

DM814x EZSDK 5.05 Release Notes

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Easy Software Development Kit (EZSDK) 5_05_02_00 for the DM814x

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This is an Alpha release of the Easy Software Development Kit (EZSDK) 5.05 for the DM814x platform. This EZ SDK Software release gives developers the ability to evaluate the hardware and software capabilities of the DM814x platform. Developers will be able to evaluate the ARM Linux programming environment and easily utilize the hardware support for powerful DSP algorithms and multimedia acceleration.

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Documentation

- Latest up to the minute information and updates may be found on the [Texas Instruments Embedded Processors Wiki](#).
- The *Quick Start Guide* contains information on how to set up your EVM for an out of box demo showcase as well as for software development. It is located in the *docs/* folder in the EZ SDK along with other documentation.
- The *Software Developer's Guide* contains information on how to start developing software on the DM814x EVM and is located in the *docs/* folder in the EZSDK along with other documentation.

Components

The Linux EZSDK for DaVinci DM814x is a single package that includes the following components:

- Platform Support Package
 - ◆ Linux kernel 2.6.37
 - ◆ Boot loaders (u-boot)
- DSP Package
 - ◆ Codec Engine Framework
 - ◆ C6000 code generation tool chain
 - ◆ SYS/BIOS Real Time Operating System
 - ◆ SYS/Link Inter Processor Communication
 - ◆ Remote Processor Execute
- Graphics Package
 - ◆ Neon accelerated Qt application framework
 - ◇ Support for SGX Acceleration in QT (Engineering Release)
 - ◆ 3D Graphics Support
- Multimedia Package
 - ◆ OpenMAX IL libraries
 - ◇ H.264 Encode and Decode
 - ◇ MPEG4 Encode and Decode
 - ◇ VC-1 Decode
 - ◇ AAC-LC Decode
 - ◇ AAC-LC Encode (Requires separate codec download)
 - ◇ MP3 Decode (Requires separate codec download)
 - ◆ GStreamer libraries and plugins
 - ◇ GST-OpenMax
 - ◆ WLAN and Crypto Libraries
- Demos
 - ◆ OMTB - tool to easily create different OpenMAX IL component chains
 - ◆ Matrix GUI Launcher
 - ◆ Benchmarking applications

The Software Build of Materials can be found at http://processors.wiki.ti.com/index.php/Category:EZSDK_Software_BOM.

What's New

The following high-level features are new from EZSDK 5.04 product release:

- Bug Fixes

Details on previous releases and the features as they were introduced can be found at http://processors.wiki.ti.com/index.php/EZSDK_Roadmap

- This release is intended to fix the defects raised in system testing. Following IRs are addressed in this release.

SDOCM00077197	Bootargs (Linux Memory Requirement) required by VS and VC all core demo is not mentioned anywhere
SDOCM00078722	SDK 5009: Memory Map change requires header file editing
SDOCM00079655	Documentation: Release notes and User Guide issues
SDOCM00079845	SD and MMC card not working properly with the uImage and file system provided with the release
SDOCM00080160	lsmod is showing TI81xx_hdmi instead of module name (TI81xx_HDMI.ko). Not able to remove the module with rmmod TI81xx_HDMI
SDOCM00080767	3D Graphics demo: Chameleon, Coverflow and Shader has artifacts.
SDOCM00083196	Firmware unloading and loading for hdivps is not working
SDOCM00086709	Step missing to add edma3lld build in EZSDK overlay installer build instructions doc - results in build failure in omx
SDOCM00089069	Thin line is coming left side while booting under u-boot logo.
SDOCM00091024	Build Record for 5.04.00.07
SDOCM00091643	While booting error messages are coming for v4L2 after change the firmware from OMX.
SDOCM00093719	matrix GUI is not coming up and giving fatal error for VPSS drivers for SD card and NFS boot
SDOCM00093811	Running Gstreamer, creating OMX IL app, Codec Engine Example, display logo at boot sections are missing from SDG
SDOCM00093812	Graphics Sdk examples are not executing.
SDOCM00093813	RPE examples are not executing as per the RPE user guide
SDOCM00084221	centaurus QSG document need update
SDOCM00095475	Default Memory map needs to be modified for providing more heap to video M3. (3 1080p, or 4 720p decode apps)
SDOCM00096233	make of linux-devkit and dsp-devkit are failing
SDOCM00096229	Software Development Guide(SDG) update is pending
SDOCM00096352	Software Development Guide(SDG) is not updated for how to change the display from HDMI to LCD
SDOCM00096314	Overlay.Makefile all is failing from top level overlay make of EZSDK
SDOCM00079662	Flashing: Unable to flash u-boot with nand-flash-writer.out provided with release
SDOCM00093131	

Gstreamer playbin is not using TI MPEG2 decoder while decoding Linaro MPEG2 streams

Installation and Usage

The *Software Developer's Guide* contains information on how to start developing software on the DM814x EVM and is located in the *docs/* folder in the EZSDK along with other documentation.

Host Support

This release supports Ubuntu 10.04 LTS 32-bit, Ubuntu 11.10 32 bit and Ubuntu 12.04 LTS 32-bit as your development host.

Dependencies

The EZSDK requires the CodeSourcery toolchain, a link is provided on the EZSDK 5.05 Release Page or provided with a CD in your EVM kit.

Device Support

This EZSDK supports the DM814x EVM.

Validation Information

This release has been tested with ES 2.1 Silicon with EVM Base board Revision-B and an Expansion IO Card Revision-A having an LCD panel attached.

Upgrade and Compatibility Information

By default, this version of the SDK is designed to work out of the box with a Touchscreen LCD on an Expansion IO Card. If you do not have this card connected to the DM814x/AM387x EVM, then the SDK does support changing HDMI as the default display. Please run the following steps on the target

```
target # cd /usr/share/ti/ti-media-controller-utils
target # ./change_display hdmi
```

Now power cycle your board. Once the board comes up it will be setup to use HDMI by default. For more information please read the *Software Developer's Guide*.

Changes to Uboot

Uboot needs to be updated from the previous release as this SDK brings in new versions of the PSP U-Boot.

Filesystem Upgrade

It is recommended that the filesystem from this SDK release is used as it brings in the newer linux libraries, new kernel objects and updated demo applications.

NAND Flash Changes

1. The default ECC scheme used across Uboot, Kernel and File System is changed to 8-bit BCH ECC.
2. The release supports both 8 and 16 bit NAND flash. To use 8-bit NAND, set the CS0BW (buswidth) switch on the EVM to OFF state. To use 16-bit NAND, set the CS0BW (buswidth) switch on the EVM to ON state.

Please read the PSP Release notes for details on the NAND Flash changes. Note that you must to change CS0BW switch to ON state in order to access the NAND on the EVM.

Note: CS0BW switch is the 8th Pin on the EVM Boot Mode Switch.

Known Issues and Limitations

Known Issues

1. SDOCM00073168 - SDK installer deletes the entire contents of the install folder when installation is cancelled (Cloned from DVSDK 4.0).
2. SDOCM00085969 - Syslink Sample applications do not run out of the box. Workaround - The BIOS dmtimer has to be reconfigured for 20MHz. The samples need to be rebuilt and run.
3. SDOCM00085970 - Codec Engine Example applications do not run out of the box. Workaround - The BIOS dmtimer has to be reconfigured for 20MHz. The examples need to be rebuilt and run.
4. SDOCM00086122 - QT Multi: Driver does not repaint all regions. As a result when using multiple graphics planes, only one will be refreshed. No Workaround exists.
5. SDOCM00087096 - Unable to display on some TVs at 1080i. Workaround none exist.
6. SDOCM00091274 - Build is failed for components_linux and components_dsp after moving the devkits.
7. SDOCM00092411 - [GStreamer+MPEG2+MP3] For specific stream system hangs if played with audio pipeline.
8. SDOCM00092104 - [GStreamer+MPEG2] Specific stream content does not play back to back (random hangs observed).
9. SDOCM00096411 - md5sum not matching for dsp devkit component - integrity check failed for EZSDK installation.
10. SDOCM00077294 - [VC Demo] System hangs if SATA is unplugged and plugged back while VC all core demo is executing
11. SDOCM00078374 - Ext3 filesystem is slow in performance
12. SDOCM00079405 - system hang while running the 3D demo OGLESFilmTV
13. SDOCM00079603 - DEI component port enable/disable not supported
14. SDOCM00081092 - OMX component does not throw error if set the chroma format to 420SP for VFDC input and Scaler output.
15. SDOCM00081273 - Error is coming while execution , if component moved from loaded to idle state with port disabled.
16. SDOCM00081275 - IncorrectStateTransition is coming after idle->idle->loaded state transition when ports are disabled.
17. SDOCM00081278 - Target hangs if port enables and disable multiple times in idle and exec state.
18. SDOCM00081654 - Simultaneously running multiple applications having its own Shared region usecase is always crashing
19. SDOCM00082394 - VENC OMX component crashes when src FQ is connected to a COMP with a larger nBufferCountActual than default for VENC
20. SDOCM00083407 - Quality of encoded stream is not good (blocky) using Capture encode IL Client

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21. SDOCM00083421 - Teardown: Target hangs if component disabled port is enable in idle and exec state.
22. SDOCM00083422 - Teardown: EVM hangs if Port enabled in Idle and Exec state for scalar component
23. SDOCM00083496 - Target hangs after 502 iteration (8 hours) for (dual display encode decode) oms script.
24. SDOCM00083510 - 3D demos throws the message "SGX Hardware Recovery triggered" and quality is not good(inconsistent)
25. SDOCM00083928 - [GST_REL_01_00_00] stream having only I-frame is not played and system hangs
26. SDOCM00084166 - STRESS:Jerkiness observed for dual display scenario after 12 hours.
27. SDOCM00084264 - OMX State Transitions: re-transition to 'exec' state hangs for loaded=>idle=>exec=>idle=>exec=>idle=>loaded' transit
28. SDOCM00084270 - OMX_ErrorBadParameter is coming if set the OMX_IndexParamVideoAvc index values.
29. SDOCM00084748 - Build errors after moving the devkits
30. SDOCM00085349 - [DEV_GST_00_02_00 Beta] [MP4+H264+AACLC] overnight loop playback make system hang
31. SDOCM00086208 - Audio encode IL client for capture scenerio will not exit and also the captured volume is very very low
32. SDOCM00087060 - Mpeg2 Decode -> SC->Display, display is jerky (quality degradation).
33. SDOCM00087126 - Stress test case: Audio decode dump will hang after ~15min while running 3D demo parallely
34. SDOCM00091274 - Build is failed for components_linux and components_dsp after moving the devkits.
35. SDOCM00091307 - STRESS:Jerkiness observed for H264 stream after 13 hours
36. SDOCM00091338 - Decode display IL client Crash while executing multiple times from SATA Hard disk.
37. SDOCM00091722 - Stability issue,If i/p capture cable is unplug and plug-in multiple time, Assertion is coming for next demo on DM8168 PG 1.1.
38. SDOCM00091883 - Thin Client HP - SIGSEGV Error on repeated GST-OMX pipeline startup/shutdown
39. SDOCM00092005 - Customer Issue - RGB24 Capture using V4L2 results in an overflow
40. SDOCM00092104 - [GStreamer+MPEG2] Specific stream content does not play back to back (random hangs observed)
41. SDOCM00092115 - [GStreamer+MPEG2+AC3] Some streams does not play till end of stream(exits after 1 or 2 frames)
42. SDOCM00092200 - Gstreamer quality issue for a specific stream
43. SDOCM00092411 - [GStreamer+MPEG2+MP3] For specific customer stream system hangs if played with audio pipeline
44. SDOCM00092520 - Gstreamer playbin: JPEG video streams issues
45. SDOCM00092574 - [AVI+H264+MP3] Not able to play some .avi files using playbin
46. SDOCM00092703 - Gstreamer: H264 elementary streams are decoded and displayed at faster rate.
47. SDOCM00092714 - Gstreamer: MP4 streams with resolution 2048x872 did not play
48. SDOCM00093394 - Audio Decode IL client(MP3) not able to decode Mpeg1 layer1,2,3 files
49. SDOCM00093790 - OMX application can not be debugged with gdb
50. SDOCM00094084 - Cache enable on A8 on EZSDK (FQ)
51. SDOCM00094353 - diofq_frameq_create() enters infinite loop if memory not available rather than returning error
52. SDOCM00095156 - VFPC-TXSC does not handle buffer passing correctly if input and output are same size

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53. SDOCM00095335 - Memory leak of 128 bytes in configureUIALoggerClient
54. SDOCM00095949 - MJPEG Parser is not available in SDK package, so MJPEG decode example does not decode mjpeg stream.
55. SDOCM00096009 - DM8148 : Jerky video output with GStreamer and DEI for an interlaced stream
56. SDOCM00096174 - snd_pcm_avail() returns a negative number of available words due to non-sequential value read by edma_get_position()
57. SDOCM00096317 - Component state transition fails when moved from idle to idle, execute to loaded and execute to execute with port enabled
58. SDOCM00096318 - v4l2 capture example saLoopBack is failing
59. SDOCM00096344 - Concurrency Execution between V4L2 example saMmapDisplay + video omx IL client application + audio omx IL client fails
60. SDOCM00096373 - Over night Loading and unloading the modules (/etc/init.d/load-hd-firmware.sh stop/start) fails.
61. SDOCM00096459 - syslink messageq examples fails after running in loop for 1 hour

Limitations

1. The EZSDK does not ship with a full Graphics SDK installation but only contains the Kernel sources, OpenGL libraries and header files. As a result it is not possible to build the OpenGL Demos from within the EZSDK. To get the full Graphics SDK which includes demos, you can download the latest version from http://software-dl.ti.com/dsps/dsps_public_sw/sdo_sb/targetcontent/gfxsdk/latest/index_FDS.html
2. The Multimedia demo for Decode and Display on LCD is tuned for the LCD. If the target filesystem is booted in HDMI display mode and this demo is run then the display will not be shown correctly. This limitation is by design and this demo should be run only when the display is set to LCD mode.
3. This release has a degradation in the overall out of the box boot time of the EZSDK. Please see the Wiki topics on Fast Boot and Fast Boot Streaming on TI's Processor's wiki on more information on how to improve the boot time.

Errata

Additional Errata information is maintained on TI's Processor Wiki at http://processors.wiki.ti.com/index.php/Category:EZSDK_Errata.

Versioning

This is an Alpha release (EZSDK 5_05_02_00) for DM814x.

Technical Support and Product Updates

Latest up to the minute information and updates may be found on the [Texas Instruments Embedded Processors Wiki](#).

The [Embedded Software Linux forum](#) is a forum for discussing the Linux EZSDK development. New versions of the EZSDK are also announced here.

The [EZSDK download page](#) is a top level page for finding the latest EZSDK releases for all TI platforms.

Additional Information

1. EZ SDK FAQ is available and will contain updated information on questions - http://processors.wiki.ti.com/index.php/EZ_SDK_FAQ
2. Embedded Processor Wiki - http://processors.wiki.ti.com/index.php/Main_Page
3. Open Source Wireless Connectivity Wiki
[http://processors.wiki.ti.com/index.php/ARM Processor Open Source Wireless Connectivity](http://processors.wiki.ti.com/index.php/ARM_Processor_Open_Source_Wireless_Connectivity)
4. WLAN Demos:
 1. WLAN Station
[http://processors.wiki.ti.com/index.php/Open Source Wireless Connectivity WLAN and Bluetooth](http://processors.wiki.ti.com/index.php/Open_Source_Wireless_Connectivity_WLAN_and_Bluetooth)
 2. WLAN Access Point
[http://processors.wiki.ti.com/index.php/Open Source Wireless Connectivity WLAN and Bluetooth](http://processors.wiki.ti.com/index.php/Open_Source_Wireless_Connectivity_WLAN_and_Bluetooth)
 3. WiFi Direct
[http://processors.wiki.ti.com/index.php/Open Source Wireless Connectivity WLAN and Bluetooth](http://processors.wiki.ti.com/index.php/Open_Source_Wireless_Connectivity_WLAN_and_Bluetooth)

E2E Forum Support

1. E2E Linux Forum - <http://e2e.ti.com/support/embedded/f/354.aspx>
2. E2E DaVinci Processor Forum -
http://e2e.ti.com/support/dsp/davinci_digital_media_processors/default.aspx
3. E2E WLAN Applications Forum - http://e2e.ti.com/support/low_power_rf/f/307.aspx