

Processor SDK Linux Automotive Release Notes



Last updated: **12/16/2019**

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Release 06.00.00

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Overview

The **Processor Software Development Kit (Processor-SDK) for Linux Automotive** provides a foundation software platform for development, deployment and execution of Linux based applications for DRA7xx SoCs and includes the following:

- Bootloader, Linux Kernel & Filesystem
- SDK Installer
- Setup Scripts
- Makefiles
- Matrix Application Launcher
- Example Applications

Licensing

Please refer to the software manifest, which outlines the licensing status for all packages included in this release. The manifest can be found on the SDK download page. The manifest can be found on the SDK download page or in the installed directory as indicated below. In addition, see [Processor_SDK_Linux_GPLv3_Disclaimer](#)

Documentation

- **Software Developer's Guide:** Provides information on features, functions, delivery package and, compile tools for the Processor SDK Linux Automotive release. This also provides detailed information regarding software elements and software infrastructure to allow developers to start creating applications.
- (http://downloads.ti.com/infotainment/esd/jacinto6/processor-sdk-linux-automotive/latest/ProcessorSDKLinuxAutomotiveforDRA7x_manifest.html%7C) Software Manifest (http://downloads.ti.com/infotainment/esd/jacinto6/processor-sdk-linux-automotive/latest/ProcessorSDKLinuxAutomotiveforDRA7x_manifest.html%7C): **Provides license information on software included in the SDK release. This document is in the release at [INSTALL-DIR]/docs.**
- **EVM Quick Start Guide** (http://downloads.ti.com/infotainment/esd/jacinto6/glsdk/latest/exports/DRA7xx_EVM_Quick_Start_Guide.pdf%7C): Provides information on hardware setup and running the demonstration application This document is provided as part of the EVM kit.

Release 06.00.00

Released in Dec 2019

What's New

Texas Instruments (TI) 's strategy is to upstream and align with the latest announced LTS Linux Kernel every year. All the code changes made by TI (both new features and bug fixes) are in their respective upstream or publicly available repositories. Linux Kernel v4.19 is the official LTS kernel for 2019.

This is the first Processor SDK Linux Automotive release on K4.19 supporting DRA7xx family of devices.

Features

SDK Components & Versions

Component	Version
Linux Kernel	4.19.73+ (2019 LTS)
U-Boot	2019.01+
Yocto Project	2.6 (Thud)
Arm Toolchain (gcc)	8.3-2019-03 hard-float
Qt	5.11
Wayland	5.0
GStreamer	1.14.4

Component versions for M4/DSP builds

The toolchain for building M4/DSP firmware compatible with this version of Processor SDK Linux Automotive is automatically downloaded as part of Yocto recipes.

Supported Platforms

Supported Host Operating Systems

The following operating systems have been validated to work with our SDK. Note that only 64-bit host operating system is supported.

Operating System	Version
Ubuntu	18.04 (64-bit)

Supported Platforms and EVMs

The following platforms and EVMs are supported with Processor SDK Linux Automotive.

Platform	EVM	Silicon PG
DRA756 (http://www.ti.com/product/dra756)	Rev-H	PG 2.0
DRA74x (http://www.ti.com/product/dra746)	Rev-H	PG 2.0
DRA72x (http://www.ti.com/product/dra726)	Rev-C	PG 2.0
DRA71x (http://www.ti.com/product/DRA718)	Rev-A	PG 2.1
DRA76x (http://www.ti.com/product/dra76p)	Rev-B	PG 1.0

DRA71x and DRA76x are fully tested platforms. The other platforms go through a sanity test cycle to ensure that there are no regressions.

Defects and Known Issues

This section covers the open defects and known issues in this release. Defects correspond to bugs in SW. Major defects will be addressed either in subsequent LTS kernel release or through post-release updates.

Known issues are typically problems due to board limitations, invalid use cases, low probability/priority bugs, etc. No fixes are planned for known issues.

Limitations from last release

The following features are *not* present in this release as compared to the previous releases on K4.4:

- OpenCL, OpenCV
- FPDLink display
- FPDLink Capture
- Analog camera capture
- JAMR daughter card

Customers are expected to forward port these features from K4.4 to latest LTS version if needed. Please contact support if you have any questions on porting these patches.

Fixed in this release

Key	Severity	Component	Summary
LCPD-13506	S2-Major	Baseport	Updating boot0 partition through dfu causes timeouts in eMMC
LCPD-15479	S2-Major	Audio & Display	DSS-WB Inconsistent behavior observed when converting to NM12 format
LCPD-16593	S2-Major	Audio & Display	Errors observed for IOCTLs with DMABuf import/export capture operation
LCPD-16383	S2-Major	Uboot	Uboot: Could not fatwrite to USB stick
LCPD-15547	S2-Major	SATA	SATA read write tests failed
LCPD-15378	S2-Major	Connectivity	SATA RX PHY config - update to match the DPLL output configuration
LCPD-15370	S2-Major	Connectivity	Uboot SD card read write failed at size 8M and bigger
LCPD-15196	S2-Major	Connectivity	u-boot configures VSDMMC rail for 3.0V instead of 3.3V
LCPD-14837	S2-Major	Connectivity	U-boot: Increase allocated size for MLO.raw for DFU
LCPD-16096	S2-Major	Audio & Display	Instability observed while trying to capture video with USB camera via Gstreamer
LCPD-14372	S2-Major	Connectivity	Uboot mmc command shows "omap_hsmmc_send_cmd: timedout" error
LCPD-16007	S2-Major	Connectivity	EVM USB device not detected by EVM host
LCPD-16181	S2-Major	Connectivity	U-boot: DRA74: MMC3 does not have correct IODELAY values for DS, HS, SDR12, SDR25
LCPD-15432	S2-Major	Graphics	Wayland based demos hang if both HDMI and LCD are connected
LCPD-15384	S2-Major	Graphics	Segmentation Fault and bad alloc errors observed when running GLMark2
LCPD-14817	S2-Major	Graphics	coredump in PVRSRVDestroyRecursiveMutex
LCPD-15386	S2-Major	Graphics	Segmentation fault reported while running GC320
LCPD-15260	S2-Major	Multimedia	Video on display repeated when Fast Forward done with gst-play
LCPD-15259	S2-Major	Multimedia	Gst-ducatti fails to decode few interlaced streams
LCPD-15422	S2-Major	Power & Thermal	cpuhotplug03 test failed
LCPD-15423	S2-Major	Security	L3 Custom Error: MASTER MPU TARGET L4_PER1_P3 observed while running OPTEE tests
LCPD-16188	S2-Major	System Integration	opencl/cv/mp/armnn, etc. dependencies broken for dra7xx-hs-evm
LCPD-15636	S2-Major	System Integration	C++ compilation is not working
LCPD-15421	S2-Major	System Integration	native compilation is not working
LCPD-15467	S2-Major	System Test	MSI interrupt could not be enabled and no MSI interrupt entry in interrupt table
LCPD-15896	S2-Major	Audio & Display	Suspend sometimes fails due to touch screen error (edt_ft5x06)
LCPD-14704	S2-Major	Audio & Display	OMAPDRM: WARN seen after a suspend/resume cycle
LCPD-14703	S2-Major	Audio & Display	VIP: Fix DT endpoint not bidirectional warning
LCPD-17083	S2-Major	Audio & Display	DSS scaling sets error -ERANGE
LCPD-14553	S2-Major	Baseport	dra72-evm: suspend triggers WARN from clockdomain
LCPD-15632	S2-Major	Baseport	default console in uboot is set to ttyO2 instead of ttyO0
LCPD-15459	S2-Major	Baseport	rmmod/modprobe cycle fails for crypto modules
LCPD-12176	S2-Major	Baseport	U-boot: Fix IOdelay error path issue
LCPD-15494	S2-Major	Connectivity	dra7: pcie: PHY driver doesn't follow TRM power up sequence
LCPD-16618	S2-Major	Connectivity	Uboot eMMC bus width is not 8-bit
LCPD-14824	S2-Major	Graphics	Enabling PVR_DEBUG_MUTEXES option results in a compile error
LCPD-15373	S2-Major	IPC	iommu/omap: include/linux/omap-iommu.h:30:10: error: 'ENOTSUP' undeclared
LCPD-14821	S2-Major	IPC	net/rpmsg: rpmsg_sock_sendmsg() returning incorrect value on success

Open Defects

Key	Severity	Component	Summary
LCPD-15461	S2-Major	Connectivity	pcie usb failed to enumerate sometimes on dra7xx
LCPD-16382	S2-Major	Connectivity	pcie usb/sata read write tests failed
LCPD-17164	S2-Major	Graphics	GLBenchmark is not able to run missing libgbm.so.2 error reported
LCPD-15918	S2-Major	IPC	ti-ipc-rtos gets stuck in xdctools
LCPD-16556	S2-Major	System Test	LMBENCH performance numbers lower than expected
LCPD-17342	S2-Major	System Test	Dhrystone numbers look off in Performance Guide
LCPD-16642	S2-Major	Audio & Display	omapdrm: in some cases, DPI output width does not need to be divisible by 8
LCPD-15518	S2-Major	Audio & Display	omapdrm: WB M2M: Headless mode is not working
LCPD-15540	S2-Major	Connectivity	uvc-gadget results in segmentation fault

LCPD-17118	S2-Major	Connectivity	Kernel MMC/SD user's guide incorrectly refers to OMAP-HSMC
LCPD-16594	S2-Major	Connectivity	Seeing kernel traces during pcie wifi tests
LCPD-15405	S2-Major	Connectivity	DFU: could not update eMMC bootloaders when using dfu_alt_info_emmc set in uboot env
LCPD-15410	S2-Major	Graphics	vdd_shv_power is ~200mw higher than on previous lts
LCPD-15794	S3-Minor	Graphics	Allow non-root user access to graphics resources to enable graphics use case
LCPD-15400	S2-Major	IPC	remoteproc/omap: System suspend fails for IPU1 domain without any remoteproc loaded
LCPD-15402	S2-Major	IPC	rpmmsg-rpc: test application does not bail out gracefully upon error recovery

Known Issues

Key	Severity	Component	Summary	Impact	Workaround
PSDKLA-3398	S2-Major	MMC/SD	Dra7xx-evm: Kernel stuck at omap_hsmmc 4809c000.mmc: card busy for almost 1 sec	"SD card is enumerated in ddr/high speed mode not UHS mode.Boot is delayed by almost 1sec"	Removing pull up resistor on MMC1 clock line reduces chances of hitting this issue.
PSDKLA-3383	S2-Major	I2C	I2C3 support is not enabled in device tree file on dra71x-evm		
LCPD-15635	S2-Major	Connectivity	mmc hotplug causes one board reboot		
LCPD-17373	S2-Major	Power & Thermal	ARM Exception from PPA Signature Verification Call on HS Device		
PSDKLA-5023	S2-Major	Audio & Display	Late attach for DSP2 is not functional	"Observed only on some boards"	Remove timer13 from u-boot and dts file
PSDKLA-3382	S2-Major	WLAN	BT Wilink support is not enabled in device tree file on dra71x-evm		
PSDKLA-3855	S2-Major	MMC/SD	DRA76x-EVM : SD card UHS modes are not supported on TI EVM due to regulator limitation		
PSDKLA-1364	S2-Major	ETH	DRA7xx(J6/J6Eco) : ethernet : reliability issues/link failure with gigabit mode of operation(on some boards)	"Observed only on specific boards"	Connect to 100 Mbps port
PSDKLA-3399	S2-Major	MMC/SD	Stuck for 10-15 seconds on SD recovery	Userspace applications/console will be delayed by 10-15 sec as filesystem will not be mounted until the fs check is completed.	"Do not force power off/recycle the board. Use ""reboot"" command.or ""sync"" followed by ""halt""."
PSDKLA-3299	S3-Minor	Audio & Display	DRA72x: FPDLink: Triple display usecase not functional		
PSDKLA-3058	S3-Minor	Audio & Display	Sluggish touch response with matrix-gui on Rev G DRA7xx EVM with LG display		
PSDKLA-1387	S3-Minor	ETH	DRA7xx : ethernet : 10Mbps mode does not work	"HW limitation on EVM"	None
LCPD-9402	S2-Major	Audio & Display	DRA72x: HDMI display EDID read fails on Rev B EVM	When using Rev B EVM, EDID read will not work. This will result in the HDMI driver using the builtin modes in the kernel. HDMI will work at maximum of 1024x768 resolution.	Add the required HDMI modes into the kernel binary as per instructions in http://lxfree-electronics.com/source/Documentation/EDID/
LCPD-8000	S2-Major	Audio & Display	VIP: RGB: RGB capture error due to wrong data path setting		
LCPD-7374	S2-Major	Connectivity	DRA7x: Transcend 16G UHS card enumerated as SDR104 but there are errors showing up		
LCPD-9192	S2-Major	Connectivity, Unknown	UART: DMA: data inconsistency observed with serial check utility on uart3 and glitches observed in BT playback	"One may hear glitches in Audio playback over Bluetooth."	None
LCPD-8352	S2-Major	Graphics	weston: stress testing with 75 concurrent instances of simple-egl leads to unresponsive HMI due to running out of memory	oom-killer stops an application to free up memory. It could be either Wayland client or Weston itself. If Weston is killed, a board reboot would be required.	1. Restart Wayland application. 2. Restart board if Weston is killed by oom-killer

LCPD-7255	S2-Major	System Integration	Telnet login takes too long (~40 seconds)		"Bootting with rootfs mounted over NFS might cause ~40 seconds delay on telnet login because DNS entries might not be properly populated. To work around this issue, enter appropriate DNS server IP in resolv.conf. For example: echo 'nameserver 192.0.2.2' > /etc/resolv.conf; "
LCPD-7695	S3-Minor	Audio & Display	DRA7xx: building Ov1603x as a module causes a green tint in captured image	"As this is only related to starting the capture within one second of insertine module. The impact is on the early video use cases."	The workaround is to use the camera driver as builtin. Also, a delay of 1s can stop this issue from occuring
LCPD-9168	S3-Minor	Audio & Display	Rotation using DSS/DRM TILER 2D not supported for NV12 and YUYV		

Installation and Usage

The [Software Developer's Guide](#) provides instructions on how to setup up your Linux development environment, install the SDK and start your development. It also includes User's Guides for various Example Applications.

Technical Support and Product Updates

Technical support is a broad term. Our desire is to provide a solid product, good documentation, and useful training that defines a clear path for developing a product based on the Linux/RTOS SDK. However, we know we'll never cover everything that can be done, and occasionally we even make mistakes <gasp>. So, when you can't seem to find what you need, there's a good place to search through previously answered questions and ask a new one - The E2E Support Forums. There is an active community of TIers and other customers like you already using a TI Processor, on these forums. You may find your question has already been answered with a quick Search of the Forums. If not, a quick post will likely provide you the answers you need.

We strongly recommend using the E2E for all queries.

- **E2E Support Forums for all DRA7xx platforms** (https://e2e.ti.com/support/arm/automotive_processors/f/1020)

There could be a few cases where your query has confidential information and cannot be posted publicly. In such cases, please contact your FAE or CPM.


Release Download

The latest release can be downloaded from this **link** (http://downloads.ti.com/infotainment/esd/jacinto6/processor-sdk-linux-automotive/latest/index_FDS.html)

For earlier releases, go to **Archives** (http://processors.wiki.ti.com/index.php/Category:Processor_SDK_Linux_Automotive)

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