



OMAP3530 Digital Video Software Development Kit (DVSDK)

DVSDK 3.00.00.40

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Important Note: Users must install the OMAP3530 DVSDK in order to access certain documentation hyperlinks in this document.

Introduction

This Linux DVSDK Software release for OMAP3530 and OMAP3525 gives developers the ability to evaluate the hardware and software capabilities on OMAP35x DVEVM platform and to begin development using the DSP and video accelerators available on OMAP3530 and OMAP3525

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Features Supported In Current Release

This DVSDK release includes support for OMAP3530 and OMAP3525 with the following features:

- Alignment with Linux Platform Support Package (PSP) GIT release v02.01.02
- Support for OMAP35x ES3.1 Silicon version with 256MB LPDDR
- XDM 1.0 Codecs from TI.
 - ◆ Audio: AAC LC/HE Decoder
 - ◆ Image: JPEG Encoder/Decoder
 - ◆ Speech: G.711 Encoder/Decoder

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- ◆ Video: H.264 BP Encoder/Decoder, MPEG4 SP Encoder/Decoder, MPEG2 Decoder
- Backward compatible with OMAP35x ES2.1 Silicon version with 128MB LPDDR.
- Digital Video Test Bench: Test bench for evaluating various codecs configurations and Linux PSP.
- The MFP package, DSP Link, DVTB and codec servers are built with Linux PSP GIT release v2.01.02
- DVSDK Decode Demos
 - ◆ Standard definition decode and display
 - ◆ Display on on-board LCD or external monitor over DVI interface
 - ◆ On-board keypad based input interface
- DMAI Examples for file based decode and file based encode
- This update can be installed independently of earlier releases

Features Roadmap

This section outlines the OMAP3530 and OMAP3525 DVSDK feature roadmap. Plans are subject to change pending notification.

- Custom daughter card support.

What's New

1. Linux PSP updated from OMAP35x Linux PSP GIT v2.01.01 (Linux kernel version 2.6.29-rc3) to OMAP35x Linux PSP GIT v2.01.02 (Linux kernel version 2.6.29-rc3)
2. DVSDK Demos and DMAI integrated with the OMAP35x Linux PSP GIT v2.01.02
3. MFP updated from v2.23.01 to v2.24 and validated with OMAP35x Linux PSP GIT v2.01.02
4. DSP Link v1.61.03 validated with OMAP35x Linux PSP GIT v2.01.02
5. DVTB Integrated with OMAP35x Linux PSP GIT v2.01.02
6. Codec combos:
 - a. Standalone Codec Server
7. Codec Version Details
 - a. AAC HE Decoder version 1.30.01.000
 - b. MPEG4 Decoder version 2.00.010
 - c. H264 Decoder version 2.01.005
 - d. MPEG2 Decoder version 2.00.009
 - e. JPEG Decoder version 2.00.005
 - f. MPEG4 Encoder version 2.01.007
 - g. H264 Encoder version 2.01.013
 - h. JPEG Encoder version 2.01.005
 - i. G711 Encoder version 1.12.00.000
 - j. G711 Decoder version 1.12.00.000

Migration Guide

Refer

http://ap-fpdsp-swapps.dal.design.ti.com/index.php/OMAP35x_DVSDK_Beta2_to_GA_Migration_Guide for information about migrating from beta2 release to GA.

What's broken in this release

NTR

Documentation

- [OMAP3530 DVSDK Getting Started Guide](#) - Hardware and software overview, including how to run demos, install software, and build the demos.
- [BIOS Utilities](#) .
- [Contiguous Memory Allocator](#).
- [Codec Engine Release Notes](#).
- [Decode Demo Information](#).
- [DaVinci Multimedia Application Interface \(DMAI\) Release Notes](#).
- [Digital Video Test Bench \(DVTB\)](#).
- [Framework Components](#).
- [XDAIS Release Notes](#).

DVSDK Package Contents

The DVSDK contains the following components:

biosutils_1_01_00	BIOS Utilities
linuxutils_2_24_02	Contiguous memory allocator for Linux
codec_engine_2_24	The Codec Engine provides a framework for creating and interacting with multimedia codecs
ceutils_1.06	RTSC Package Wizards
cg_xml_v2_12_00	CG XML Utilities
dvsdk_demos_3_00_00_12	Demo applications that illustrate usage of Linux drivers and codecs
dmai_2_00_00_03	DaVinci Multimedia Application Interface
dvtb_3_00_016	Digital Video Test Bench (DVTB) is an interactive application for evaluating codec performance
dsplink_1_61_03	Foundation software for the inter-processor communication across the GPP-DSP boundary.
framework_components_2_24	Framework Components is a collection of framework-independent utility libraries which other software frameworks can build upon.
kernel binaries	Linux PSP specific prebuilt .ko files
xdais_6_24	xDAIS product contains the DSP Algorithm Interface Standard specification and related documentation and examples.

The DVSDK depends on the following components:

OMAP35x-PSP-SDK-02.01.02.09	Linux Platform Support Package. Includes Linux kernel, device drivers, and bootloader with boot support from NAND and Ethernet.
cs1omap3530_1_00_01	Codecs for decoding AAC, MPEG4, etc.
bios_5_33_05	Stand-alone DSP/BIOS.
xdctools_3_15_01_59	TI XDC tool.
6.0.16	TI C6x CodeGen tools.

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In addition, different types of Linux Target File Systems are supplied as part of the DVSDK install, each containing Linux runtime tools. Please refer to the Getting Started Guide for more details.

Installation and Usage

Please follow the [OMAP3530 DVSDK Getting Started Guide](#) for detailed installation and usage instructions.

Upgrade and Compatibility Information

The OMAP3530 DVSDK release is independently installable. No upgrade instructions are available with this release.

Host Support

This release supports installation and development on Linux Redhat 4 workstations.

Dependencies

The only known dependencies at this time are Code Composer Studio 3.3, a compatible emulator, and the OMAP35xx CCS 3.3 Chip Support Package. You can access the CSP externally via the Update Advisor site, https://www-a.ti.com/downloads/sds_support/ChipSupportPackages.htm. These are needed for initial (or recovery) flashing of the bootloader (UBL) and U-Boot. As long as these components remain functional, CCS 3.3 is not required.

If you are using an SDI emulator please check the SDK link <http://support.spectrumdigital.com/index.html?osCsid=5f85615239c48ed88e27003660a76dfd> for the latest drivers to enable CCS setup.

mkfs.jffs2 utility is required to build a new NFS image, this may be downloaded from <http://sources.redhat.com/jffs2/>

Device Support

This release supports the Texas Instruments OMAP3530 and OMAP3525 SoC as well as the OMAP35x Evaluation Module (EVM).

Validation Information

A sanity test of the OMAP3530 and OMAP3525 DVSDK build 3_00_00_40 was performed before release to the system test team. The sanity test covered the following tests. The validation is done on OMAP35x EVM.

- Check for the completeness and correctness of the installation of DVSDK package.
- Rebuilding the DVSDK software and check for any build problems.
- Rebuilding the DVTB software and check for any build problems.
- Make use of the pre-built NFS and test the decode demo functionality.
- Check for video playback on LCD and audio playback using headphones.
- Check if pause and resume works.
- Check if stop and play from stop works.
- Check the exit of the demo application.

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- Flash the pre-built target file system and run the decode demo.

Exceptions and Known Issues

Refer

http://ap-fpdsp-swapps.dal.design.ti.com/index.php/OMAP35x_DVSDK_Build_v3.00.00.40_Known_Issues_and_Lim

Defects Fixed

Refer

http://ap-fpdsp-swapps.dal.design.ti.com/index.php/OMAP35x_DVSDK_Build_v3.00.00.40_Known_Issues_and_Lim

Limitations

Refer

http://ap-fpdsp-swapps.dal.design.ti.com/index.php/OMAP35x_DVSDK_Build_v3.00.00.40_Known_Issues_and_Lim

Special Notes

- The decode demo does not resize D1 decoded images to VGA before displaying it on the on-board LCD. It performs cropping at the edges.
- The out-of-the-box, pre-built DVSDK decode demo does not support decode of MPEG2 MP video and JPEG image streams. To evaluate these decoders, use either the Digital Video Test Bench (DVTB) or the Davinci Multimedia Application Interface (DMAI). Please refer to the user guides of these modules for more information.
- The default video output display is the on-board LCD.
- The DVSDK release does not contain the MP3, but the productized version of this decoder is available. If interested, kindly download the codec from the DVSDK 3.00 download page or contact the DVSDK support mailing list for more information. Refer [http://wiki.davincisp.com/index.php?title=How to Integrate new codecs into DVSDK](http://wiki.davincisp.com/index.php?title=How_to_Integrate_new_codecs_into_DVSDK) to integrate the MP3 Codecs with the existing Codec Combos.
- While using DVTB to test different codecs with various parameter configurations, it is important to change the loadmodules.sh to allocate the CMEM pools as per the configuration used. However, for most test cases, the loadmodules.sh provided with the DVSDK will work.
- In order to experience the demos and examples that comes with OMAP3503 SDK, please refer to the OMAP3503 SDK Getting Started Guide from https://www-a.ti.com/extranet/cm/product/omapsw/dspswext/general/tmdxevm3503_omap_evm.shtml.
- In order to experience the demos and examples that comes with OMAP3530 DVSDK, please refer to the [OMAP3530 DVSDK Getting Started Guide](#).
- The mkfs.jffs2 may be downloaded from <http://sources.redhat.com/jffs2/>.
- The PSP document incorrectly refers to the omap codesourcery 2008q1 toolchain for build. The PSP images were actually built using the omap codesourcery G++ lite 2008q3-41. The PSP documents will be updated to correct this in the next release.

Technical Support and Product Updates

Please register your EVM serial number as instructed on the printed Read Me 1st Card in order to download the updated software release as soon as it becomes available.

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- For questions and support on the OMAP3530 DVSDK, please e-mail omap3530_dvevm_beta@list.ti.com.
- Please be sure to read the Digital Video Software Development Kit (DVSDK) release notes, printed documentation and Getting Started Guide for general information.
- Check for OMAP3530 software updates at www.ti.com/omapsoftwareupdates. This site provides the latest software and device support. To access this site, you must register your EVM first.
- A developer wiki site is available at http://wiki.davincidsip.com/index.php?title=Main_Page. For information on OMAP35x, search for OMAP35x in the google toolbar embedded in the page. User contributions are encouraged.