM 1.4

#### 4.3 Release Dependencies

Tested on IAR Embedded Workbench version 7.40.1.

#### 4.4 Changes in v1.0.3

- The SPI DMA now supports odd byte transfer size but 1 byte Rx transfer size is still not supported.
- SPI driver is enhanced now to support CS Rise and CS Fall interrupts. These interrupts can be enabled using `adi_spi_SetInterruptMask()` API.
- SPI driver is updated to removed the redundant assertion of CS line when it can be handled by Hardware. `asi_spi_AssertChipSelect()` API can be used if user want to control CS manually.
- **ADUCS07-565:**The SPI Count register cannot be accessed in Slave mode.

#### 4.5 Known issues with the ADuCM302x EZ-KIT Board Support Package (BSP)

- **ADUCS07-568:** Whenever an I2C read transaction is using repeated start condition, a NACK is received and a Bus Fault is triggered.



- **ADUCS07-581:** On Ext\_Int3\_Handler the interrupt is currently cleared at the end of the function, this may cause a pended interrupt to be cleared before it is processed if it takes place during the callback execution.
- **ADUCS07-576:** CS Rise and CS Fall interrupts can only be enabled in SPI Continuous mode and are not supported for non-continuous mode.
- SPI Read command mode doesn't work if one byte is read from slave using DMA. In general, SPI DMA does not support 1 byte Rx transfer size. It is recommended to use core mode for reading one byte when using DMA.

# 5 ADuCM302x EZ-KIT Board Support Package v1.0.2 Release Notes

## 5.1 Release Dependencies

Requires IAR Embedded Workbench version 7.40.1 or later.

## 5.2 Release Testing

The BSP has been tested with the ADZS-UCM3029 EZLITE version 1.0, BOM 1.4

## 5.3 License Checking

Use of the BSP software is subject to the Software License Agreement presented during installation.

## 5.4 Installation

It is recommended that you backup or delete your older BSP installation directory (e.g. `C:\Analog Devices\ADuCM302x\ADuCM302x_EZ_Kit_Lite`)

before installing a newer BSP version. The BSP installer does not currently offer an uninstall option.

## 5.5 New features and examples in version 1.0.2

This release adds support for silicon revision 1.1 of ADuCM302x processors.

## 5.6 Changes from version 1.0.1

- The UART device driver supports switching between blocking and non-blocking mode of operation.
- A CRC can be computed for multiple chunks of data

- A dedicated API is provided in the GP Timer device driver to support configuring the SYNC bit.
- The flash device driver can erase multiple pages.
- Added a dedicated API to the RTC device driver to support the reading of all count registers.

## 6 Release Content

This release contains the following sets of components:

- Source files for device drivers and services. These components are authored by Analog Devices, for use on the ADuCM302x processor.
- Examples for device drivers and services. These components are authored by Analog Devices, and demonstrate the use of the device drivers and services. Some of the examples make use of the Micrium RTOS products, so have a dependency on the Micrium products, which must be obtained separately under license from Micrium.
- Toolchain support. These components are authored by Analog Devices, and are installed into the toolchain to configure it to recognize the ADuCM302x processor family.
- Additional utilities. These components are authored by Analog Devices, and assist in the generation of applications for the ADuCM302x processor family.
- Documentation.

### 6.1 Source files for drivers and services

adi_int/adi_nvic	Source and include files
adi_types.h	Base typedefs
*ADuCM302x*.h	Device descriptions and macro files
System	Source and include files
Startup	Source and include files

Various peripheral device driver sources and include files in “src” and “inc” directories.

### 6.2 Toolchain support files

The following common system infrastructure framework files are installed into the toolchain and should be used in all projects.

#### **IAR tool chain configuration files**

FlashADUCM3029.*	Flash loader files and sources
ioADUCM302x.ddf	Debugger register display
ADuCM3029.icf	ADuCM302x EZ-KIT linker control file

## 6.3 Additional utilities

These utilities are installed into the tools subdirectory.

PinMuxUI	Java-based graphical utility for generating source code to configure pin multiplexing. Available for 32-bit and 64-bit Java Virtual Machines.
UartDivCalculator	Command-line utility for configuring the Baudrate for the UART device.

## 6.4 Documentation

ADuCM302x_EZ-Kit_BSP_GettingStartedGuide.pdf	Getting Started Guide
ADuCM302x_EZ-KIT_BSP_for_IAR_ReleaseNotes.pdf (this file)	Release Notes
ADuCM302x_EZ-Kit_BSP_UsersGuide.pdf	User's Guide
ADuCM302x_EZ- KIT_BSP_Device_Drivers_UsersGuide.pdf	Guidelines for using the Analog Devices device drivers.
Html/index.html	Index file for HTML-based Device Driver API documentation

## 7 Micrium Components

The example "ucos-II" in the examples\rtos directory relies on the uC/OS-II RTOS component from Micrium - refer to the example's README file for details.

To make use of this example:

1. Obtain the uC/OS-II product from Micrium. Version 2.92.08 is recommended.
2. Choose a directory where you will store the unzipped Micrium source files.
3. Set the Windows environment variable MICRIUM\_DIR to the pathname of this directory.
4. Unzip all Micrium components into \$MICRIUM\_DIR
5. Start the IAR Embedded Workbench environment.
6. Import the appropriate example, and build it. The example is configured to make use of the \$MICRIUM\_DIR environment variable.

Please note that the Micrium components are licensed products, and you must obtain the necessary licenses directly from Micrium to use them.

### 7.1 Examples

#### 7.1.1 Power\_On\_Self\_Test:

This example allows you to test the many peripherals of the ADuCM302x EZ-KIT. This example is also pre-programmed into the on-board flash memory. By following the directions in the `Readme_post.html` file, you can also program this example into the EZ-KIT's flash memory. This POST was designed so that you can use the ADuCM302x EZ-KIT push buttons to select a specific test to run.

The POST example is located in the examples directory at:

*ADuCM302x\_EZ\_Kit\examples\Power\_On\_Self\_Test\ADuCM3029*

## 7.1.2 EXAMPLES FOR DRIVERS

1.	CRC	example which uses on-chip CRC controller.
2.	SPORT	example which uses the on-board SPORT.
3.	UART	example which demonstrates loop back of data between the TX and RX.
4.	SPI	driver examples which demonstrate the loopback of data.
5.	Beep	example which configures the beep controller and plays a tune.
6.	Flash	example to demonstrate how to read/write/erase the flash memory.
7.	I2C	examples which demonstrate data loop back and reading the data from the temperature sensor.
8.	rng	number generation example.
9.	Adxl363	accelerometer example which is interfaced with SPI.
10.	HelloWorld	examples which demonstrate how to run a program from SRAM without using flash memory.
11	ADC	Example to demonstrate how to configure the ADC to sample data.

The CRC, FLASH, SPI, UART and I2C examples can all be configured to support DMA mode of operation.

## 7.1.3 EXAMPLES FOR SERVICES

1.	Timer	example which demonstrates the timer service.
2.	wtc	example which demonstrates the Watchdog service.
3.	RTC	example which demonstrates how a periodic alarm can be generated.
4.	SysTick	timer example.

**7.2 Note: You may see a warning like the one below after loading the executable to the ADuCM302x EZ-KIT. Please press “NO” and proceed.**



### 7.3 Location

By default, the BSP will be installed into the directory `C:\Analog Devices\ADuCM302x\ADuCM302x_EZ_Kit`.



## **8 System Services and Device Driver Thread Safety**

All system services and device drivers (SSL/DD) use mutexes and semaphores to ensure thread-safety. If an RTOS is present, then SSL/DD will use the RTOS mutex and semaphores.

## 9 Contacting Technical Support

Submit your questions online at:

<http://www.analog.com/support>

E-mail your Processors and DSP applications and processor questions to:

[processor.support@analog.com](mailto:processor.support@analog.com) OR

[processor.china@analog.com](mailto:processor.china@analog.com) (Greater China support)

For software support for this Board Support Package, contact:

[processor.tools.support@analog.com](mailto:processor.tools.support@analog.com)

For IAR tool chain support please visit

<http://www.iar.com/support>