

DM816x EZSDK 5.03 Release Notes

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Easy Software Development Kit (EZSDK) 5_03_00_09 for the DM816x

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This is an Alpha release of the Easy Software Development Kit (EZSDK) 5.03 for the DM816x platform. This EZ SDK Software release gives developers the ability to evaluate the hardware and software capabilities of the DM816x 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 DM816x EVM and is located in the *docs/* folder in the EZSDK along with other documentation.

Components

The Linux EZSDK for DaVinci DM816x 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
- 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)
- 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 5.02 product release:

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- Support for DM816x ES2.0 Silicon
- Newer versions of underlying components
- New Features
 - ◆ Multiformat encoding support (H264, MPEG4 encoder)
 - ◆ Multiformat decoding support (H264, MPEG2, MPEG4 and VC1 decoder)
 - ◆ Audio encoding (AAC-LC)
 - ◆ Audio Capture and Encode with Mic
 - ◆ Audio decode to playback through ALSA drivers
 - ◆ Smaller installer size
 - ◆ Boot Time optimizations
 - ◆ Support for all codec parameters at the OpenMax layer

This release fixes the following issues.

1. SDOCM00066178 - System crashing for multiple "loaded -> idle -> Exec -> idle -> loaded" state transitions
2. SDOCM00081719 - OMX_Allocatebuffer calls on VFDC input port lead to the component in hang state
3. SDOCM00083074 - VFCC component multiple state changes between idle and execute causes hang
4. SDOCM00083706 - Make clean doesn't work and softlinks from omx_base.h and omx_vlpb.h
5. SDOCM00084968 - While booting some time "no such file, bad file descriptor" is coming for syslinkipc_MultiProc, syslinkipc_HeapBufMP etc.

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

Installation and Usage

The *Software Developer's Guide* contains information on how to start developing software on the DM816x EVM and is located in the *docs/* folder in the EZSDK along with other documentation.

Host Support

This release only supports [Ubuntu 10.04 LTS 32-bit](#) as your development host.

Dependencies

The EZSDK requires the CodeSourcery toolchain, a link is provided on the EZSDK 5.03 Release Page or provided with a CD in your EVM kit.

Device Support

This EZSDK supports the DM816x EVM.

Validation Information

This release has been tested with EVM Base board Revision-C and Expansion IO Card. This Release has been verified on both ES1.1 and ES2.0 versions of the DM816x Silicon.

Upgrade and Compatibility Information

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.

DDR2 EVMs Compatibility

This release supports for EVMs with DDR3 memory by default. If you have a DDR2 EVM, then this release will not work out of the box.

Special instructions for DDR2 EVMs

1. The U-Boot needs to be rebuild for DDR2 EVMs. Please refer the *Software Developers Guide* for instructions on how to update U-Boot and rebuild it.
2. In the target filesystem move `/etc/rc5.d/S10load-hdvicp2-firmware.sh` to `/etc/rc5.d/K10load-hdvicp2-firmware.sh`. This ensures that HDVICP2 Hardware is not loaded.

Expansion IO Card Requirement

Multimedia applications will not run if you have an older DDR2 EVM or a DDR3 EVM without a Expansion IO (EIO) Card. To run the Multimedia demos on the DDR3 EVM you will need the EIO Card affixed to the lower part of the Base EVM.

Removal of C6EZ Tools

This release does not contain C6EZTools such as C6Accel and C6Run. The underlying DSP Libraries (DSPLib, MathLib, and IMGLib) are not removed. Corresponding DSP Demos - Signal Analyzer and DSP Benchmarks are not present.

Known Issues and Limitations

Known Issues

1. SDOCM00078655 - **USB mouse devices are not always recognized on bootup on DDR3 EVM. Workaround - The board needs to be power cycled by holding down the reset button for a five seconds.**

2. 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.

Limitations

1. **External video capture is only supported through the TVP7002 video decoder via I2C1. Customers are required to maintain the same configuration on their boards. The EZSDK will support additional capture devices in future releases. Customers will also be able to add capture devices of their choice in future releases.**
2. **The Media Controller HDVICP2 firmware initializes and configures the EIO (Expansion IO) card. Existing Integra/Sitara customers with DDR2 or DDR3 boards and who do not have the EIO card need to manually remove the initialization for HDVICP2 from linux initscripts.**
3. 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 no longer 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/dsp/dsp_public_sw/sdo_sb/targetcontent/gfxsdk/latest/index_FDS.html

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_03_00_09) for DM816x/C6A816x/AM389x.

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

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