

# EDMA3 Resource Manager

Release version 02.12.05.XX

## Release Notes

Mar 09, 2018

The product release notes in this document are for EDMA3 Resource Manager, which is a part of the EDMA3 Low Level Driver package. The Resource Manager is a TI mandated library for all EDMA3 peripheral users to acquire and configure EDMA3 hardware resources (DMA/QDMA channels, PaRAM Sets, TCCs etc.) and DMA Interrupt Service Routines. The Resource Manager is made generic across SoCs and across Operating Systems.

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## **1 In This Release**

This is the version 02.12.05.XX release of EDMA3 Resource Manager and contains libraries, sample initialization libraries and support documents.

This release contains sample OS adaptation layer for BIOS 6, which could be used by BIOS 6 based applications.

## 2 Out-of-Box Contents

edma3\_ild\_02\_12\_05\_30B.tar.gz contains following:

1.
  - Source code for EDMA3 Resource Manager, Driver and other necessary abstractions.
  - Project files (DSP/BIOS™), Code Composer Studio (CCS) build files, XDC package.bld files (for supporting getlibs function) and all Makerules and Makefiles, to build EDMA3 package in host environment. Please note from this point of time, libraries can be built using Makefiles only. Hence libraries need to be built through command prompt using gmake command (Please refer the user guide available with this release for detailed build instructions).
  - The above mentioned items are located inside the <installation dir>\edma3\_ild\_02\_12\_05\_XX\ directory.
  - Please note that the CCS setup files and GEL files are NOT provided with this release and this would be available with latest CCSv6 releases or from EVM manufacturer.
2. Release Notes (this document) providing an overview of this release.
3. User Guide and data sheets.
4. EDMA3 Resource Manager API (generated) documentation in CHM format.

### 3 Known Issues

<b>1.</b>	<b>Instrumentation (all components)</b>
<b>Release Note</b>	
Instrumentation code is not yet implemented as the XDC/CCSv4 version at the point of development did not support RTA and instrumentation APIs.	
<b>Workaround</b>	
None	

<b>2.</b>	<b>EDMA3 hardware doesn't works properly in FIFO mode with all the controllers.</b>
<b>Release Note</b>	
Very few peripherals support EDMA3 FIFO mode. EMIF controller doesn't support the same. So EDMA3 CANNOT be used in FIFO mode for doing a mem-2-mem data transfers, EDMA3 being configured in the FIFO mode. Applications trying to use EDMA3 in FIFO mode should first check their respective peripheral-controller document for this mode support.	
<b>Workaround</b>	
None	

<b>3.</b>	<b>PingPong Example Fails for certain EDMA instances for some DSP cores in Release mode only.</b>
<b>Release Note</b>	
PingPong example fails for certain EDMA Instances for some DSP cores in Release Mode only. It passes in the Debug mode.	
<b>Workaround</b>	
None	

<b>4.</b>	ARM 9 support for OMAPL138 is not available on Make based build of EDMA3LLD
<b>Workaround</b>	
None	

<b>5.</b>	<b>EDMA3 fails for Certain Big Endian Simulators.</b>
<b>IR# SDSCM00039169</b> EDMA3 Example fails for following Big Endian Simulators: tci6608-sim/tci6616-sim	
<b>Workaround</b>	
None	

<b>6.</b>	K2 EDMA3 LLD examples are broken
<b>IR# SDOCM00121404</b> EDMA LLD K2G examples have build error	
<b>Workaround</b>	
None	

#### **4 Limitations**

None.

## 5 Fixed In This Release

IR	Description
JIRA PRSDK-3391	EDMA-LLD Sample library: Run time interrupt handling incorrect for EventCombiner APIs. Applicable for C66x/C67x cores
JIRA PRSDK-3314	EDMA3 LLD: Examples do not build
JIRA PRSDK-415	EDMA3 LLD RM code reserves first 64 parameters which are not available to user app using EDMA3_DRV_requestChannel
JIRA PRSDK-3366	RTOS: SDK component - edma3 should be signed to avoid Eclipse/CCS warning when importing
JIRA PRSDK-3354	Klocwork Analysis: fix critical and error issues for RTOS 4.2.0 release
JIRA PRSDK-3579	Clean up static analysis error in UART/SPI LLD
JIRA PRSDK-3363	Klocwork Analysis: Fix Misra-C issues for board, edma3

## 6 Others

EDMALLD is MISRA C compliant for TDA2x, TDA3x, DRA72X and TI814x platforms.

For platforms AM572x, DRA75x\_74x, TDA2XX, AM571x, DRA72XX, and TDA2EX, currently they all share a single device name of DRA7XX and a single RM library under [edma3lld\_install\_dir]/packages/ti/sdo/edma3/rm/lib/tda2xx-evm directory. Therefore, for applications using a custom RTSC platform, please use "DRA7XX" as the "deviceName". For applications using makefile, please link the library under the tda2xx-evm folder.

Refer to appendix for update details



## 7 Revision history

<b>Date</b>	<b>Author</b>	<b>Comments</b>	<b>Version</b>
Oct 16, 2008	Anuj Aggarwal	First release supporting platform DA830 on BIOS 6.	02.00.00.XX
June 3, 2009	Anuj Aggarwal	Patch release for DA830 platform on BIOS 6.	02.00.01.XX
Dec 7, 2009	Anuj Aggarwal	Migration to BSD license and support added for TCI6498. See section 1 for more details.	02.10.00.XX
Apr 9, 2010	Imtiaz SMA	Support for the C6748 and OMAPL138 (DSP only) is added. See section 1 for more details.	02.10.01.xx
May 12, 2010	Vinay K Nooji	Support for the OMAPL138 ARM has been added.	02.10.02.XX
Sep 6, 2010	Sundaram Raju	Support for the TI816X Simulator & platform, C6472 & TCI6486 platform and TI814X platform have been added.	02.10.03.XX
Oct 12, 2010	Sundaram Raju	Support for C66x(ELF) in Generic library of Resource Manager and bug fixes	02.10.04.XX
Feb 02, 2011	Sundaram Raju	Support for Make based build for all the libraries and sample applications	02.11.00.XX
Feb 15, 2011	Raghu Nambiath  Sundaram Raju	Support for C66x target for all the libraries and sample applications	02.11.01.XX
May 24, 2011	Prasad Konnur	Addition of TI816x-m3vpss and TI816x-m3video platforms to EDMA3LLD	02.11.02.XX
Nov 15, 2011	Prasad Konnur	Addition of M3 support for TI814X and A8 support for TI816X	02.11.03.XX
Jan 27, 2012	Murtaza Gaadiwala	Addition of Appleton (TCI6614) support	02.11.04.XX
Mar 9, 2012	Prasad	Addition of TI811X platform support	02.11.05.XX

May 10, 2012	Murtaza Gaadiwala	Addition of Gauss (C6657) and Kepler (TCI6634) support	02.11.05.02
Aug 10, 2012	Prasad Konnur	Bug fixes	02.11.06.01
May 13, 2013	Prasad Konnur	Addition of TDA2XX support	02.11.07.03
May 17, 2013	Murtaza Gaadiwala	Addition of TCI6638K2K support	02.11.07.04
June 21, 2013	Prasad Konnur	TDA2XX return region number at runtime based on core	02.11.08.XX
July 18, 2013	Murtaza Gaadiwala	Addition of TCI6636K2H support	02.11.09.XX
Sept 23, 2013	Sivaraj R	Addition of GCC Compiler build for A8 for Centaurus and bug fix	2.11.10.XX
Dec 20, 2013	Arvind S	Ported EDMA Ild to EVE core to access EVE internal EDMA instance.	02.11.11.XX
Dec 27, 2013	Arvind S	Bug fixes	02.11.11.XX
Jan 7, 2014	Arvind S	Removed warnings and bug fix	02.11.11.XX
Feb 19, 2014	Ivan P	Merged in user space support for Keystone 2 devices	02.11.11.XX
May 30, 2014	Prasad Konnur	Addition of TDA3xx and DRA72x platforms	02.11.12.XX
June 11, 2014	Ivan P	Fixed package.xs bug for adding TDA3xx and DRA72x.	02.11.13.XX
June 30, 2014	Prasad Konnur	Bug Fixes	02.11.14.XX
August 25, 2014	Sunil MS	Added tda3xx and dra72x which were missing in package.xs file of RM.	02.11.14.XX
November 4, 2014	Sunil MS	Misra C Compliance of edma3Ild and bug fixes.	02.12.00.XX
August 10, 2015	Hongmei Gou	Addition of AM335x and AM437x support	02.12.01.XX
December 14, 2015	Hao Zhang	Addition of Keystone II A15 libs support	02.12.01.XX

February 26, 2016	Hao Zhang	Addition of K2G C66 and A15 libs support	02.12.01.XX
June 29, 2016	Ivan P	Minor compilation update	02.12.01.XX
Sept 13, 2016	Ivan P	Minor makefile update	02.12.01.XX
Oct 25, 2016	Ivan P	Fixed example build issue with 'far' qualifier	02.12.02.XX
Mar 24, 2017	Ivan P	Addition of OMAP-L13x support	02.12.03.XX
Jun 22, 2017	Ivan P	Fixes for OMAP-L13x example	02.12.04.XX
Sept 22, 2017	Ivan P	Additional fixes for OMAP-L13x examples	02.12.05.XX
Oct 23, 2017	Mahesh R	Updates for compatibility with sysbios 6.52.0.12 & gcc 6.3.1	02.12.05.XX
Jan 27, 2017	Sinthu Raja	Addition of wrapper functions for Interrupt handling in critical section functions.	02.12.05.XX
Jan 31, 2018	Sinthu Raja	Bug Fix to build EDMA examples through makefile	02.12.05.XX
Feb 23, 2018	Hao Zhang	Fix for static analysis error in UART/SPI LLD	02.12.05.XX
Feb 27, 2018	Sinthu Raja	Add functionality to test EDMA3 Param sets allocation corresponding to the DMA channel that user requested.	02.12.05.XX

## **8 Appendix: Changes from last release**

### **Changes from 02.12.05.30 Release to 02.12.05.30B Release:**

- i. Added interrupt handling Wrapper functions for DSP core to use in critical sections functions.
- ii. Bug fix to build EDMA3 examples through makefile.
- iii. Added function to verify the EDMA3 param set allocation corresponds to the DMA channel that is requested by user.
- iv. Clean up static analysis error.
- v. Eliminated security warning regarding unsigned content from CCS when SDK components are detected.

### **Changes from 02.12.05.29 Release to 02.12.05.30 Release:**

- i. Updates for compatibility with sysbios 6.52.0.12 & gcc 6.3.1

### **Changes from 02.12.04.28 Release to 02.12.05.29 Release:**

- i. Fixed IPC versions for OMAP-L137 and OMAP-L138 examples

### **Changes from 02.12.03.27 Release to 02.12.04.28 Release:**

- i. Bug fixes for OMAP-L137 and OMAP-L138 examples

### **Changes from 02.12.02.26 Release to 02.12.03.27 Release:**

- i. Added support for OMAP-L137 and OMAP-L138

### **Changes from 02.12.01.25 Release to 02.12.02.26 Release:**

- i. Example bug fix: updated C66x build with 'far' qualifier for numEdma3Instances

### **Changes from 02.12.01.24 Release to 02.12.01.25 Release:**

- i. Minor bug fixes: Removed PATH from env.mk

### **Changes from 02.12.01.23 Release to 02.12.01.24 Release:**

- i. Minor enhancement: Removed hard linking of FPU libgcc.a since compiler flag -mfloat-abi=hard automatically links in the proper version

### **Changes from 02.12.01.22 Release to 02.12.01.23 Release:**

- i. Added following features:
  - 1. Add K2E A15 rm sample lib support
  - 2. Add K2L A15 rm sample lib support
  - 3. Add K2G C66 and A15 lib support

### **Changes from 02.12.00.20 Release to 02.12.01.22 Release:**

- i. Fixed following IR's:
  - 1. SDOCM00118311 - Add support for AM335x
  - 2. SDOCM00118312 - Add support for AM437x

3. SDOCM00117869 - Add Keystone II A15 driver/driver sample/RM libs
4. SDOCM00117509 - Add K2E/K2L EDMA3 driver sample C66 RTOS lib

**Changes from 02.11.14.19 Release to 02.12.00.20 Release:**

- i. Fixed following IR's:
  1. SDOCM00113002 - ti.sdo.edma3.rm generic libraries are missing.
  2. SDOCM00113071 - EDMA3\_LLD GCC release builds are not optimized.
  3. SDOCM00112223 - Include all EDMA instances in the RM configuration structure for dra72x and tda2xx
  4. SDOCM00113427 - Include all EDMA instances in the RM configuration structure for tda3xx
  5. SDOCM00113477 - Include all EDMA instances in the RM configuration structure for ti814x
  6. SDOCM00113695 - EDMA3 param configuration for EVE is incorrect
- ii. EDMALLD is MISRA C compliant for TDA2x, TDA3x, DRA72X and TI814x platforms.

**Changes from 02.11.14.18 Release to 02.11.14.19 Release:**

- i. Fixed following IR:
  1. SDOCM00112718 - Added tda3xx and dra72x which were missing in package.xs file of RM.

**Changes from 02.11.13.17 Release to 02.11.14.18 Release:**

- i. Fixed following IR:
  1. SDOCM00108310 - release 02.11.12.16 cant be included as xdc module
  2. SDOCM00108311 - tda2xx build doesnot include crossbar configuration

**Changes from 02.11.12.16 Release to 02.11.13.17 Release:**

- i. Added missing commas in package.xs files from the addition of TDA3xx and DRA72x platforms
- ii. Updated simKepler project cfg file to use tci6638k2k instead of tci6634
- iii. Updated debian versions

**Changes from 02.11.11.15 Release to 02.11.12.16 Release:**

- i. Added support for TDA3xx and DRA72x platforms.

**Changes from 02.11.11.13 Release to 02.11.11.15 Release:**

- i. Fixed following IR:

1. SDOCM00106346 - edma3lld needs to be compiled with --mem\_model:data=far for use with OpenCL
- ii. Added User Space libraries and examples for Keystone 2 Devices

**Changes from 02.11.10.09 Release to 02.11.11.13 Releases:**

- i. Fixed following IR:
  1. SDOCM00104308 - Add Ti814x sample app, the unregisterEdma3Interrupts causes an exception because error interrupts were not assigned for M3 builds.
  2. SDOCM00105689 - EDMA3 LLD support for official DRA7xx platform is broken.
  3. SDOCM00105739 - Add Support for EVE internal EDMA in EDMA3 LLD
  4. SDOCM00105829 - Remove build warnings and C++ warning
  5. SDOCM00105832 - Tear down sequence in standalone example is improper

**Changes from 02.11.09.08 Release to 02.11.10.09 Releases:**

- i. Fixed following IR:
  1. OMAP500298778 - EDMA3 LLD module is not able use with A15 - Support EDMA3 LLD to get the A15 libraries build with the '.aa15fg' extension
  2. OMAP500299498 - GCC support on A8 for Centaurus for EDMA LLD

**Changes from 02.11.08.06 Release to 02.11.09.08 Releases:**

- i. Fixed following IR:
  1. SDOCM00102368 - EDMA3 LLD: Add support for TCI6636K2H target
  2. SDOCM00102388 - Section placement of EDMA3LLD needs to be adjusted in order to interop w/ OpenMP

**Changes from 02.11.07.04 Release to 02.11.08.05 Releases:**

- i. Fixed following IR:
  1. SDOCM00101975 - EDMA3 LLD compatibility key causing unnecessary build failure
  2. SDOCM00102051 - Determining the core by reading from a core id or device id register (if possible), instead of compile time definitions.
  3. SDOCM00102486 - [Vayu McSPI ] McSPI Applications does not work without EDMA Channel Mapping.

**Changes from 02.11.07.03 Release to 02.11.07.04 Releases:**

- i. Fixed following IR:
  1. SDOCM00100731 - Addition of TCI6638K2K platform support

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**Changes from 02.11.06.01 Release to 02.11.07.03 Releases:**

- i. Fixed following IRs:
  - 1. SDOCM00090630 – Addition of platform TDA2XX
  - 2. OMAP500293688 - eDMA\_LLD\_02.11.06.01 build steps and missing tools update in Rules.mk
  - 3. SDOCM00101256 - Update M4 base address to 0x6330 0000

**Changes from 02.11.05.02 Release to 02.11.06.01 Releases:**

- i. Fixed following IRs:
  - 1. SDOCM00090630 – Documentation update: workaround for building on windows 7.
  - 2. SDOCM00092324 – EDMA\_DRV\_SAMPLE [C6A811x]: The cross bar event is not initialized for platform C6A811x (J5Eco).
  - 3. SDOCM00092758 – EDMA3 LLD:  
edma3\_drv\_bios6\_c6472\_st\_sample and  
edma3\_drv\_bios6\_c6472be\_st\_sample projects do not link.
  - 4. SDOCM00092759 – EDMA3 LLD:  
edma3\_drv\_bios6\_c6748\_st\_sample does not build.

**Changes from 02.11.05.01 Release to 02.11.05.02 Releases:**

- i. New Features in this release
  - 1. SDOCM00090449 – C6657 Platform addition in EDMA3LLD
  - 2. SDOCM00090675 – TCI6634 Platform addition in EDMA3LLD

**Changes from 02.11.04 Release to 02.11.05 Releases:**

- i. New Features in this release
  - 1. SDOCM00090258 – TI811X Platform addition in EDMA3LLD.
- ii. Fixed following IRs:
  - 1. SDOCM00088790 – Documentation update.

**Changes from 02.11.03 Release to 02.11.04 Releases:**

- i. New Features in this release
  - 1. SDOCM00088699 – Appleton (TCI6614) support in EDMA3 LLD.
- ii. Fixed following IRs:
  - 1. SDOCM00088023 – Warnings in building edma libs.

**Changes from 02.11.02 Release to 02.11.03 Releases:**

- i. New Features in this release
  - 1. TIDSP00012765 – Addition of TI816x-m3vpss and TI816x-m3video platform to EDMA3LLD.
  - 2. TIDSP00012766 – Addition of A8 support for TI816X in EDMA3 LLD
- ii. Fixed following IRs:

1. SDOCM00084073: SYS/BIOS version of LLD package should not require ti.sysbios.ipc which is deprecated and will be removed in SYS/BIOS 6.33
2. SDOCM00086386: getlibs in package.xs should search library based on device name
3. SDOCM00086391: Thread safety issue with EDMA
4. SDOCM00084227: Enhancement - provide PLATFORM specific libs: examples: targets
5. SDOCM00086397: Single default cfg file for multile cores in TI816X and TI814X in drv sample
6. SDOCM00086492: EMRH access done in edma3CCErrorHandler() for devices not having high register for EMR
7. SDOCM00086496: In EDMA3\_RM\_unregisterTccCb() driver tries to update array at invalid position
8. SDOCM00086934: same interrupt number is used for all TC error

#### **Changes from 02.11.01 Release to 02.11.02 Releases:**

- i. New Features in this release
  1. TIDSP00012625 – Addition of TI816x-m3vpss and TI816x-m3video platform to EDMA3LLD.
- ii. Fixed following IRs:
  1. SDOCM00080618: ti.platforms.evmTI816X and evmTI814X need to be supported
  2. SDOCM00080034: CC Base Address in TI814X configuration in ti/sdo/edma3/rm/src/configs is wrong
  3. SDOCM00081696: EDMA package gives error while including as XDC package
  4. SDOCM00081697: release build of EDMA3LLD build with GENERIC flag defined

#### **Changes from 02.11.00 Release to 02.11.01 Releases:**

- i. New Features in this release
  1. TIDSP00012604 – Addition of C66x targets and platforms to EDMA3LLD.
- ii. Fixed following IRs:
  1. SDOCM00078641: C66x support for generic RM library for Make based build of EDMA3LLD
  2. SDOCM00078808: EDMA LLD example fails for multi core run for TCI6486 target
  3. SDOCM00078797: Problems with using Generic RM library on EDMA3LLD

#### **Changes from 02.10.04 Release to 02.11.00 Releases:**

- i. New Features in this release



1. TIDSP00012597 – Support for Make based build is implemented.
- ii. Fixed following IRs:
  1. SDOCM00075906: EDMA3LLD release not appearing as option in the eclipse plug-in in CCSv4 when new release is installed
  2. SDOCM00074338: EDMA3 LLD for TI814X doesn't have pre-built lib for Elf targets
  3. SDOCM00078607: Same library files picked up for both SIM and EVM TI816x by the package.xs

**Changes from 02.10.03 Release to 02.10.04 Releases:**

- i. Implemented the following ECNs:
  1. TIDSP00012597 - Support for Make based build is implemented.
- ii. Fixed the following IRs:
  1. SDOCM00075906 - EDMA3LLD release not appearing as option in the eclipse plug-in in CCSv4 when new release is installed
  2. SDOCM00074338 - EDMA3 LLD for TI814X doesn't have pre-built lib for Elf targets
  3. SDOCM00078607 - Same library files picked up for both SIM and EVM TI816x by the package.xs

**Changes from 02.10.03 Release to 02.10.04 Releases:**

- i. Implemented the following ECNs:
  1. TIDSP00012497 - Support for the target C66X (ELF) in the Generic library of Resource Manager has been implemented.
- ii. Fixed the following IRs:
  1. SDOCM00074290 - EDMA3LLD should not ship config.bld in the 'packages\' folder
  2. SDOCM00074466 - Generic library in Resource Manager returns an error while calling EDMA3\_RM\_OPEN

**Changes from 02.10.02 Release to 02.10.03 Releases:**

- i. Implemented the following ECNs:
  1. TIDSP00012436 - Support for the TI816X Simulator for BIOS6 has been implemented.
  2. TIDSP00012435 - Support for the TI816X platform for BIOS6 has been implemented.
  3. TIDSP00012434 - Support for the C6472 & TCI6486 platform for BIOS6 has been implemented.
  4. TIDSP00012437 - Support for a "generic" platform in the Resource Manager for BIOS6 has been implemented.
  5. TIDSP00012461 - Support for the TI814X platform for BIOS6 has been implemented.
- ii. Fixed the following IRs:

1. SDOCM00069906 - CSL2\_DAT\_DEMO hangs in the \_getchannel function
2. SDOCM00074152 - Pulling some Fixes from BIOS5 EDMA3LLD to BIOS6 LLD
3. SDOCM00074153 - EDMA3LLD libraries for Nyquist are not building with BIOS 6.30.02.42
4. SDOCM00074184 - Warnings appear while building the libraires and example projects of EDMA3LLD with BIOS 6.30.02.42

**Changes from 02.10.01 Release to 02.10.02 Releases:**

- i. Implemented the following ECNs:
  1. TIDSP00012328 – Support for the OMAPL138 ARM platforms.

**Changes from 02.10.00 Release to 02.10.01 Releases:**

- i. Implemented the following ECNs:
  1. TIDSP00000000 – Support for the C6748 and OMAPL138 platforms.
- ii. Fixed the following IRs:
  1. SDOCM00068784 - The package.xs files should get the library extension from the xdc variable and should not be hard coded.

**Changes from 02.00.00 Release to 02.10.00 Releases:**

- i. Implemented the following ECNs:
  1. TIDSP00012004 - Migration to new BSD license has been implemented.
  2. TIDSP00012060 - Add TCI6498 support on BIOS6 has been implemented.
  3. TIDSP00012061 - Support for Big Endian platforms has been implemented.
  4. TIDSP00012094 - Linux installer of EDMA3 LLD has been implemented.
- ii. Fixed the following IRs:
  1. SDOCM00060737 - EDMA3 needs to show up as RTSC product in CCSv4

**Changes from 02.00.00 Release to 02.00.01 Releases:**

Patch release fixing IRs and implementing ECNs in EDMA3 Driver.