

EDMA3 Driver

Release version 01.11.03.XX

Release Notes

December 16, 2011

The product release notes in this document are for EDMA3 Driver, which is a part of the EDMA3 Low Level Driver package. EDMA3 Driver is a functional library providing APIs for programming, scheduling and synchronizing with EDMA transfers and many more. The EDMA3 Driver is made generic across SoCs and across Operating Systems.

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1 In This Release

This is the 01.11.03.XX release of EDMA3 Driver and contains libraries, sample initialization libraries, standalone sample applications and support documents.

This release contains sample OS adaptation layer for BIOS 5, which could be used by BIOS 5 based applications

2 System Requirements

This release requires the following products (apart from the EDMA3 LLD package):

- ❖ DSP-BIOS 5.41.11.38 or higher
- ❖ CCS 3.3.80.11 (service release 10)
- ❖ CCS 4.0.0.16 or higher (optional)
- ❖ Code Generation Tools 7.2.3
- ❖ XDC tool 3.23.00.32 or higher (optional)
- ❖ XDS 510 USB Emulator (Optional) – EVM has on board emulator
- ❖ Any of the supported platforms: DM644x, DM646x, DM643x, DM648, C6424, C6452, C6455, OMAP2430, OMAP25xx, OMAP3430, OMAP35xx, DRx40x, DM360, C6474, TCI6488, DA830, C6747, OMAPL137, DRA44x, DRx45x, C6748, OMAPL138, C6472 and TCI6486 EVMs.
- ❖ eBinder IDE – 1.7 (optional)
- ❖ PrKernel version 4 (optional)
- ❖ BSPs (optional)

3 Installation and Usage

- 1) Install the products mentioned in system requirements sections, as per instructions provided along with the products. Please note that sometimes the Code Composer Studio installation contains other components (DSP/BIOS, XDC and Code gen tools etc) and hence it is not required to install them separately.
- 2) Ensure that the BIOS_INSTALL_DIR in the environment variable is set to appropriate DSP/BIOS version. Check the environment variables – XDCPATH and XDCROOT, in case EDMA3 LLD is being used in RTSC environment; they should also point to the desired tool chain versions.
- 3) Install the EDMA3 LLD package (EDMA3_LLD_setupwin32_01_11_03_XX.exe (for Windows) / EDMA3_LLD_setuplinux_01_11_03_XX.bin (for Linux)) using the self-extracting installer.
- 4) EDMA3 Driver Source files are available in “edma3_llid_<CURRENT_VERSION>\packages\ti\sd\edma3\drv\” folder.
- 5) Build the EDMA3 Driver Project files in the build directory (edma3_llid_<CURRENT_VERSION>\packages\ti\sd\edma3\drv\build\) to build the debug/release library, for the required platform.
- 6) Sample libraries and sample project files are provided with the EDMA3 Driver and are in “edma3_llid_<CURRENT_VERSION>\packages\ti\sd\edma3\drv\sample\build” folder, in the platform specific folders.
- 7) EDMA3 Driver examples can be found in “edma3_llid_<CURRENT_VERSION>\examples\edma3_driver” folder, in the platform specific folders.

4 Un-installation

- 1) Uninstall the EDMA3 LLD package by using the file uninstall.exe (for windows; for linux, uninstall) in the package directory.
- 2) Un-install the products listed in system requirements as per instructions provided with the product (optional and at user's discretion)

5 Fixed In This Release

IR	Description
SDOCM00087501	Pulled fixes for IRs SDOCM00086496 and SDOCM00086391 from BIOS6 LLD
SDOCM00087504	edma3memcpy function does register writes byte wise
SDOCM00087072	EMRH access done in edma3CCErrorHandler() for devices not having high register for EMR

6 Known Issues

1.	Sample application on DM350 PrOS (Pre-Silicon DM360) platform fails.
Release Note Linking test case in the EDMA3 Driver sample application is not working properly, for DM350 PrOS (Pre-Silicon DM360) platform. The issue needs further analysis and will be fixed in the next release.	
Workaround None	
2.	EDMA3 hardware doesn't works properly in FIFO mode with all the controllers.
Release Note 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.	
Workaround None	
3.	Prebuilt RM and DRV libs are not provided for platforms DRX40X, DRX45X and DRA44X.
Release Note Before building the examples for platforms DRX40X, DRX45X and DRA44X, user should build the corosponding RM and DRV libs. This issue will be fixed in future release.	
Workaround None	

7 Revision history

Date	Author	Comments	Version
	Anuj Aggarwal	Modified it for EDMA3 package and added multiple instances capability.	0.2.0
Nov 14, 2006	Anuj Aggarwal	a) Modified it for more run time configuration. b) Made EDMA3 package OS independent.	0.2.1
Jan 16, 2007	Anuj Aggarwal	Critical section handling code modification. Uses semaphore and interrupts disabling mechanism for resource sharing.	0.2.2
Mar 6, 2007	Anuj Aggarwal	a) Renamed EDMA3_DVR to EDMA3_DRV. b) IPR bit clearing in RM ISR issue fixed. c) Sample application made generic.	0.3.0
Mar 23, 2007	Anuj Aggarwal	a) DMA/QDMA channel event missed issue fixed.	0.3.1
Apr 23, 2007	Anuj Aggarwal	a) New APIs to support POLL mode provided. b) API to set CC Register provided. c) Sample application made generic and more test cases added.	0.3.2
May 9, 2007	Anuj Aggarwal	a) MR# DPSP00007800 (Result of resource allocation is over-written by the semaphore release result in EDMA3 Resource Manager) Fixed. b) MR# DPSP00007803 (Exit from EDMA3_RM_allocContiguousResource () in case of error is incorrect) Fixed.	1.0.0
May 14, 2007	Anuj Aggarwal	a) MR# DPSP00007858 (Issue in EDMA3_DRV causes false missed events) Fixed.	1.0.0.1
June 18, 2007	Anuj Aggarwal	Made the EDMA3 package RTSC compliant.	1.0.0.02
July 13, 2007	Anuj Aggarwal	a) Changed the directory structure as per RTSC standard. b) MR# DPSP00008525 (Request for the EDMA3_DVR_setPaRAMField API handle the shift of newPaRAMFieldVal) Fixed.	1.0.0.03

September 14, 2007	Anuj Aggarwal	<ul style="list-style-type: none"> a) Moved the platform specific configuration to the Resource Manager. b) Modified the chaining API. c) Divided the sample app into sample initialization library and the standalone sample application. 	1.01.00.01
September 28, 2007	Anuj Aggarwal	<ul style="list-style-type: none"> a) Added support for DM6467. b) Fixed MRs (see Fixed in this release above). 	1.02.00.01
October 21, 2007	Anuj Aggarwal	<ul style="list-style-type: none"> a) C6452 support has been added in this release. Now C6452 applications can also be built in the RTSC environment. b) All the CCS PJT files now come under two flavors: one for the RTSC environment and the other for the non-RTSC environment. c) IOCTL interface has been added in the EDMA3 Driver. d) Fixed MRs (see Fixed in this release above). 	1.03.00.01
January 9, 2008	Anuj Aggarwal	<ul style="list-style-type: none"> a) Fixed MRs (see Fixed in this release above). 	1.03.01.01
January 28, 2008	Anuj Aggarwal	<ul style="list-style-type: none"> a) Implemented ECNs DPSP00009671, DPSP00009815 and DPSP00010035 (see New in this release above). 	1.04.00.01
March 20, 2008	Anuj Aggarwal	<ul style="list-style-type: none"> a) MRs DPSP00010071, DPSP00010187, DPSP00010479 and DPSP00010480 are fixed. b) Implemented ECNs DPSP00010463 and DPSP00010478 (see New in this release above). <p>See release notes for more information.</p>	1.05.00.01
November 4, 2008	Anuj Aggarwal	<ul style="list-style-type: none"> a) Added support for new platforms. b) IR SDOCM00049778 is fixed. <p>See release notes for more information.</p>	01.06.00.01
May 15, 2009	Anuj Aggarwal	<ul style="list-style-type: none"> a) Add support for new platforms: C6748, OMAPL138, DRA44x and DRX45x. 	01.07.00.01
July 9, 2009	Anuj Aggarwal	<ul style="list-style-type: none"> a) ECN# TIDSP00012004 (Migration to new BSD license) and TIDSP00011985 (Addition of new API EDMA3_DRV_disableLogicalChannel API in EDMA3 Driver) implemented. b) IRs# SDOCM00058021, 	01.10.00.01

SDOCM00058057, SDOCM00058147
and SDOCM00058401 fixed.
See release notes for more information.

November 2, 2009	Anuj Aggarwal	a) Added CCSv4 / BIOS5 support and linux installer in LLD. b) IRs SDOCM00061179 & SDOCM00061809 fixed. See release notes for more information.	01.11.00.02
December 31, 2009	Anuj Aggarwal	IR SDOCM00065465 (EDMA3 linux installer aborts when used in scripted mode) fixed.	01.11.00.03
June 14, 2010	Sundaram Raju & Hongmei Gou	a) Added support for C6472 and TCI6486 platforms. b) IRs SDOCM00063765 & SDOCM00071134 fixed. See release notes for more information.	01.11.01.04
March 1, 2011	Prasad Konnur & Nambiath Raghu	IR SDOCM00065465 (EDMA3 linux installer aborts when used in scripted mode) fixed.	01.11.02.05
December 16, 2011	Prasad Konnur	IRs SDOCM00087501, SDOCM00087504 & SDOCM00087072 fixed.	01.11.03.01

8 Appendix: Changes from last release

Changes from 01.11.02.05 Release to 01.11.03.01 Releases:

- i. Fixed the following IRs:
 - 1. SDOCM00087501 – Pulling some fixes from BIOS6 LLD to BIOS5 LLD
 - 2. SDOCM00087504 – edma3memcpy function does register writes byte wise
 - 3. SDOCM00087072 – EMRH access done in edma3CCErrHandler() for devices not having high register for EMR

Changes from 01.11.01.04 Release to 01.11.02.05 Releases:

- ii. Fixed the following IRs:
 - 1. SDOCM00050846 – Intermittant hang observed on one of the dsp core when data transfers are triggered on all the 3 cores.

Changes from 01.11.00 Release to 01.11.01 Releases:

- iii. Implemented the following ECNs:
 - 1. TIDSP00012376 - Adding support for platforms C6472 and TCI6486 in EDMA3 LLD BIOS5 package.
- iv. Fixed the following IRs:
 - 1. SDOCM00063765 – Assert goes off when requesting contiguous paRams from EDMA3 LLD.
 - 2. SDOCM00071134 - Access of High registers not present in C6748 causes "read violation exception".

Changes from 01.11.00.02 Release to 01.11.00.03 Releases:

- i. Fixed the following IRs:
 - 1. SDOCM00065465 – EDMA3 linux installer aborts when used in scripted mode.

Changes from 01.10 Release to 01.11 Releases:

- i. Implemented the following ECNs:
 - 1. TIDSP00012094 - Linux installer of EDMA3 LLD.
 - 2. TIDSP00012139 - Add CCSv4 / BIOS5 support in EDMA3 LLD product.
Note: Because of the addition of CCSv4 project files, the build-related environment (directory structure, relative paths in CCSv3 project files) has changed from the previous release. Users may need to update their build environment in case they are using EDMA3 LLD CCSv3 project files directly.
- ii. Fixed the following IRs:
 - 1. SDOCM00061179 – Device 6748 isn't listed in package.xs file of ti.sdo.fc.edma3.rm.
 - 2. SDOCM00061809 - Exception occurs when edma3deinit() API called.

Changes from 1.07 Release to 01.10 Releases:

- i. Implemented the following ECNs:
 - 1. TIDSP00011925 - Support for C6748 and OMAPL138 in EDMA3 LLD for BIOS 5.

Note: EDMA3 APIs `edma3OsProtectEntry ()` / `edma3OsProtectExit ()` (declared in `packages\ti\sd\edma3\rm\edma3_common.h` file) have been changed to accommodate the above said platforms which have multiple EDMA3 controllers in them. Users having their own custom implementations of these APIs are required to change them accordingly. Those who use the sample EDMA3 driver initialization libraries, coming along with the LLD release, would have no impact as the change has been taken care of.

2. TIDSP00011928 - Support for DRA44X and DRX45X in EDMA3 LLD.
- ii. Fixed the following IRs:
 1. SDOCM00058021 - EDMA 3 LLD Assumes ECM 7, 8, 9 and 10 are used by PSP drivers on BIOS OS.
 2. SDOCM00058057 - CCS project files for OMAPL138 sample libraries are missing
 3. SDOCM00058147 - Wrong TCF file for DRx40x EDMA3 Driver Sample Application
 4. SDOCM00058401 - Wrong platform name in the Jacinto-DDR tcf file

Changes from 1.06 Release to 01.07 Releases:

- i. Implemented ECNs (see New in this release above).
- ii. Fixed IRs (see Fixed in this release above).

Changes from 1.05 Release to 01.06 Releases:

- i. Implemented ECNs (see New in this release above).
- ii. Fixed IRs (see Fixed in this release above).

Changes from 1.04 Release to 1.05 Releases:

- i. Implemented ECNs DPSP00010463 and DPSP00010478 (see New in this release above).
- ii. Fixed MRs (see Fixed in this release above).

Changes from 1.03.01.01 Release to 1.04 Releases:

- i. Implemented ECNs DPSP00009671, DPSP00009815 and DPSP00010035 (see New in this release above).

Changes from 1.03.00.01 Release to 1.03.01.01 Releases:

- i. Fixed MRs (see Fixed in this release above).

Changes from 1.02.00.01 Release to 1.03.00.01 Releases:

- i. C6452 support has been added in this release. Now C6452 applications can also be built in the RTSC environment.
- ii. All the CCS PJT files now come under two flavors: one for the RTSC environment and the other for the non-RTSC environment.
- iii. IOCTL interface has been added in the EDMA3 Driver.
- iv. Fixed MRs (see Fixed in this release above).

Changes from 1.01.00.01 Release to 1.02.00.01 Releases:

- i. Added support for DM6467.
- ii. Fixed MRs (see Fixed in this release above).

Changes from 1.00.00.3 Release to 1.01.00.01 Releases:

- i. Moved the platform specific configuration to the Resource Manager.
- ii. Modified the chaining API.
- iii. Divided the sample app into sample initialization library and the standalone sample application.

Changes from 1.0.0.2 Release to 1.00.00.03 Releases:

- i. Changed the directory structure as per RTSC standard.
- ii. MR# DPSP00008525 (Request for the EDMA3_DVR_setPaRAMField API handle the shift of newpaRAMFieldVal) Fixed.

Changes from 1.0.0.1 Release to 1.0.0.02 Releases:

- a) Made the EDMA3 package RTSC compliant.

Changes from 1.0.0 Release to 1.0.0.1 Releases:

- a) MR# DPSP00007858 (Issue in EDMA3 DRV causes false missed events) Fixed.

Changes from 0.3.2 Release to 1.0.0 Releases:

- a) MR# DPSP00007800 (Result of resource allocation is over-written by the semaphore release result in EDMA3 Resource Manager) Fixed.
- b) MR# DPSP00007803 (Exit from EDMA3_RM_allocContiguousResource () in case of error is incorrect) Fixed.

Changes from 0.3.1 Release to 0.3.2 Releases:

- a) Poll mode support provided for the users who don't want to use the interrupt mechanism to receive the callback. New APIs are provided to check the transfer status, while working in Poll mode.
- b) New API to modify the Channel Controller registers is provided.
- c) Sample application is made more generic and new functions added to test the new APIs.

Changes from 0.3.0 Releases to 0.3.1 Releases:

- a) Event miss could occur on the DMA/QDMA Channel because of lack of mapping between the channel and TCC code. It is fixed after modifying the Resource Manager interface.

Changes from 0.2.2 Releases to 0.3.0 Releases:

- a) Renamed EDMA3_DVR to EDMA3_DRV in all locations (header files, source files, project files etc). Also, renamed the directory edma3\src\edma3_dvr to edma3\src\edma3_drv.
- b) IPR bit clearing in the EDMA3 resource manager ISR issue fixed. Now the IPR bit related to other resources NOT allocated by the resource manager would not be cleared.
- c) EDMA3 driver sample application is broken into multiple files for better understanding and easy porting across different SoCs and OSes.
- d) Common exhaustive Register Layer is now used for EDMA3 Channel and Transfer Controller, to make porting easier.