



IPNC RDK

Release Notes

Version: 3.9.1

May 8, 2017

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Note:

- This software has been tested with version 2.1.6 of VLC player. You can download VLC media player at [VLC Download Page](#)
- For viewing greater than 1080P@30fps in live video screen, user needs to ensure to have faster PC.
- At very high bit rate above 10mbps, there can be latency seen in player due to PC Speed or network data handling issues
- User need to note that the 'Network Caching' value in VLC player needs to be set to 300ms for RTSP streaming to have efficient and smooth play of the content
- While switching modes from 'low_power' to 'full_feature', it is advisable to run "flash_eraseall /dev/mtd6" command at console to reset CSK to default value
- Only 512MB memory footprint is supported
- This release has been tested with a camera connector cable measuring '7.5 cm' in length. Stability and performance issues may be observed with a longer camera connector cable.

1 Release Contents

The release package "IPNC-RDK-CSK-3.9.1-Linux-x86-Install.bin" installs the following components:

1. IPNC_RDK_3.9.1.tar.gz
2. ImageTuningTool_V3.00.01.00.zip
3. IPNC_RDK_InstallGuide.pdf
4. IPNC_RDK_Release_Notes.pdf

The release contains the following components:

1. IPNC_RDK_3.9.1.tar.gz:

This contains the following -

- Pre-built Binaries files for DM8127/DM388 CSK platform
- Set of Documents/Collaterals
- Source code required to build IPNC RDK
- Hardware Schematics
- Utility files like mkxsd-ti81xx.sh, setup-yocto-ipnc-rdk.sh etc.

2. ImageTuningTool_V3.00.01.00.zip:

This is an Image tuning tool Package used to tune IPNC image quality. This needs to be unzipped and used in Windows PC. This contains following -

- Image tuning tool installer (DCCSetup_Lite.exe)

- Its corresponding Release Notes (ImageTuningKit_ReleaseNotes.pdf)
3. IPNC_RDK_InstallGuide.pdf:
This provides the link to the User guide to set up the DM388/DM8127 CSK and run the IP network camera demo.
 4. IPNC_RDK_Release_Notes.pdf:
Details on features added, known issues, version details, bug fixes etc.

Note:

Entire Install Shield will run on 64-bit Linux machine and user needs to accept the license for its successful installation

2 Release Requirements

The following products are required for using IPNC RDK:

- 64 bit PC with Linux (Ubuntu 14.04 LTS recommended)
- Code Composer Studio(CCS) v6.x (for flashing and debugging, optional) [TI CCS Download Link](#) (OPTIONAL)
- Camera Starter Kit(CSK) Hardware
- "Teraterm" version 4.77 or higher

2.1 Note on Windows PC requirement

The following are the Hardware or PC Software requirement to view 1080p high quality Video using Internet Explorer:

Hardware:

- Intel(R), Pentium(R), DUAL Core (D),CPU 3.0GHz or higher
- 4 GB system memory or above
- Sound Card: DirectX 9.0c compatible sound card
- Video Card: 3D hardware accelerator card required – 100% DirectX 9.0c compatible
- Ethernet network hub or Wi-Fi router

Software:

- VLC media player 2.1.6 or above (download link: www.videolan.org)
 - Windows 7 Service Pack 2 or above
 - Resolution of screen setting: 1280x960 or higher for the display of 720P/1080P
-

3 Features

Please refer to product datasheet provided with the release under Collaterals folder.

4 New In This Release

4.1 Release 3.9.1

- Support for production revision (PRDN_REV.A) of DM8127 CSKs
 - Added PMIC and DVFS support on DM8127 CSK

4.2 Release 3.9.0

- Support for two new platforms added: DM8127 CSK and DM388 CSK
- Upgraded to Linux kernel v4.4.12 and u-boot v2016.05
- Codec upgraded to latest releases, refer to codec release notes for more details
- Full feature and Low power mode support on CSK
- Added Wi-Fi driver and streaming support for DM8127 and DM388 based CSK in STA mode and AP mode both
- Migrated from 'Arango' build toolchain to 'Linaro' toolchain version 5.3
- Added 'Yocto' filesystem build support
- Added Systemd init system support
- Enabled and verified support for Smart Analytics algorithms on DSP (DM8127 CSK)
- Use case script to run on boot
- Enabled Suspend & Resume feature
- Added support for DVFS
- Added USB gadget mode support on CSK
- Added HDMI video support on CSK
- Added support for TLV320AIC3104 audio codec
- Added DP83867 Ethernet Phy support
- Enabled AR0331-324-1.8 V1.0 camera sensor from LI_CAM
- Added support for TPS65911XX PMIC(DM38X CSK)

5 Fixed In This Release

5.1 Release 3.9.1

- Fixed WiFi functionality on production revision (PRDN_REV.A) of DM8127 CSKs

5.2 Release 3.9.0

- This is the first release for DM8127/DM388 CSK reference design using TI's Multichannel Framework
-

6 Known Issues

- Background Audio noise is heard in this release at high input volume
- HDMI audio is not supported
- When upgrading to newer version, always run command in camera console after login as root _ "flash_eraseall /dev/mtd6/". This will erase old setting and reset to default
- Video stabilization works on 20% more data, sensor used cannot output at 60fps at this higher resolution, so resolution is reduced to show output at 30fps. This will encode at 1600x900 resolution
- Video Noise Filter will reduce the output resolution by 32 as the hardware requires extra 32 pixels in X and Y direction
- FD ROI sometimes selects wrong region for particular scenario in GUI
- Latency will be observed in IE webpage as the ActiveX is not optimized to handle 1080p60 on slower PC, User needs to use VLC for latency measurements. So at IE web page video latency accumulates over time, this is not seen in VLC
- Camera Logs: "Active Connection List" is not implemented
- OSD on third JPEG stream will not be effective as the same buffer is used for H264 encoder and Stream1 setting will overwrite stream3 OSD setting
- 'nand scrub.chip' is essential to be run when upgrading from previous version of IPNC RDK
- Continuous log message: "Phy Addr : 0x4818050c Data : 0x00000002" observed for some time after booting the board for Low-power use-case
- In tri-stream use case (H2641080+H264D1+MJPEG), blank screen is observed rarely in the second stream.
- Unable to set IP address using USB
- USB host mode is not supported

7 Key Points to Note

7.1 Notes on Using Evaluation Version of 2A algorithm

As part of the IPNC, you have received 2A algorithm from TI:

- *Texas Instruments Inc:* TI 2A algorithm library is provided with release by Texas Instruments Inc and this comes with production license. Also, flicker detect library is provided with this release which comes with production license

Note:

2A algorithm includes Auto Exposure and Auto White Balance algorithms

7.2 Notes on Using Evaluation Version of Advanced Features

As part of the IPNC RDK, you have received following advanced features:

- SALDRE (Scene Adaptive Local Dynamic Range Enhancement)
- SMART Analytics for DM8127-DSP

These features are provided under a "for demonstration-only" license agreement. If you wish to use any of these features in a production environment, please contact TI sales representatives and get the latest production versions, along with the appropriate license agreement.

Note:

- These advanced features by default will be in evaluation mode
- On selection, this feature will be enabled after some duration. In addition, this feature will be automatically disabled on expiry of evaluation time.

7.3 Notes on Low Power and Full Feature Modes

As part of the IPNC release, you have received two modes of build to suite the requirement

- Low Power Mode
 - Full Feature Mode
-
- Following features are disabled in low-Power mode
 - Face Detect
 - ISS and DSS Noise Filter
 - Video Stabilization
 - HDMI Output
 - TV Out
 - Privacy Mask

 - Following Hardware Modules will be switched OFF in low power mode
 - HDVPSS
 - SIMCOP
 - Various other modules also will be put into low power state
-

8 Software Tools Packages

8.1 Software Tools

This release is based on the following software packages

Development IDE (not included in release but needed for build and debug)		
IDE Name	Product Version	Vendor
Code Composer Studio	6.0.x	TI

TI Software modules **		
Module Name	Product Version	CCS Support
PSP	From TI GIT	N/A
Code Generation Tools for Cortex M3	5.1.3	N/A
Code Generation Tools for DSP	7.4.6	N/A
Code Generation Tools for A8	Linaro Toolchain (GLIBC version 5.3)	Open Linux tools
HDVPSS Drivers *	01.00.01.37	Yes (for M3 example codes)
IPC	1.25.03.15	N/A
edma3_ild	02.11.10.09	N/A
Ivahd-hdvicp20api	01.00.00.19	N/A
Bios	6.37.01.24	Yes (for M3 example codes)
Xdais	7.24.00.04	N/A
Xdctools	3.25.05.94	N/A
FrameWork Components	3.30.00.06	N/A
Linux Utils	3.23.00.01	N/A
Syslink *	2.21.02.10	Yes (for M3 example codes)
ISS Drivers	3.80.00.00	Yes

MPEG4 Encoder	1.00.02.01	Yes (for M3 standalone apps)
H.264 Encoder	2.00.07.01	Yes (for M3 standalone apps)
JPEG Encoder	1.00.15.01	Yes (for M3 standalone apps)
MPEG4 Decoder	1.00.14.01	Yes (for M3 standalone apps)
H.264 Decoder	2.00.15.01	Yes (for M3 standalone apps)
JPEG Decoder	1.00.12.01	Yes (for M3 standalone apps)

*Changes done to the base packages released from TI

8.2 Component Details

Features / Component Details	DM38x CSK	DM8127 CSK	Remarks
SD-boot	✓	✓	
NAND-boot	✓	✓	
UART-boot	X	X	Hardware limitation
PMIC	✓	✓	
Sleep Mode + DVFS	✓	✓	
Clock	✓	✓	
Interrupts	✓	✓	
UART	✓	✓	
I2C	✓	✓	
SPI	✓	✓	
GPIO	✓	✓	
McASP	✓	✓	
MMC/SD/SDIO	✓	✓	



NAND	✓	✓	
GPMC + ELM	✓	✓	
DDR	✓	✓	DDR Frequency : 533 MHz
USB 2.0 Ctrl/PHY Gadget mode	✓	✓	No host mode support
EDMA	✓	✓	
Wi-Fi	✓	✓	
Ethernet	✓	✓	
RTC	✓	✓	
Spinlock	✓	✓	
Mailbox	✓	✓	
Watchdog Timer	✓	✓	
HDVPSS	✓	✓	
Analog Video	✓	✓	
HDMI Video	✓	✓	HDMI Audio not supported
CAM	✓	✓	
HDVICP	✓	✓	
DSP	N/A	✓	
Audio	✓	✓	
Systemd	✓	✓	
OSA Layer	✓	✓	
Syslink	✓	✓	v 2.21.02.10
CMEM	✓	✓	
Yocto compliance for filesystem	✓	✓	

9 Revision History

Release	Date	Description
3.9.1	08-May-2017	Added support for production revision (PRDN_REV.A) of DM8127 CSK
3.9.0	03-Feb-2017	GA release 3.9 with upgrades for DM8127/DM388 CSK platform
