DRA7xx GLSDK 7.01.00.03 Release Notes

Generic Linux Software Development Kit (GLSDK) 7.01.00.03 for DRA7xx

July 3, 2015

This is the Beta release of the Generic Linux Software Development Kit (GLSDK) for the DRA7xx platform. This GLSDK Software release gives developers the ability to evaluate the hardware and software capabilities of the DRA7xx platform.

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Documentation

- Latest up to the minute information and updates may be found on the Texas Instruments Processors Wiki (http://processors.wiki.ti.com/index.php/Main_Page).
- The *Quick Start Guide (http://downloads.ti.com/infotainment/esd/jacinto6/glsdk/latest/exports/DRA7xx_EVM_Quick_Start_Guide.pdf)* 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 GLSDK along with other documentation.
- The *Software Developer's Guide (http://processors.wiki.ti.com/index.php/DRA7xx_GLSDK_Software_Developers_Guide)* contains information on how to start developing software on the DRA7xx and is located in the *docs/* folder in the GLSDK along with other documentation.

Components

The Linux GLSDK 7.01.00.03 release package for DRA75x/DRA72x includes the following components:

- U-boot support (2014.07)
  - Boot from: SD card, eMMC (FAT load), QSPI.
  - tftp, dhcp
- Linux kernel 3.14
  - FS Media: SD card, eMMC, NFS
  - USB Host: Isochronous A/V, HID, MSC
  - USB 3.0 Host: MSC
  - USB Peripheral: NCM Gadget
  - UART, I2C, QSPI, Ethernet
  - VIP (V4L2, DMABUF)
  - OV1063x, TVP5158 and FPD3 serdes drivers (i2c client, v4l2 subdev)
  - VPE (V4L2 M2M, DMABUF)
  - DSS (LCD, HDMI)
  - Audio playback and capture
  - WiLink 8 (WLAN/BT)
  - MPU DVFS, AVS Class 0, ABB
  - RTC
- Multimedia
  - H.264, MPEG2, MPEG4 & VC1 decoders @ 1080p60
  - MJPEG decoder
  - H.264, MPEG4 encoders
  - Gstreamer plugin for video decode acceleration
  - Gstreamer plugin for video encode acceleration
  - Gstreamer plugin for video processing acceleration (using VPE)
  - Gstreamer plugin for KMS display sink
  - Gstreamer plugin for Wayland sink
  - Gstreamer plugin for video capture (using VIP)
  - AAC audio codec (ARM based, open-source)
  - DSP-side DCE interface for custom codec integration
- Graphics
  - 3D graphics acceleration (OpenGL ES 2.0)
  - Wayland, with Weston compositor, multiple display support
- Frameworks
  - BIOS (IPU2, SMP-only)
  - DCE (IPU2)
  - IPC 3.x
  - OMAPDRM
- Demo applications
  - Single camera capture -> display demo using native VIP & DSS drivers
  - Dual-decode demo with one display on HDMI and other on LCD (VIDDEC3 interface)
  - Dual-decode demo on single display (Wayland) through Gstreamer
  - Dual-decode demo on two displays (Wayland) through Gstreamer
  - Video capture and encode demo through Gstreamer
  - Video capture and display pass through demo through Gstreamer

The Software Build of Materials is deprecated, please look at the repo manifest file and yocto layers for details.

What's New

Changes from GLSDK v7.0.00.04:

- Multimedia
  - Gstreamer decoder support for H264 Level 5 streams
  - Playbin picks up gst vpe plugin for de-interlacing
  - Mouse drag and drop support in gst waylandsink
- ALSA
  - eDMA support for McASP peripherals
  - JAMR3 sound card
- Kernel & U-boot
  - IOdelay configuration support for MMC in kernel
  - IOdelay configuration support for all peripherals in u-boot

Installation and Usage

The *Software Developer's Guide (http://processors.wiki.ti.com/index.php/DRA7xx_GLSDK_Software_Developers_Guide)* contains information on how to start developing software on the DRA7xx and is located in the *docs/* folder in the GLSDK along with other documentation.

Host Support

This release supports Ubuntu 12.04 LTS (http://www.ubuntu.com) as your development host.

Dependencies

The GLSDK requires the Linaro toolchain, more information is there in the *Software Developer's Guide (http://processors.wiki.ti.com/index.php/DRA7xx_GLSDK_Software_Developers_Guide)*

Device Support

This GLSDK release supports the DRA7xx EVM and has been validated on the following boards:

- DRA75x Rev-H EVM
  - JAMR3 Apps board
  - 10" OSD LCD display
  - PG 2.0 Silicon
- DRA75x Rev-G EVM
  - JAMR3 Apps board
  - 10" LG LCD display
- DRA72x Rev-B EVM

The DRA72x Rev-B EVM is not compatible with Vision application card. Therefore, the vision OVcamera and LVDS cameras cannot be used as is. The baseboard needs modification to support these use cases.

Validation Information

Please get in touch with your TI contact for validation information / test report.

Upgrade and Compatibility Information

This is the refresh release of GLSDK on 3.14 kernel and 2014.07 u-boot

Known Issues and Limitations

This section contains the snapshot of Known Issues and Limitations at the time of making the release.

Known Issues

Kernel and Uboot

- OMAPS00308501 DRA7X: uboot: Date command is not supported.
- OMAPS00313927 DRA7X: Kernel: stress: boot failure seen 15 out of 1000 times, while performing kernel boot stress testing.
- OMAPS00316544 DRA7X: U-BOOT: UART-boot mode is not working on DRA7X platform in 2014.07 u-boot, unable to load u-boot image with YMODEM
- OMAPS00324213 DRA7x: U-BOOT: Early Boot: ELF loader does not skip sections with type PT_DYNAMIC
- OMAPS00324214 DRA7x: U-BOOT: Early Boot: Does not handle resource table sections with size less than 1 MB
- OMAPS00314408 DRA7x: UART: UART3/4 ports do not support early debugging.
- OMAPS00315589 DRA7x: UART : DMA mode is not supported

ALSA

- OMAPS00324299: J6: Missing pinmux and i2c4 node for JAMR3 radio/audio.

I2C

- OMAPS00316736: J6 Eco/ J6 Rev G: I2C: EEPROM read/write test failed during intergration check.

Thermal

- OMAPS00323987 : DRA7x: Thermal:Thermal_zone_0 (MPU) is disabled by default in kernel

SATA

- OMAPS00324041 DRA7X: SATA: 3.0 Gbps SATA devices get enumerates in 1.5Gbps when connected through Port multiplier

QSPI

- OMAPS00318674: J6-RevG: QSPI: Stress QSPI read/write operation casues CRC failure

MMC/SD/EMMC

- OMAPS00321953 J6Eco: MMC/SD: Sd card is not detected after using the HS card for long duration

- OMAPS00319410: J6: MMC/SD: UHS mode is not enabled on DRA75x

OMAPDSS/OMAPDRM

- OMAPS00319231 J6/J6Eco: K3.x: HDMI/OMAPDSS: Some HDMI monitors are not detected by DRA7xx EVM h/w
- OMAPS00319260 J6/J6Eco: K3.x: HDMI/DSS: modetest not listing all the modes for some hdmi monitors.
- OMAPS00316458 K3.14: libdrm errors (warning) seen during viddec3test single decode dual display
- OMAPS00319136 DRA7xx: k3.12/k3.14: At times the hdmi driver in omapdss, results I2C master Error
- OMAPS00323194 J6: Long run test : Jitter in the HDMI output with gsttestplayer
- OMAPS00324202 K3.14: omap_crtc_flush() timeout seen while playing videos on kmscube

Ethernet

- OMAPS00319096 DRA7xx(J6/J6Eco) : ethernet : reliability issues/link failure with gigabit mode of operation(on some boards)
- OMAPS00319406 DRA7xx : ethernet : 10Mbps mode does not work
- OMAPS00321321 J6Eco: Ethernet: DHCP not functional with Power on reset button

USB

- OMAPS00305092: DRA7X: USB: The Superspeed port (USB1 port) in host mode, bus reset(with usb3.0 flash/hdd drive)is observed when high quality usb3.0 connector is not used. It is strongly recommended that EVM design guidelines are followed and high quality usb3.0 connector/cables are used to prevent this issue.
- OMAPS00318321: The specific usb mouse (PIXART mouse) gets disconnected automatically every 60 seconds if the mouse is not used by application. The issue does not occur if the mouse used by application
- OMAPS00317927 DRA7X: USB: DRD: erratic dwc3 interrupts occurs in device mode causing more than 2 sec delay to connect to host
- OMAPS00318710 DRA7X: USB: DWC3: warning occurs when the usb camera is removed while capturing the usb video.

VIP/VPE

- OMAPS00324229 DRA7xx: VPE: File2File checksum changes across multiple runs
- OMAPS00324235 J6: Camera: OV10635 camera when connected via LVDS interface generates noise in the video capture

Graphics

- OMAPS00319130 SGX: SGX Kernel module crash when Weston is killed while client applications are running
- OMAPS00319349 SGX/DRM: GLBenchmark test for offscreen test leads to kernel crash
- OMAPS00319131 SGX: Functionality: SGX HW recovery observed during termination of EGL based Wayland clients such as simple-egl / gst-wayland
- OMAPS00323962 SGX: HMI hang observed for a GL context for specific UI operations

Multimedia

- OMAPS00313144 Trickplay in a loop gets stuck
- OMAPS00313913 Radio Sync loss during long time testing (~18hrs)
- OMAPS00319089 J6eco:gst1.2:functionality dual decode with waylandsink returns error and hangs the system
- OMAPS00323283 K3.14: J6: M4 subsystem: IPU crash during GST Trick play usecase
- OMAPS00324050 J6:multimedia: copycodec fails
- OMAPS00324063 J6:multimedia:ducati gets starved of buffers during certain test case leading to increase in playback time
- OMAPS00324065 J6:multimedia:long run viddec3test dual decode throws extended decoder error for nth iteration of random stream

System

- OMAPS00324259: script: emmc: eMMC boot requires SD card to be present on EVM. Workaround: Use uenv-emmc.txt instead of uenv.txt available in boot partition.

Limitations

- Audio - Primary sound card only supports 44.1kHz. Other sample rates require SRC before passing to ALSA pcm device
- VIP - Driver does not support in-line CSC and scaling
- VIP - Driver does not support portB capture, so only one camera capture(vin1a or vin2a) is supported on J6eco
- Display - FPDLink display interface is not supported
- Display - HDMI is not supported with Rev-D and earlier versions of DRA75x EVM
- DRA7x: Power/Thermal - DVFS supports only MPU frequency and voltage changes
- J6Eco: Power/Thermal - On a few samples dynamic detection MPU OPPs doesnt work due to wrong efuse values. Only OPP_NOM is enabled in such cases
- WiLink - Wilink and bluetooth are not functional on J6Eco
- Graphics - GC320 is not supported
- Early Boot and Late Attach has only been verified with IPU2 and in two stage SD boot mode
- Security - Linux kernel in this GLSDK release does not boot on a HS (High-Secure) device
- System - NAND/NOR FS support is not available
- EVM - JAMR3 sound card cannot be used simultaneously with Software Defined Radio
- J6Eco: Boot - ROM - If an empty SD card is inserted in SD boot mode system hangs with some cards

Issues closed since GLSDK v7.00.00.04

Kernel and Uboot

- OMAPS00313236 : DRA7x: Clock: dpll_mpu_ck failed transition to 'locked' when switching to 1.5GHz

MMC/SD

- OMAPS00314409: DRA7x: Kernel: Mounting root file system fails sometimes as MMC enumerated with different block number
- OMAPS00319095: DRA72X: MMC/EMMC: Integrity check fails sometimes on a file copied from one partition to the other

BT/UART

- OMAPS00319773: J6: Uart: System crashed while using A2DP streaming via Bluetooth

ALSA

- OMAPS00318754 J6/J6Eco: Alsa: arecord at 192000Hz records for more than the time duration specified or sometimes failed
- OMAPS00318755 J6 RevG: Alsa: amixer switch toggle failed during playback going on in background
- OMAPS00319187 J6/J6Eco: Alsa: Underruns during audio play back
- OMAPS00319188 J6/J6Eco: Alsa: Overruns during audio recording
- OMAPS00319189 J6/J6 Eco: Audio Playback SR>=48000Hz : aplay: pcm_write:1939: write error: Input/output error
- OMAPS00323974 DRA7xx: Audio: alsa driver dma oops bug

Ethernet

- OMAPS00313924 Long run Ethernet robustness test cases Failing due to I2C controller timeout

System

- OMAPS00313360: DRA7x: kernel-idle-thread: Crash observed in arch_cpu_idle() while running long-hour Wayland testcase
- OMAPS00310738 J6: Executing "reboot" command from terminal prompt causes system/boot hang in SD + QSPI boot mode. [Incorrect usage - Need to flash QSPI to be able to boot as on reset the sytem boots from secondary boot device which is QSPI in this case] ex. on J6 EVM Rev G , sysboot SW3[5:0] 000111 sets the Boot order to SD + QSPI_4

VIP/VPE

- OMAPS00319090 J6eco:gst1.2:functionality v4l2src capture results in kernel crash
- OMAPS00319299 DRA7xx: VIP: Fail to capture multi channel video from TVP5158
- OMAPS00319292 DRA7xx: VIP: J6eco: Cannot capture in NV12 format
- OMAPS00319090 DRA7xx: VIP: J6eco: gst1.2 based v4l2src capture results in kernel crash
- OMAPS00323990 DRA7xx: VPE: capturevpedisplay run more times will have error
- OMAPS00324262 DRA7xx: VPE: Green frames if using scaling only in one direction
- OMAPS00324260 DRA7xx: VIP/VPE: Some RGB and YUV formats have non-standard ordering and/or not clearly defined in TRM
- OMAPS00306493 DRA7xx: kernel: VIP: OV sensors in the multi-instance LVDS setup, can't be configured for any other than 720p resolution
- OMAPS00324261 DRA7xx: VIP: Noise in video capture from vin2a/vin3a interfaces on vision board

DSS/OMAPDRM

- OMAPS00316999 J6: K3.14: OMAPDRM: Kernel crash while running dual display tests using viddec3test
- OMAPS00317778 J6: K3.14: DMM/Tiler: Kernel crash - could not pin/swap
- OMAPS00319207 J6: K3.14: DSS/DRM: omap_irq_error_handler() reported OCP errors seen during GStreamer video playback
- OMAPS00319206 J6: K3.14: LCD/DSS/DRM: omap_crtc_error_irq() reported LCD sync-lost error while running some viddec3 test cases.

Graphics

- OMAPS00322319: DRA7xx: wayland memory leak
- OMAPS00322458 DRA7xx: Wayland client create_shm_buffer lead to weston die

Multimedia

- OMAPS00321660 Cannot run gstreamer 1.x pipeline with "video parse + decode" for elementary streams
- OMAPS00318994 J6/J6Eco gstreamer1.2:usability playbin doesnot pick vpe plugin for interlaced streams
- OMAPS00318997 J6/J6Eco gstreamer1.2:performance Delay in capture
- OMAPS00318998 J6/J6eco gstreamer1.2:usability Videos on waylandsink doesnot respond to mouse events
- OMAPS00313449 MultiInstance playback (MPEG4 + H264) with trickplay hangs
- OMAPS00323964 J6:usability:Gstreamer: All videos can not seek with gsttestplayer
- OMAPS00320691 DRA7x: Gstreamer: serious memory leak when use gstreamer and ducati plugin to play video
- OMAPS00322321 DRA7xx: Gstreamer: crash when playing back the video in loop

- OMAPS00321055 K3.14: DMM: GStreamer playback results in dmm timeout errors

QSPI

- OMAPS00299771 GLSDK: DRA7xx: QSPI boot can't be done once kernel is loaded

USB

- OMAPS00323018 DRA7X: read/write to USB2PHY_TERMINATION_CONTROL register does work as expected
- OMAPS00319489 USB: DWC3: DRA7X: when DWC3 configured in OTG-host mode, the USB-2.0 devices works but USB3.0 devices doesn't work.
- OMAPS00323601 DRA7X: Customer reported one specific USB stick is not getting enumerated when connected to USB2 port
- OMAPS00319860 DRA7X: USB: kernel crashes seen during usb module init when usb module excluded in u-boot
- OMAPS00323630 DRA7X: USB: In DRD/OTG mode, dwc3 debugfs mode field always reflect as OTG irrespective of its configured in host or device.

Versioning

This is Beta release based on kernel version 3.14 (GLSDK 7.01.00.03) for DRA75x ES 1.0/ES 1.1 and DRA72x.

Technical Support and Product Updates

Latest up to the minute information and updates may be found on the http://processors.wiki.ti.com/index.php/Category:GLSDK.
Please contact your FAE or CPM for any support requests on GLSDK

Download the Latest GLSDK

The latest GLSDK is available for download from http://downloads.ti.com/infotainment/esd/jacinto6/glsdk/latest/index_FDS.html

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The current version is 7.01.00.03.

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