

DM816x EZSDK 5.04 Release Notes

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Easy Software Development Kit (EZSDK) 5_04_00_11 for the DM816x

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This is an Alpha release of the Easy Software Development Kit (EZSDK) 5.04 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
 - ◇ Remote Processor Execute
 - ◆ 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)
 - ◆ GStreamer libraries and plugins
 - ◇ GST-OpenMax
- 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 5.03 product release:

- Bug Fixes
- Newer versions of underlying components
- Support for UBoot Logo
- Support for 688M linux memory via two holes
- Inclusion of RPE for Lightweight DSP Access from Linux

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 supports [Ubuntu 10.04 LTS 32-bit](#) and [Ubuntu 11.10 32 bit](#) as your development host.

Dependencies

The EZSDK requires the CodeSourcery toolchain, a link is provided on the EZSDK 5.04 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.

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. 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.**
3. 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.
4. SDOCM00087104 - Streams with non-standard height cannot be displayed without scaling. Workaround - Decoded video must be scaled to a standard height and then displayed.
5. SDOCM00087096 - Unable to display on some TVs at 1080i. 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/dsps/dsps_public_sw/sdo_sb/targetcontent/gfxsdk/latest/index_FDS.html
4. 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_04_00_11) 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