

# DRA7xx GLSDK 6.04.00.01 Release Notes

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## Generic Linux Software Development Kit (GLSDK) 6.04.00.01 for DRA7xx

April 7, 2014

This is the early (RC) 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.

This document is divided into the following sections:

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### Documentation

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- Latest up to the minute information and updates may be found on the [Texas Instruments Processors Wiki \(http://processors.wiki.ti.com/index.php/Main\\_Page\)](http://processors.wiki.ti.com/index.php/Main_Page).
- The *Quick Start Guide* ([http://downloads.ti.com/infotainment/esd/jacinto6/gl sdk/latest/exports/DRA7xx\\_EVM\\_Quick\\_Start\\_Guide.pdf](http://downloads.ti.com/infotainment/esd/jacinto6/gl sdk/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 *EVM\_GLSDK\_Software\_Developers\_Guide Software Developer's Guide* (<http://processors.wiki.ti.com/index.php/DRA7xx>) contains information on how to start developing software on the DRA7xx EVM and is located in the *docs/* folder in the GLSDK along with other documentation.

### Components

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The Linux GLSDK is a single package that includes the following components:

- U-boot support (2013.04)
  - Boot from: SD card, eMMC (FAT load), QSPI, UART
  - tftp, dhcp
  - Secure Boot (from SD Card & eMMC)
- Linux kernel 3.8.13
  - FS Media: SD card, eMMC, NFS
  - USB Host: Isochronous A/V, HID, MSC
  - USB 3.0 Host: MSC
  - UART, I2C, QSPI, Ethernet, SATA
  - VIP (V4L2, DMABUF)
  - VPE (V4L2 M2M, DMABUF)
  - DSS (LCD, HDMI, FPDLink)
  - McASP
  - WiLink 8 (WLAN)
  - MPU DVFS, AVS Class 0
  - MPU Thermal Mgmt (via CPU freq)
- Multimedia
  - H.264, MPEG2, MPEG4 & VC1 decoders @ 1080p60
  - MJPEG decoder
  - Gstreamer plugin for video decode acceleration
  - Gstreamer plugin for video processing acceleration (using VPE)
  - Gstreamer plugin for KMS display sink
  - Gstreamer plugin for Wayland sink
  - Gstreamer plugin for X11 sink (DRI2video)
  - AAC audio codec (ARM based, open-source)
  - Software Defined Radio (with demo demodulator)



- DSP-side DCE interface for custom codec integration
- Graphics
  - 2D graphics acceleration (BLTsville)
  - 3D graphics acceleration (OpenGL ES 2.0)
  - Wayland, with Weston compositor, multiple display support
  - X11 stack, with OpenBox window manager, 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 or X11) through GStreamer.
  - Dual-decode demo on two displays (Wayland or X11) through GStreamer.
  - Triple display application (Wayland extended display).

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

## What's New

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Changes from GLSDK v6.03:

- Support for J6 ES 1.1 devices.
- ABB Verification - Verification scope restricted to Software flow check
- U-boot
  - Support for early boot of IPU
  - System Boot Optimization (QSPI only)
    - Support for single stage bootloader in QSPI boot mode
- Support for LateAttach in kernel
- USB 3.0 support verified on J6 ES1.1 HS devices
- USB DRD (Dual role device) support.
- VIP driver
  - Support for RGB888 input color format
  - Support for multiple instances
  - Support for slice 1
  - Support for DMABUF
  - Support for Capture up to 60 fps
- VPE driver
  - Support for multiple instances and DMABUF.
  - Support for sequential Top / Bottom interlaced buffer format (decoded by IVA-HD).
- Enabled OpenBox window manager with X11 - currently supports multiple displays.
- Upgraded Wayland / Weston to version 1.3 - currently supports multiple displays.
- Support for Triple Display Application - Using KMSCube and Weston
- Gstreamer based dual-decode->dual-display demo with Wayland and X11 sink

## Installation and Usage

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

## Host Support

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

## Dependencies

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The GLSDK requires the Linaro toolchain, more information is there in the *Software Developer's Guide* ([http://processors.wiki.ti.com/index.php/{{sdk\\_platform}}\\_GLSDK\\_Software\\_Developers\\_Guide](http://processors.wiki.ti.com/index.php/{{sdk_platform}}_GLSDK_Software_Developers_Guide))

## Device Support

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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

## Known Issues and Limitations

### Known Issues:

#### Kernel and Uboot

- OMAP500307900: modetest with option -v and for non-standard timings is causing kernel crash
- OMAP500308147: Display flicker seen on HDMI display
- OMAP500308174: The first few lines of the default framebuffer gets corrupted after running VIP capture test application. This happens randomly and is not seen every time.
- OMAP500299771: In QSPI boot mode, issuing reboot while kernel boots up results in a system hang. Cold reboot is required to get the system working again.
- OMAP500301898: Image is cropped when framebuffer size is bigger than display mode when using omapdrm API
- OMAP500301948: Double free or corruption error while playing dual decode using viddec3test
- OMAP500304365: DRA7xx: Some HD monitors do not work when non-standard timing is selected.
- OMAP500305092: DRA7XX: USB: DWC3: reset to usb3.0 flash drive occurs while running ltp-ddt usbhost performance test

#### Graphics

- OMAP500307872: Graphics: Functional: Running kmscube during init (like a splash screen) causes kernel crash in omap\_plane\_mode\_set function
- OMAP500308070: SGX: Functionality: Killing Weston simple-egl and subsurface applications leads to SGX HW recovery
  - This does not result in a system hang or a system reboot.
  - Weston continues to run without crashing. Other weston clients can be launched
- OMAP500302071: Wayland: Stability - Long duration wayland tests results in a kernel crash due to omap\_plane\_mode\_set in DRM layer
- OMAP500302074: Wayland: Stress - Termination of Weston and running clients causes kernel crash due to page faults
- OMAP500302079: Wayland: Stress - Relaunching weston with n instances of weston clients in a loop causes hang due to mmap failure in SGX KM
- OMAP500302094: Wayland: Stress - Relaunching Weston in a loop causes board to hang due to PVR mmap errors
- OMAP500307795: X11: Functionality - Video playback with dri2videosink causes kernel oops in DRM layer due to spinlock
- OMAP500307925: X11: Functionality - Consecutive rotation of LCD display using xrandr results in kernel warning
- OMAP500307993: X11: Functionality - Dual 1080p video playback causes EQ overflow in XServer resulting in a hang
- OMAP500308054: X11: Functionality - Mode set with xrandr doesn't change the video playback resolution
- OMAP500308141: X11: Functional: gst-dri2videosink testcases fail after x11 goes into screensaver

#### Multimedia

- OMAP500308144: interlaced streams gst playback: kernel backtrace if ctrl-C command issued during play.
- OMAP500301723: Caught SIGSEGV error with gstreamer playbin2 for interlace streams

### Issues closed since GLSDK v6.03:

#### Kernel and Uboot

- OMAP500301699: VIP cannot be used unless HDMI is disabled
  - This defect is rejected as it is an EVM limitation. Please refer to the limitations section in this release notes for further details
- OMAP500302834: DRA7xx: Kernel: HDMI: Display is smudged typically after running long duration tests.
- OMAP500304690: Low frame rate in VIP capture 15fps
- OMAP500305090: Higher resolution LCD flickers in the multiple display setup using the FPDLink
- OMAP500305100: USB3.0: DRA7XX: Secure(HS): USB3.0 superspeed flashdrive is detected as highspeed device
- OMAP500303496: J6: HW\_AUTO mode setting from Kernel does not work correctly for certain peripherals
- OMAP500303465: VPE deinterlace test fails for 176x144-nv12 input
- OMAP500301807: Boot takes a long time (in the order of few minutes) if ip=dhcp is set in bootargs and Ethernet cable is not connected to the target.
  - Resolved by ensuring that "ip=off" is set by default in bootargs, when file system is mounted from SD/MMC and not using NFS Mount. "ip=dhcp" option is used if the Ethernet usage is mandatory during kernel boot time, particularly where NFS file system is used. In this scenario, without "ip=<address>", the kernel cannot mount NFS file system and hence wait till the configuration is successful using various autoconf options (dhcp, bootp, rarp etc). For more details on the usage of ip=<address>, refer to the kernel documentation in Documentation/filesystems/nfs/nfsroot.txt. For use cases where NFS mount is not required, "ip=off" is set and the kernel boots normally. Once the file system is mounted, file systems script will bring the interface up either through DHCP or static based on configuration. Refer /etc/network/interfaces.

#### Multimedia

- OMAP500293402: Frame drop with kms sink.
- OMAP500300857: Kernel crash and board reset during stress testing for Gstreamer playback for Audio Video files
- OMAP500301285: H264 and MPEG4 1080p60 files does not play smoothly with gstreamer kmssink
- OMAP500301594: Viddec3test fails after long duration playback
- OMAP500301595: Gstreamer crashes when Playing AV files in a loop by assigning audio=fakesink
- OMAP500301600: Always getting mmrpr error when playing a particular stream using gstreamer
- OMAP500301952: viddec3test runs out of memory during overnight regression
- OMAP500301953: getting the error: unable to declare buffer use with mpeg4 specific stream
- OMAP500305104: Dual instance IVA-HD decoder support in mult-threaded environment for GLSDK 6.02.01.02

#### Graphics



- ### **Limitations:**

- VIP driver supports Slice 0 or Slice 1, but not both simultaneously for a given VIP instance.
- VIP driver supports only Port A.
- VIP driver does not support in-line CSC and scaling.
- NAND/NOR FS support is not available.
- HDMI audio is not supported.
- Conflict between HDMI and I2C2 requires that HDMI be disabled when ViP or FPDLink display are used.
- On DRA7xx EVMs of Rev D or earlier, HDMI error logs appear continuously on the console when HDMI is not connected. It is recommend to use Rev E board or later, or keep the HDMI connected.
- Support for JAMR3 board is limited to Software Defined Radio.
- OMAP500308094: Remote processor IPU2 application / firmware leaks memory when the MPU side application is killed abruptly.

## Versioning

This is early (RC) (GLSDK 6.04.00.01) for DRA7xx ES 1.0 and ES 1.1.

## 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>.

E2E Linux Forum - <http://e2e.ti.com/support/embedded/f/354.aspx>] can be used for discussing the Linux GLSDK development.

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<pre>{ 1. switchcategory:MultiCore=   ■ For technical support on MultiCore devices, please post your questions in the C6000 MultiCore Forum   ■ For questions related to the BIOS MultiCore SDK (MCSDK), please use the BIOS Forum</pre> <p>Please post only comments related to the article <b>DRA7xx GLSDK 6.04.00.01 Release Notes</b> here.</p>	<ul style="list-style-type: none"> <li>For technical support on MultiCore devices, please post your questions in the <u>C6000 MultiCore Forum</u></li> <li>For questions related to the BIOS MultiCore SDK (MCSDK), please use the <u>BIOS Forum</u></li> </ul>						

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