**Vision SDK TDA3xx**

**3D Surround View**

**User Guide**

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# Introduction

Vision Software Development Kit (Vision SDK) is a multi-processor software development package for TI’s family of ADAS SoCs. The software framework allows users to create different ADAS application data flows involving video capture, video pre-processing, video analytics algorithms, and video display. The framework has sample ADAS data flows which exercises different CPUs and HW accelerators in the ADAS SoC and demonstrates how to effectively use different sub-systems within the SoC. Frame work is generic enough to plug in application specific algorithms in the system.

Vision SDK demonstrates 3D surround view on TDA3xx via demo application (usecase). This document details various aspects of establishing 3D Surround View on TDA3xx & EVM. SRV refers to 3D surround view in this document.

This document is applicable for Vision SDK versioned 2.9 and greater.

## References

Refer the below additional documents for more information about Vision SDK

|  |  |
| --- | --- |
| **Document** | **Description** |
| VisionSDK\_ReleaseNotes.pdf | Release specific information |
| VisionSDK\_UserGuide\_TDA3xx.pdf | This document. Contains install, build, execution information |
| VisionSDK\_ApiGuide.CHM | User API interface details |
| VisionSDK\_SW\_Architecture.pdf | Overview of software architecture |
| VisionSDK\_DevelopmentGuide.pdf | Details how to create data flow (s) & add new functionality |

# System Requirements

VisionSDK\_UserGuide\_TDA3xx.pdf documents detailed pre-requisites to use Vision SDK, the following sections lists SRV demo application specific requirements.

## Hardware

### Camera Modules

Below listed are the camera modules supported in 3D SRV demo application. SRV application would require 4 number of camera modules. Note that all camera modules used should be same. (i.e. it’s not possible to have 2 TIDA-00262 modules and 2 IMI OV10640 modules)

#### TIDA-00262

Is based on Aptina’s AR0140AT sensor and uses TI’s FPD Link III to transmit uncompressed digital data (uses DS90UB913A-Q1). <http://www.ti.com/tool/TIDA-00262>

#### IMI OV10640 (RDACM24A)

Is based on Omnivision’s OV10640 sensor and uses TI’s FPD Link III to transmit uncompressed digital data (DS90UB913A-Q1). <http://www.global-imi.com/media/2015/10/Generic-Minicube-Catalogue-1020151.pdf>

### Aggregator

Above described camera modules terminate into a aggregator (UB960/UB964 EVM), which receives 4 independent uncompressed video stream via FPD Link III and encodes the same into 4 virtual channels on a single mipi CSI2 interface.

Please contact your Texas Instruments representative for details

### MicroSD

These demo application stores, retrieve multiple look up table (LUT’s) to / from mmc/sd. A micro MMC/SD would be required and holds couple of LUT’s. The details of LUT’s are detailed in following pages. Refer section 3 for details. It’s recommended to use mmc/sd with speed rating UHS 1 or greater.

### Mounting of Camera modules

The cameras are to be mounted at 4 end points of a car, as show in picture below Figure 1. Note that each of cameras is ~at the center of side of the jeep and facing the ground plane. It’s recommended that the camera be inclined at 45°. Also ensure the following mapping is maintained.

|  |  |
| --- | --- |
| Camera | Channel |
| Front | 0 |
| Right | 1 |
| Back | 2 |
| Left | 3 |

Calibration use case could be used to visually identify and map the channel. Please refer section 5 for details.



Front

Right

Back

Left

Figure 1 Camera Mounted on a Toy Jeep

It’s not mandatory to mount these cameras on a car; the car could be a rectangular block, as shown below. Camera could be mounted as show, while doing so, please ensure the length/width is maintained.

Left Camera

Back Camera

Front Camera

6 Inches

9 Inches

21 Inches

6 Inches

### Connecting UB960 with TDA3xx EVM

Please refer the TDA3xx user guide, the procedure to connect and configuring UB960 EVM to source 9 volts on the FPD Link III is detailed.

### Calibration Chart

To caliber the SRV, cameras require reference points / images to determine required corrections. A reference chart is provided in \vision\_sdk\tools\surround\_vision\_tools\docs\poster\_calib\_chart.pdf, please print the chart and place the jeep in specified position.

## Software

This section list the optional software required for calibrating SRV. These are in addition to software requirements specified in the TDA3xx user guide.

### Turn on Lens Shading Correction (LSC)

By default the LSC is turned OFF, for optimal image quality (of the stitched output), LSC requires to be turned ON, steps below details changes required.

* In folder \vision\_sdk\..\ti\_components\drivers\vayu\_drivers\bspdrivers\_\src\devices\ov10640\src
* Copy the file bspdrv\_ov10640DccIsIf\_LscEnabled.h to bspdrv\_ov10640Dcc.h
* Re Build vision SDK, ensure to set the flag BUILD\_DEPENDANCY\_ALWAYS to yes in Rules.make

### PC based calibration tool (Optional)

1. When calibrating SRV, offline intervention might be necessary. This is done via a PC based tool. Calibration tool is available as part of Vision SDK release under the folder \vision\_sdk\tools\surround\_vision\_tools\3d\_calibration\_tool. Instructions for offline calibration are provided in ”manual\_TI\_3D\_SurroundVision\_CalibTool.docx” under “../3d\_calibration\_tool for detailed instructions”.

# Various Tables stored in mmc/sd

Please follow the steps prescribed in TDA3x user guide to format the mmc/sd card and create a folder named TDA3X.

All the required LUTs are present in the Vision SDK release under \vision\_sdk\tools\surround\_vision\_tools\Srv\_LUTs\TDA3X, please copy the LUTs required for the demo in mmc/sd under TDA3X folder.

## SRV Demo

The SRV demo requires 2 tables to be stored in mmc/sd under the folder TDA3X, namely. Please ensure that these tables are present, before demo is started.

1. **LUT\_IDX.BIN** : This file defines the number of view-points and offset for each view point parameter defined in LUT.BIN
2. **LUT.BIN** : This file contains the following for each view point
   * LDC LUT, for each camera
   * CAR Image
   * Width, height, block width, block height and other configurations

## Calibration Demo

The Calibration Demo would require minimum 2 tables to be stored in mmc/sd under the folder TDA3X. Please ensure that these tables are present, before demo is started.

1. **V2W\_IDX.BIN**: This file defines the number of view-points and offset for each view point. These offsets are used to read various view point parameters in V2W.BIN
2. **V2W.BIN** : This file contains the following for each view point
   * View 2 World Table, for each camera
   * CAR Image
   * Width, height, block width, block height and other configurations

## Calibration Demo in Manual mode

When manual / PC based tool is used for the calibration, there could two more files present/required in mmc/sd

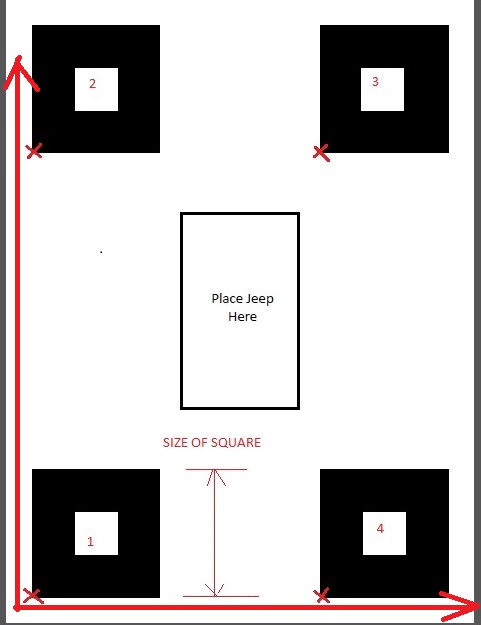
1. **FRONT\_0.YUV, RIGHT\_0.YUV, BACK\_0.YUV & LEFT\_0.YUV**: These are frames captured from respective cameras. These would be written by demo application and would be required by the PC based tool for the calibration.
2. **CALMAT.BIN**: Written by the PC based calibration tool. Once the PC based calibration is successful, CALMAT.BIN would be generated. Please copy the same to mmc/sd in TDA3X folder.

## Calibration Demo in Auto Mode

For Auto Calibration the jeep/car with the four cameras mounted on it is required to be placed at the center of the life size print of the calibration chart. The sample chart ‘poster\_calib\_chart.pdf’ is present in ‘\vision\_sdk\tools\surround\_vision\_tools\docs\’ directory.

The ‘TDA3X’ directory on the MMC/SD card should contain the CHARTPOS.BIN file. This file should have the following format with the **actual dimensions** of the chart used for calibration:

* 4 bytes :Number of cameras
* 124 bytes :Header
* 4 bytes :Size of the square in mm
* 8 bytes :Co-ordinates of the bottom left corner of Chart 1 in mm
* 8 bytes :Co-ordinates of the bottom left corner of Chart 2 in mm
* 8 bytes :Co-ordinates of the bottom left corner of Chart 3 in mm
* 8 bytes :Co-ordinates of the bottom left corner of Chart 4 in mm



A sample CHARTPOS\_HUMMER.BIN used for Hummer jeep is provided at ‘\vision\_sdk\tools\surround\_vision\_tools\Srv\_LUTs\TDA3X’

# 3D SRV

This provides a brief overview of the sample application or use case present in the SDK and procedure to run it.

## Demo Application

The 3D SRV application is implemented in vision\_sdk\examples\tda2xx\src\usecases\iss\_mult\_capture\_isp\_dewarp\_3dsv\_tda3xx

This demo application would read LDC LUTs present in LUT.BIN (indexed by LUT\_IDX.BIN), use DeWarp algorithm to correct lens distortion and project to get individual images for a given view point, use synthesis algorithm to stich individual images to get SRV. 3D SRV is achieved by switching through multiple view-points at capture frame rate.

## Execution of demo application

Follow the steps detailed in TDA3xx user guide to build, load binaries and required connectivity with EVM (only serial terminal would be required).

* Ensure mmc/sd card has folder named TDA3X and it contains valid LUT\_IDX.BIN & LUT.BIN
* Ensure mmc/sd is not hot swapped, i.e. while board is powered up and running Vision SDK binary, DO NOT remove / insert mmc/sd card.

1. Depending on the sensor used in the setup, instruct demo app to use the same
   * In Main Menu, select “s” settings
   * Choose “Capture Settings”
   * Choose either “OV10640 Sensor for SV – IMI (TDA3x ONLY)” OR “AR0140 Sensor for SV – TIDA00262 (TDA3x ONLY)”
2. Choose to run ISS based demos
   * In Main Menu select “ISS Use-cases, (TDA3x ONLY)”
3. Choose to run 3D SRV “3D SRV 4CH ISS capture + ISS ISP + DeWarp + Synthesis (DSP1) + Display”
   * Log should indicate the status of LDC LUTs read “SRV\_MEDIA: Reading LDC LUT for view point 0”
   * Once message “[IPU1-0] 140.434362 s: ISSCAPTURE: Start Done !!!” is displayed
   * 3D SRV should be visible on connected TV

# Calibration

Position of camera has significant effect on SRV, if and when camera positions are altered, calibration application could be used to fine tune camera positions. Calibration application is implemented in vision\_sdk\examples\tda2xx\src\usecases\ iss\_mult\_capture\_isp\_calib3DSv\_tda3xx

Before attempting calibration, please ensure all the software requirements specified in section 2 is addressed and required LUTs are available in mmc/sd, refer section 3.2

There are 2 options to caliber the 3D SRV on TDA3x, Automatic mode and manual mode

## Auto

Make sure the following files are already present in the MMC/SD card inside the ‘TDA3X’ directory:

* **CHARTPOS.BIN**
* **V2W.BIN**
* **V2W\_IDX.BIN**

Once the jeep/car is placed on the calibration chart, run this usecase. When the mosaic display comes up, TWO bounding boxes in each of the four windows can be seen as shown in the following Figure:



These boxes indicate the Region of Interest (ROI) within which the TWO squares of the Calibration chart should be confined to. Now select option # 1 – “Auto Calibration”, the Auto Calibration is done in 2 steps without user intervention:

1. **Calibration Matrix (CalMat) Generation:**

Input: The YUV images from the FOUR cameras.

The Chart Position read from CHARTPOS.BIN file.

Output: CalMat which is also dumped to CALMAT.BIN file.

1. **LDC Look Up Table (LUT) Generation**

Input: CalMat generated in step # 1.

View to World table for each view point read from the V2W.BIN file.

Output: LDC LUTs for each view point are written into LUT.BIN and LUT\_IDX.BIN files.

If the step # 1 is successful then the user can see the detected corner points plotted on to the display as shown in the following Figure:



If the Step # 1 fails and if CALMAT.BIN file is present in the MMC/SD card then calibration will resume with step # 2 by reading the CALMAT.BIN file, else it will be aborted.

## Manual

This is 3 step processes where in this usecase is used to dump frames into mmc/sd, PC based tool is used to generate CALMAT.BIN and this usecase is used to generate LUT\_IDX.BIN & LUT.BIN

1. Dump 1 frame from each camera into mmc/sd
2. Provide these dumped images to PC based tool and generate CALMAT.BIN
3. Generate LUT\_IDX.BIN & LUT.BIN
4. When 3SRV demo is run, these tables are read and 3D SRV is rendered

### Steps to run Manual mode calibration

Once the “Manual Calibration” is chosen, manual mode menu is shown

1. Select option “Save ISP output frames (Will be saved in MMC/SD : All channels)”
   * This will dump FRONT\_0.YUV, RIGHT\_0.YUV, BACK\_0.YUV & LEFT\_0.YUV into mmc/sd.
2. Choose to remove mmc/sd with option “Unmount File System before removing MMC/SD card” remove the mmc/sd card after this option is used.
3. With the PC based tool and using FRONT\_0.YUV, RIGHT\_0.YUV, BACK\_0.YUV & LEFT\_0.YUV as input, generate CALMAT.BIN. Refer “manual\_TI\_3D\_SurroundVision\_CalibTool” under ../ 3d\_calibration\_tool for detailed instructions.
4. Copy the CALMAT.BIN to mmc/sd in TDA3X folder
5. Insert the mmc/sd and remount the mmc/sd using option “Mount File System after inserting MMC/SD card”
6. Generate LDC LUTs using option “Compute LDC LUTs for 3D SRV (All view points)”
7. Re-Run 3D SRV demo.

# Sample LOGs

## Select the camera used

[IPU1-0] Vision SDK Use-cases,

[IPU1-0] --------------------

[IPU1-0] 1: Single Camera Use-cases

[IPU1-0] 2: Multi-Camera LVDS Use-cases

[IPU1-0] 3: AVB RX Use-cases, (TDA2x & TDA2Ex ONLY)

[IPU1-0] 4: Dual Display Use-cases, (TDA2x EVM ONLY)

[IPU1-0] 5: ISS Use-cases, (TDA3x ONLY)

[IPU1-0] 6: Stereo Use-cases, (TDA2x MonsterCam ONLY)

[IPU1-0] 7: Network RX/TX Use-cases

[IPU1-0] a: Miscellaneous test’s

[IPU1-0]

[IPU1-0] s: System Settings

[IPU1-0]

[IPU1-0] x: Exit

[IPU1-0]

[IPU1-0] Enter Choice: s

[IPU1-0]

[IPU1-0] 16.691850 s:

[IPU1-0] 16.691911 s:

[IPU1-0]

[IPU1-0] ===============

[IPU1-0] System Settings

[IPU1-0] ===============

[IPU1-0]

[IPU1-0] 1: Display Settings

[IPU1-0] 2: Capture Settings

[IPU1-0] 3: ISS Settings (TDA3x ONLY)

[IPU1-0] 4: Enable Charging via USB2 Port (TDA2x EVM ONLY)

[IPU1-0] 5: Print PRCM Statistics

[IPU1-0] 6: Show Memory/CPU/DDR BW usage

[IPU1-0]

[IPU1-0] x: Exit

[IPU1-0]

[IPU1-0] Enter Choice: **2**

[IPU1-0]

[IPU1-0] 16.692155 s:

[IPU1-0] 17.238638 s:

[IPU1-0]

[IPU1-0] ==============

[IPU1-0] Capture Source

[IPU1-0] ==============

[IPU1-0]

[IPU1-0] 1: OV10635 Sensor 720P30

[IPU1-0] 2: HDMI Capture 1080P60

[IPU1-0] 3: OV10640 Sensor 720P30 – CSI2 (TDA3x ONLY)

[IPU1-0] 4: OV10640 Sensor 720P30 – Parallel (TDA3x ONLY)

[IPU1-0] 5: AR0132 Sensor 720P60 – Parallel (TDA3x ONLY)

[IPU1-0] 6: AR0140 Sensor 720P60 – Parallel (TDA3x ONLY)

[IPU1-0] 7: IMX224 Sensor 1280x960 – CSI2 (TDA3x ONLY)

[IPU1-0] 8: AR0132 Sensor 720P60 DM388 – Parallel (TDA2x MonsterCam ONLY)

[IPU1-0] 9: AR0140 Sensor for SV – TIDA00262 (TDA3x ONLY)

[IPU1-0] a: OV10640 Sensor for SV – IMI (TDA3x ONLY)

[IPU1-0]

[IPU1-0] x: Exit

[IPU1-0]

[IPU1-0] Enter Choice: 9 or a depending on the camera used”

[IPU1-0]

[IPU1-0] 17.239095 s:

[IPU1-0] 17.962941 s:

[IPU1-0] 17.963094 s: Current System Settings,

[IPU1-0] 17.963155 s: ========================

[IPU1-0] 17.963216 s: Display Type : HDMI 1920x1080 @ 60fps

[IPU1-0] 17.963277 s: Capture Source : Sensor OV10640 IMI 1280x720 @ 30fps – ISS CSI2, Bayer (TDA3x EVM ONLY)

[IPU1-0] 17.963368 s: My IP address : none

[IPU1-0] 17.963399 s: ISS Settings : LDC=[OFF] VTNF=[OFF] WDR=[OFF]

[IPU1-0] 17.963490 s:

[IPU1-0] 17.963521 s: ============

[IPU1-0] 17.963582 s: Usecase Menu

[IPU1-0] 17.963612 s: ============

[IPU1-0] 17.963673 s:

[IPU1-0]

[IPU1-0] Vision SDK Use-cases,

[IPU1-0] --------------------

[IPU1-0] 1: Single Camera Use-cases

[IPU1-0] 2: Multi-Camera LVDS Use-cases

[IPU1-0] 3: AVB RX Use-cases, (TDA2x & TDA2Ex ONLY)

[IPU1-0] 4: Dual Display Use-cases, (TDA2x EVM ONLY)

[IPU1-0] 5: ISS Use-cases, (TDA3x ONLY)

[IPU1-0] 6: Stereo Use-cases, (TDA2x MonsterCam ONLY)

[IPU1-0] 7: Network RX/TX Use-cases

[IPU1-0] a: Miscellaneous test’s

[IPU1-0]

[IPU1-0] s: System Settings

[IPU1-0]

## Calibration Use case selection

[IPU1-0] Vision SDK Use-cases,

[IPU1-0] --------------------

[IPU1-0] 1: Single Camera Use-cases

[IPU1-0] 2: Multi-Camera LVDS Use-cases

[IPU1-0] 3: AVB RX Use-cases, (TDA2x & TDA2Ex ONLY)

[IPU1-0] 4: Dual Display Use-cases, (TDA2x EVM ONLY)

[IPU1-0] 5: ISS Use-cases, (TDA3x ONLY)

[IPU1-0] 6: Stereo Use-cases, (TDA2x MonsterCam ONLY)

[IPU1-0] 7: Network RX/TX Use-cases

[IPU1-0] a: Miscellaneous test’s

[IPU1-0]

[IPU1-0] s: System Settings

[IPU1-0]

[IPU1-0] x: Exit

[IPU1-0]

[IPU1-0] Enter Choice: 5

[IPU1-0]

[IPU1-0] 19.977185 s:

[IPU1-0] 19.977307 s:

[IPU1-0]

[IPU1-0] ISS Use-cases, (TDA3x ONLY)

[IPU1-0] ---------------------------

[IPU1-0] 1: 1CH ISS capture + ISS ISP + ISS LDC+VTNF + Display

[IPU1-0] 2: 4CH ISS capture + ISS ISP + Simcop + Surround View (DSP1) + Display

[IPU1-0] 3: 1CH ISS capture (AR0132) + ISS ISP Monochrome + Display

[IPU1-0] 4: 3D SRV 4CH ISS capture + ISS ISP + DeWarp + Synthesis (DSP1) + Display

[IPU1-0] 5: Surround View Calibration

[IPU1-0]

[IPU1-0] x: Exit

[IPU1-0]

[IPU1-0] Enter Choice: 5

[IPU1-0]

[IPU1-0] 20.593607 s:

[IPU1-0] 20.645366 s: ISS\_SENSOR: INST0 : I2C1 : I2C Addr = 0x40

[IPU1-0] 20.647623 s: ISS\_SENSOR: VIP 42: DRV ID 120f (I2C ADDR 0x40): a640:00b4:0000

[IPU1-0] 20.649515 s: ISS\_SENSOR: INST0 : I2C1 : I2C Addr = 0x42

[IPU1-0] 20.651802 s: ISS\_SENSOR: VIP 43: DRV ID 120f (I2C ADDR 0x42): a640:00b4:0000

[IPU1-0] 20.652687 s: ISS\_SENSOR: INST0 : I2C1 : I2C Addr = 0x44

[IPU1-0] 20.656530 s: ISS\_SENSOR: VIP 44: DRV ID 120f (I2C ADDR 0x44): a640:00b4:0000

[IPU1-0] 20.657445 s: ISS\_SENSOR: INST0 : I2C1 : I2C Addr = 0x46

[IPU1-0] 20.659702 s: ISS\_SENSOR: VIP 45: DRV ID 120f (I2C ADDR 0x46): a640:00b4:0000

[IPU1-0] 20.684804 s: ISSCAPTURE: Create in progress !!!

[IPU1-0] 20.842768 s: UTILS: DMA: Allocated CH (TCC) = 48 (48)

[IPU1-0] 20.842890 s: UTILS: DMA: 0 of 1: Allocated PaRAM = 48 (0x63304600)

[IPU1-0] 20.843164 s: ISSCAPTURE: Create Done !!!

[IPU1-0] 20.843347 s: ISSM2MISP: Create in progress !!!

[IPU1-0] 21.013511 s: UTILS: DMA: Allocated CH (TCC) = 49 (49)

[IPU1-0] 21.013633 s: UTILS: DMA: 0 of 1: Allocated PaRAM = 49 (0x63304620)

[IPU1-0] 21.025590 s: ISSM2MISP: Create Done !!!

[IPU1-0] 21.025895 s: SELECT: OUT QUE0: OUT CH0: IN CH0: 0 x 0, pitch = (0, 0)

[IPU1-0] 21.026047 s: ALGORITHM: Create in progress (algId = 3) !!!

[IPU1-0] 21.042213 s: ALGORITHM: Create Done (algId = 3) !!!

[IPU1-0] 21.042365 s: VPE: Create in progress !!!

[IPU1-0] 21.127310 s: VPE: Create Done !!!

[IPU1-0] 21.127676 s: ALGORITHM: Create in progress (algId = 0) !!!

[IPU1-0] 21.238943 s: UTILS: DMA: Allocated CH (TCC) = 50 (50)

[IPU1-0] 21.239065 s: UTILS: DMA: 0 of 8: Allocated PaRAM = 50 (0x63304640)

[IPU1-0] 21.239248 s: UTILS: DMA: 1 of 8: Allocated PaRAM = 64 (0x63304800)

[IPU1-0] 21.239370 s: UTILS: DMA: 2 of 8: Allocated PaRAM = 65 (0x63304820)

[IPU1-0] 21.239461 s: UTILS: DMA: 3 of 8: Allocated PaRAM = 66 (0x63304840)

[IPU1-0] 21.239583 s: UTILS: DMA: 4 of 8: Allocated PaRAM = 67 (0x63304860)

[IPU1-0] 21.239705 s: UTILS: DMA: 5 of 8: Allocated PaRAM = 68 (0x63304880)

[IPU1-0] 21.239827 s: UTILS: DMA: 6 of 8: Allocated PaRAM = 69 (0x633048A0)

[IPU1-0] 21.239949 s: UTILS: DMA: 7 of 8: Allocated PaRAM = 70 (0x633048C0)

[IPU1-0] 21.240285 s: ALGORITHM: Create Done (algId = 0) !!!

[IPU1-0] 21.240407 s: DISPLAY: Create in progress !!!

[IPU1-0] 21.240865 s: DISPLAY: Create Done !!!

[IPU1-0] 21.242054 s: GRPXSRC: Create in progress !!!

[IPU1-0] 22.094430 s: GRPXSRC: Create Done !!!

[IPU1-0] 22.095620 s: DISPLAY: Create in progress !!!

[IPU1-0] 22.095986 s: DISPLAY: Create Done !!!

[IPU1-0] 22.096199 s: SYSTEM: SW Message Box Msg Pool, Free Msg Count = 1022

[IPU1-0] 22.096291 s: SYSTEM: Heap = LOCAL\_DDR @ 0x00000000, Total size = 262144 B (256 KB), Free size = 159088 B (155 KB)

[IPU1-0] 22.096474 s: SYSTEM: Heap = SR\_OCMC @ 0x40300000, Total size = 524288 B (512 KB), Free size = 524288 B (512 KB)

[IPU1-0] 22.096626 s: SYSTEM: Heap = SR\_DDR\_CACHED @ 0x85483000, Total size = 368050176 B (351 MB), Free size = 284019200 B (270 MB)

[IPU1-0] 22.096809 s: SYSTEM: Heap = SR\_DDR\_NON\_CACHED @ 0xbff00000, Total size = 96896 B (0 MB), Free size = 96128 B (0 MB)

[IPU1-0] 22.097480 s: \*\*\* UTILS: CPU KHz = 20000 Khz \*\*\*

[DSP1 ] 22.097267 s: SYSTEM: SW Message Box Msg Pool, Free Msg Count = 1023

[DSP1 ] 22.097328 s: SYSTEM: Heap = LOCAL\_L2 @ 0x00800000, Total size = 227264 B (221 KB), Free size = 227264 B (221 KB)

[DSP1 ] 22.097358 s: SYSTEM: Heap = LOCAL\_DDR @ 0x00000000, Total size = 524288 B (512 KB), Free size = 522200 B (509 KB)

[IPU1-0] 24.137345 s: Sensor Config time = 2040 msec

[IPU1-0] 24.137497 s: QSPI Read Started, please wait!

[IPU1-0] 24.137650 s: QSPI Read Completed Sucessfully

[IPU1-0] 24.137711 s: CHAINS: DCC Tag ID check failed for QSPI

[IPU1-0] 24.137772 s: CHAINS: Using DCC Profile from Driver

[IPU1-0] 24.155523 s: HDMI\_TX: hdmiId.deviceId = 176,hdmiId.deviceProdRevId = 2, hdmiId.hdcpRevTpi = 0, hdmiId.tpiRevId = 3

[IPU1-0] 24.155859 s: HDMI\_TX: hpdPrms.busError = 2, hpdPrms.hpdEvtPending = 0, hpdPrms.hpdStatus = 4

[IPU1-0] 24.166870 s: DISPLAY: Start in progress !!!

[IPU1-0] 24.166961 s: DISPLAY: Start Done !!!

[IPU1-0] 25.107454 s: DISPLAY: Start in progress !!!

[IPU1-0] 25.107515 s: DISPLAY: Start Done !!!

[IPU1-0] 25.107759 s: ISSCAPTURE: Start in progress !!!

[IPU1-0] 25.107942 s: ISSCAPTURE: Start Done !!!

[IPU1-0] 25.244098 s: UTILS: DMA: Allocated CH (TCC) = 51 (51)

[IPU1-0] 25.244372 s: UTILS: DMA: 0 of 1: Allocated PaRAM = 51 (0x63304660)

[IPU1-0] 25.251021 s:

[IPU1-0]

[IPU1-0] ====================

[IPU1-0] Chains Run-time Menu

[IPU1-0] ====================

[IPU1-0]

[IPU1-0] 0: Stop Chain

[IPU1-0] 1: Auto Calibration

[IPU1-0] 2: Manual Calibration

[IPU1-0]

[IPU1-0]

[IPU1-0] p: Print Performance Statistics

[IPU1-0]

[IPU1-0] Enter Choice:

[IPU1-0]

## Auto Calibration Selection

[IPU1-0] ====================

[IPU1-0] Chains Run-time Menu

[IPU1-0] ====================

[IPU1-0]

[IPU1-0] 0: Stop Chain

[IPU1-0] 1: Auto Calibration

[IPU1-0] 2: Manual Calibration

[IPU1-0]

[IPU1-0]

[IPU1-0] p: Print Performance Statistics

[IPU1-0]

[IPU1-0] Enter Choice: 1

[IPU1-0]

[IPU1-0] 76.086835 s: SRV\_CALIB\_UC: 1.Generating the calibration Matrix …

[IPU1-0] 76.086957 s: SRV\_CALIB\_UC: => Dumping YUV frames …

[IPU1-0] 76.452113 s: SRV\_CALIB\_UC: => Reading file CHARTPOS.BIN …

[IPU1-0] 76.453333 s: SRV\_CALIB\_UC: => Cal Mat Generation on DSP …

[DSP1 ] 76.453516 s: CAL\_MAT: Generating Calibration Matrix …

[DSP1 ] 76.453547 s: Auto Detect Chart Persistemt Mem Size = 6472288

[DSP1 ] 76.453577 s: Auto Detect Chart Scratch Mem Size = 6984

[DSP1 ] 87.464893 s: Corners detected for camera 0

[DSP1 ] 87.464954 s: Chart number 0

[DSP1 ] 87.464954 s: [308 330; 294 514; 515 350; 453 156]

[DSP1 ] 87.465015 s: Chart number 1

[DSP1 ] 87.465015 s: [288 763; 295 944; 433 1126; 501 926]

[DSP1 ] 99.703653 s: Corners detected for camera 1

[DSP1 ] 99.703684 s: Chart number 0

[DSP1 ] 99.703715 s: [354 842; 363 968; 507 1076; 565 969]

[DSP1 ] 99.703745 s: Chart number 1

[DSP1 ] 99.703745 s: [324 227; 326 350; 534 200; 470 107]

[DSP1 ] 112.966906 s: Corners detected for camera 2

[DSP1 ] 112.966967 s: Chart number 0

[DSP1 ] 112.966967 s: [320 373; 312 540; 536 464; 494 253]

[DSP1 ] 112.966998 s: Chart number 1

[DSP1 ] 112.967028 s: [308 752; 310 925; 480 1049; 530 835]

[DSP1 ] 124.942597 s: Corners detected for camera 3

[DSP1 ] 124.942627 s: Chart number 0

[DSP1 ] 124.942658 s: [281 914; 278 1033; 424 1152; 483 1060]

[DSP1 ] 124.942688 s: Chart number 1

[DSP1 ] 124.942719 s: [350 294; 331 417; 546 310; 507 201]

[DSP1 ] 124.942749 s: Pose Estimate Chart Persistemt Mem Size = 2880

[DSP1 ] 124.942780 s: Pose Estimate Chart Scratch Mem Size = 13784

[DSP1 ] 124.942841 s: 0) normCP.x:-1.228224, normCP.y:-0.204373

[DSP1 ]

[DSP1 ] 124.942871 s: 1) normCP.x:-0.416086, normCP.y:-0.219376

[DSP1 ]

[DSP1 ] 124.942902 s: 2) normCP.x:-1.176759, normCP.y:0.633796

[DSP1 ]

[DSP1 ] 124.942932 s: 3) normCP.x:-3.399635, normCP.y:0.660247

[DSP1 ]

[DSP1 ] 124.942963 s: 4) normCP.x:0.410706, normCP.y:-0.237186

[DSP1 ]

[DSP1 ] 124.942993 s: 5) normCP.x:1.203891, normCP.y:-0.256441

[DSP1 ]

[DSP1 ] 124.943024 s: 6) normCP.x:3.400917, normCP.y:0.516191

[DSP1 ]

[DSP1 ] 124.943054 s: 7) normCP.x:1.149164, normCP.y:0.568318

[DSP1 ]

[DSP1 ] 124.944946 s: 0) normCP.x:-2.061275, normCP.y:-0.178752

[DSP1 ]

[DSP1 ] 124.944976 s: 1) normCP.x:-1.108887, normCP.y:-0.126908

[DSP1 ]

[DSP1 ] 124.945007 s: 2) normCP.x:-2.767525, normCP.y:1.099450

[DSP1 ]

[DSP1 ] 124.945037 s: 3) normCP.x:-5.749586, normCP.y:1.189430

[DSP1 ]

[DSP1 ] 124.945068 s: 4) normCP.x:0.700129, normCP.y:-0.017758

[DSP1 ]

[DSP1 ] 124.945098 s: 5) normCP.x:1.337797, normCP.y:0.015781

[DSP1 ]

[DSP1 ] 124.945129 s: 6) normCP.x:2.602734, normCP.y:0.880868

[DSP1 ]

[DSP1 ] 124.945159 s: 7) normCP.x:1.530258, normCP.y:0.953689

[DSP1 ]

[DSP1 ] 124.947111 s: 0) normCP.x:-0.990961, normCP.y:-0.145217

[DSP1 ]

[DSP1 ] 124.947142 s: 1) normCP.x:-0.327262, normCP.y:-0.155019

[DSP1 ]

[DSP1 ] 124.947172 s: 2) normCP.x:-0.636036, normCP.y:0.640569

[DSP1 ]

[DSP1 ] 124.947203 s: 3) normCP.x:-1.903956, normCP.y:0.663812

[DSP1 ]

[DSP1 ] 124.947233 s: 4) normCP.x:0.369416, normCP.y:-0.170072

[DSP1 ]

[DSP1 ] 124.947264 s: 5) normCP.x:1.092581, normCP.y:-0.188310

[DSP1 ]

[DSP1 ] 124.947294 s: 6) normCP.x:2.138861, normCP.y:0.629845

[DSP1 ]

[DSP1 ] 124.947325 s: 7) normCP.x:0.719118, normCP.y:0.624123

[DSP1 ]

[DSP1 ] 124.949216 s: 0) normCP.x:-1.451045, normCP.y:-0.038635

[DSP1 ]

[DSP1 ] 124.949277 s: 1) normCP.x:-0.784836, normCP.y:-0.100699

[DSP1 ]

[DSP1 ] 124.949307 s: 2) normCP.x:-1.497081, normCP.y:0.845227

[DSP1 ]

[DSP1 ] 124.949338 s: 3) normCP.x:-2.637670, normCP.y:0.887742

[DSP1 ]

[DSP1 ] 124.949368 s: 4) normCP.x:1.045080, normCP.y:-0.297678

[DSP1 ]

[DSP1 ] 124.949399 s: 5) normCP.x:1.893275, normCP.y:-0.390757

[DSP1 ]

[DSP1 ] 124.949429 s: 6) normCP.x:4.261134, normCP.y:0.539456

[DSP1 ]

[DSP1 ] 124.949460 s: 7) normCP.x:2.285228, normCP.y:0.669808

[DSP1 ]

[DSP1 ] 124.951412 s: CAL\_MAT: Generating Calibration Matrix …

[DSP1 ] 125.268437 s: LDC\_LUT: Generating LDC LUT …

[DSP1 ] 125.328646 s: LDC\_LUT: Generating LDC LUT DONE

[IPU1-0] 124.960684 s: SRV\_CALIB\_UC: Writing Cal Mat to the file …

[IPU1-0] 125.067315 s: SRV\_CALIB\_UC: Writing Cal Mat to the file DONE

[IPU1-0] 125.067437 s: SRV\_CALIB\_UC: 2.Generating the LDC LUTs …

[IPU1-0] 125.076709 s: SRV\_CALIB\_UC: Reading V2W Mesh for view point 0 …

[IPU1-0] 125.268224 s: SRV\_CALIB\_UC: Generating LDC LUT for view point 0 …

[IPU1-0] 125.328768 s: SRV\_CALIB\_UC: Writing LDC LUT for view point 0 …

[IPU1-0] 126.254285 s: SRV\_CALIB\_UC: Reading V2W Mesh for view point 1 …

[IPU1-0] 126.388641 s: SRV\_CALIB\_UC: Generating LDC LUT for view point 1 …

[DSP1 ] 126.388885 s: LDC\_LUT: Generating LDC LUT …

[IPU1-0] 126.448819 s: SRV\_CALIB\_UC: Writing LDC LUT for view point 1 …

[DSP1 ] 126.448697 s: LDC\_LUT: Generating LDC LUT DONE

[IPU1-0] 127.426127 s: SRV\_CALIB\_UC: Reading V2W Mesh for view point 2 …

[IPU1-0] 127.560178 s: SRV\_CALIB\_UC: Generating LDC LUT for view point 2 …

[DSP1 ] 127.560422 s: LDC\_LUT: Generating LDC LUT …

[IPU1-0] 127.620600 s: SRV\_CALIB\_UC: Writing LDC LUT for view point 2 …

[DSP1 ] 127.620478 s: LDC\_LUT: Generating LDC LUT DONE

[IPU1-0] 128.584578 s: SRV\_CALIB\_UC: Reading V2W Mesh for view point 3 …

[IPU1-0] 128.721405 s: SRV\_CALIB\_UC: Generating LDC LUT for view point 3 …

[DSP1 ] 128.721618 s: LDC\_LUT: Generating LDC LUT …

[IPU1-0] 128.781522 s: SRV\_CALIB\_UC: Writing LDC LUT for view point 3 …

[DSP1 ] 128.781400 s: LDC\_LUT: Generating LDC LUT DONE

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:

[IPU1-0] 226.627859 s: SRV\_CALIB\_UC: Reading V2W Mesh for view point 87 …

[IPU1-0] 226.764533 s: SRV\_CALIB\_UC: Generating LDC LUT for view point 87 …

[DSP1 ] 226.764777 s: LDC\_LUT: Generating LDC LUT …

[IPU1-0] 226.824955 s: SRV\_CALIB\_UC: Writing LDC LUT for view point 87 …

[DSP1 ] 226.824833 s: LDC\_LUT: Generating LDC LUT DONE

[IPU1-0] 227.798023 s: SRV\_CALIB\_UC: Reading V2W Mesh for view point 88 …

[IPU1-0] 227.931708 s: SRV\_CALIB\_UC: Generating LDC LUT for view point 88 …

[DSP1 ] 227.931952 s: LDC\_LUT: Generating LDC LUT …

[IPU1-0] 227.992313 s: SRV\_CALIB\_UC: Writing LDC LUT for view point 88 …

[DSP1 ] 227.992191 s: LDC\_LUT: Generating LDC LUT DONE

[IPU1-0] 229.224394 s: SRV\_CALIB\_UC: Time taken to write 89 view point data = 104144 msec

[IPU1-0] 229.233117 s: SRV\_CALIB\_UC: \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

[IPU1-0] 229.233239 s: SRV\_CALIB\_UC: 3.Auto Calibration is completed …

[IPU1-0] 229.233300 s: SRV\_CALIB\_UC: \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

[IPU1-0] 229.233392 s:

[IPU1-0]

[IPU1-0] ====================

[IPU1-0] Chains Run-time Menu

[IPU1-0] ====================

[IPU1-0]

[IPU1-0] 0: Stop Chain

[IPU1-0] 1: Auto Calibration

[IPU1-0] 2: Manual Calibration

## Manual Calibration Selection

[IPU1-0] ====================

[IPU1-0] Chains Run-time Menu

[IPU1-0] ====================

[IPU1-0]

[IPU1-0] 0: Stop Chain

[IPU1-0] 1: Auto Calibration

[IPU1-0] 2: Manual Calibration

[IPU1-0]

[IPU1-0]

[IPU1-0] p: Print Performance Statistics

[IPU1-0]

[IPU1-0] Enter Choice: **2**

[IPU1-0]

[IPU1-0] 31.869212 s:

[IPU1-0]

[IPU1-0] ====================

[IPU1-0] Manual Calibration

[IPU1-0] ====================

[IPU1-0]

[IPU1-0] 0: Exit

[IPU1-0] 1: Save ISP output frames (Will be saved in MMC/SD : All channels)

[IPU1-0] 2: Read the Calibration Matrix (CAL MAT) from file

[IPU1-0] 3: Compute LDC LUTs for 3D SRV (All view points)

[IPU1-0] 4: Unmount File System before removing MMC/SD card

[IPU1-0] 5: Mount File System after inserting MMC/SD card

[IPU1-0]

[IPU1-0] Enter Choice: **1**

[IPU1-0]

[IPU1-0] 34.354663 s: SRV\_CALIB\_UC: Writing YUV image 0 to the file FRONT\_0.YUV …

[IPU1-0] 41.008448 s: SRV\_CALIB\_UC: Writing YUV image 0 to the file FRONT\_0.YUV DONE

[IPU1-0] 41.077228 s: SRV\_CALIB\_UC: Writing YUV image 1 to the file RIGHT\_0.YUV …

[IPU1-0] 47.660281 s: SRV\_CALIB\_UC: Writing YUV image 1 to the file RIGHT\_0.YUV DONE

[IPU1-0] 47.741322 s: SRV\_CALIB\_UC: Writing YUV image 2 to the file BACK\_0.YUV …

[IPU1-0] 54.297505 s: SRV\_CALIB\_UC: Writing YUV image 2 to the file BACK\_0.YUV DONE

[IPU1-0] 54.367046 s: SRV\_CALIB\_UC: Writing YUV image 3 to the file LEFT\_0.YUV …

[IPU1-0] 60.970749 s: SRV\_CALIB\_UC: Writing YUV image 3 to the file LEFT\_0.YUV DONE

[IPU1-0] 60.970932 s: SRV\_CALIB\_UC: Writing YUV image is completed

[IPU1-0] 60.971054 s:

[IPU1-0]

[IPU1-0] ====================

[IPU1-0] Manual Calibration

[IPU1-0] ====================

[IPU1-0]

[IPU1-0] 0: Exit

[IPU1-0] 1: Save ISP output frames (Will be saved in MMC/SD : All channels)

[IPU1-0] 2: Read the Calibration Matrix (CAL MAT) from file

[IPU1-0] 3: Compute LDC LUTs for 3D SRV (All view points)

[IPU1-0] 4: Unmount File System before removing MMC/SD card

[IPU1-0] 5: Mount File System after inserting MMC/SD card

[IPU1-0]

[IPU1-0] Enter Choice: **4**

[IPU1-0]

[IPU1-0] 65.601933 s: SRV\_CALIB\_UC: File system Unmounted

[IPU1-0] 65.602025 s:

[IPU1-0]

[IPU1-0] ====================

[IPU1-0] Manual Calibration

[IPU1-0] ====================

[IPU1-0]

[IPU1-0] 0: Exit

[IPU1-0] 1: Save ISP output frames (Will be saved in MMC/SD : All channels)

[IPU1-0] 2: Read the Calibration Matrix (CAL MAT) from file

[IPU1-0] 3: Compute LDC LUTs for 3D SRV (All view points)

[IPU1-0] 4: Unmount File System before removing MMC/SD card

[IPU1-0] 5: Mount File System after inserting MMC/SD card

[IPU1-0]

[IPU1-0] Enter Choice: **5**

[IPU1-0]

[IPU1-0] 76.110504 s: SRV\_CALIB\_UC: File System Mounted

[IPU1-0] 76.239461 s:

[IPU1-0]

[IPU1-0] ====================

[IPU1-0] Manual Calibration

[IPU1-0] ====================

[IPU1-0]

[IPU1-0] 0: Exit

[IPU1-0] 1: Save ISP output frames (Will be saved in MMC/SD : All channels)

[IPU1-0] 2: Read the Calibration Matrix (CAL MAT) from file

[IPU1-0] 3: Compute LDC LUTs for 3D SRV (All view points)

[IPU1-0] 4: Unmount File System before removing MMC/SD card

[IPU1-0] 5: Mount File System after inserting MMC/SD card

[IPU1-0]

[IPU1-0] Enter Choice: **2**

[IPU1-0]

[IPU1-0] 79.326511 s: SRV\_CALIB\_UC: => Reading Cal Mat from CALMAT.BIN file …

[IPU1-0] 79.329195 s:

[IPU1-0]

[IPU1-0] ====================

[IPU1-0] Manual Calibration

[IPU1-0] ====================

[IPU1-0]

[IPU1-0] 0: Exit

[IPU1-0] 1: Save ISP output frames (Will be saved in MMC/SD : All channels)

[IPU1-0] 2: Read the Calibration Matrix (CAL MAT) from file

[IPU1-0] 3: Compute LDC LUTs for 3D SRV (All view points)

[IPU1-0] 4: Unmount File System before removing MMC/SD card

[IPU1-0] 5: Mount File System after inserting MMC/SD card

[IPU1-0]

[IPU1-0] Enter Choice: **3**

[IPU1-0]

[IPU1-0] 84.519581 s: SRV\_CALIB\_UC: Reading V2W Mesh for view point 0 …

[IPU1-0] 84.967760 s: SRV\_CALIB\_UC: Generating LDC LUT for view point 0 …

[DSP1 ] 84.968004 s: LDC\_LUT: Generating LDC LUT …

[IPU1-0] 85.029372 s: SRV\_CALIB\_UC: Writing LDC LUT for view point 0 …

[DSP1 ] 85.029097 s: LDC\_LUT: Generating LDC LUT DONE

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[IPU1-0] 333.714481 s: SRV\_CALIB\_UC: Reading V2W Mesh for view point 89 …

[IPU1-0] 334.156103 s: SRV\_CALIB\_UC: Generating LDC LUT for view point 89 …

[DSP1 ] 334.156347 s: LDC\_LUT: Generating LDC LUT …

[IPU1-0] 334.231135 s: SRV\_CALIB\_UC: Writing LDC LUT for view point 89 …

[DSP1 ] 334.217867 s: LDC\_LUT: Generating LDC LUT DONE

[IPU1-0] 336.487342 s: SRV\_CALIB\_UC: Time taken to write 90 view point data = 251961 msec

## Surround View Use Case selection

Ensure to re-select the camera, refer section 6.1

[IPU1-0] Vision SDK Use-cases,

[IPU1-0] --------------------

[IPU1-0] 1: Single Camera Use-cases

[IPU1-0] 2: Multi-Camera LVDS Use-cases

[IPU1-0] 3: AVB RX Use-cases, (TDA2x & TDA2Ex ONLY)

[IPU1-0] 4: Dual Display Use-cases, (TDA2x EVM ONLY)

[IPU1-0] 5: ISS Use-cases, (TDA3x ONLY)

[IPU1-0] 6: Stereo Use-cases, (TDA2x MonsterCam ONLY)

[IPU1-0] 7: Network RX/TX Use-cases

[IPU1-0] a: Miscellaneous test’s

[IPU1-0]

[IPU1-0] s: System Settings

[IPU1-0]

[IPU1-0] x: Exit

[IPU1-0]

[IPU1-0] Enter Choice: **5**

[IPU1-0]

[IPU1-0] 11.511773 s:

[IPU1-0] 11.511864 s:

[IPU1-0]

[IPU1-0] ISS Use-cases, (TDA3x ONLY)

[IPU1-0] ---------------------------

[IPU1-0] 1: 1CH ISS capture + ISS ISP + ISS LDC+VTNF + Display

[IPU1-0] 2: 4CH ISS capture + ISS ISP + Simcop + Surround View (DSP1) + Display

[IPU1-0] 3: 1CH ISS capture (AR0132) + ISS ISP Monochrome + Display

[IPU1-0] 4: 3D SRV 4CH ISS capture + ISS ISP + DeWarp + Synthesis (DSP1) + Display

[IPU1-0] 5: Surround View Calibration

[IPU1-0]

[IPU1-0] x: Exit

[IPU1-0]

[IPU1-0] Enter Choice: **4**

[IPU1-0]

[IPU1-0] 12.073506 s:

[IPU1-0] 12.073659 s: CHAINS: Initiating read of LDC Look Up Tables from MMC/SD

[IPU1-0] 12.106844 s: \*\*\* UTILS: CPU KHz = 20000 Khz \*\*\*

[IPU1-0] 12.106935 s: SRV\_MEDIA: Reading LDC LUT for view point 0 …

[IPU1-0] 12.335448 s: ISS\_SENSOR: INST0 : I2C1 : I2C Addr = 0x40

[IPU1-0] 12.339077 s: ISS\_SENSOR: VIP 42: DRV ID 120f (I2C ADDR 0x40): a640:00b4:0000

[IPU1-0] 12.340114 s: ISS\_SENSOR: INST0 : I2C1 : I2C Addr = 0x42

[IPU1-0] 12.344415 s: ISS\_SENSOR: VIP 43: DRV ID 120f (I2C ADDR 0x42): a640:00b4:0000

[IPU1-0] 12.345452 s: ISS\_SENSOR: INST0 : I2C1 : I2C Addr = 0x44

[IPU1-0] 12.349234 s: ISS\_SENSOR: VIP 44: DRV ID 120f (I2C ADDR 0x44): a640:00b4:0000

[IPU1-0] 12.352223 s: ISS\_SENSOR: INST0 : I2C1 : I2C Addr = 0x46

[IPU1-0] 12.354999 s: ISS\_SENSOR: VIP 45: DRV ID 120f (I2C ADDR 0x46): a640:00b4:0000

[IPU1-0] 12.380162 s: ISSCAPTURE: Create in progress !!!

[IPU1-0] 12.538217 s: UTILS: DMA: Allocated CH (TCC) = 48 (48)

[IPU1-0] 12.538339 s: UTILS: DMA: 0 of 1: Allocated PaRAM = 48 (0x63304600)

[IPU1-0] 12.538553 s: ISSCAPTURE: Create Done !!!

[IPU1-0] 12.538949 s: ISSM2MISP: Create in progress !!!

[IPU1-0] 12.864423 s: UTILS: DMA: Allocated CH (TCC) = 49 (49)

[IPU1-0] 12.864545 s: UTILS: DMA: 0 of 1: Allocated PaRAM = 49 (0x63304620)

[IPU1-0] 12.876563 s: ISSM2MISP: Create Done !!!

[IPU1-0] 12.877081 s: SELECT: OUT QUE0: OUT CH0: IN CH0: 0 x 0, pitch = (0, 0)

[IPU1-0] 12.877295 s: ALGORITHM: Create in progress (algId = 3) !!!

[IPU1-0] 12.897425 s: ALGORITHM: Create Done (algId = 3) !!!

[IPU1-0] 12.897822 s: ALGORITHM: Create in progress (algId = 7) !!!

[IPU1-0] 13.103611 s: UTILS: DMA: Allocated CH (TCC) = 50 (50)

[IPU1-0] 13.103733 s: UTILS: DMA: 0 of 1: Allocated PaRAM = 50 (0x63304640)

[IPU1-0] 13.119868 s: UTILS: DMA: Allocated CH (TCC) = 51 (51)

[IPU1-0] 13.119990 s: UTILS: DMA: 0 of 1: Allocated PaRAM = 51 (0x63304660)

[IPU1-0] 13.136643 s: UTILS: DMA: Allocated CH (TCC) = 52 (52)

[IPU1-0] 13.136735 s: UTILS: DMA: 0 of 1: Allocated PaRAM = 52 (0x63304680)

[IPU1-0] 13.153114 s: UTILS: DMA: Allocated CH (TCC) = 53 (53)

[IPU1-0] 13.153236 s: UTILS: DMA: 0 of 1: Allocated PaRAM = 53 (0x633046A0)

[IPU1-0] 13.157994 s: UTILS: DMA: Allocated CH (TCC) = 54 (54)

[IPU1-0] 13.158146 s: UTILS: DMA: 0 of 1: Allocated PaRAM = 54 (0x633046C0)

[IPU1-0] 13.158543 s: ALGORITHM: Create Done (algId = 7) !!!

[IPU1-0] 13.158695 s: IPC\_OUT\_0 : Create in progress !!!

[IPU1-0] 13.158939 s: IPC\_OUT\_0 : Create Done !!!

[DSP1 ] 13.159305 s: IPC\_IN\_0 : Create in progress !!!

[DSP1 ] 13.159671 s: IPC\_IN\_0 : Create Done !!!

[DSP1 ] 13.160586 s: ALGORITHM: Create in progress (algId = 3) !!!

[IPU1-0] 13.646708 s: SRV\_MEDIA: Reading LDC LUT for view point 5 …

[IPU1-0] 14.642316 s: SRV\_MEDIA: Reading LDC LUT for view point 10 …

[IPU1-0] 14.867595 s: IPC\_IN\_0 : Create in progress !!!

[IPU1-0] 14.868449 s: IPC\_IN\_0 : Create Done !!!

[IPU1-0] 14.868754 s: DISPLAY: Create in progress !!!

[IPU1-0] 14.869242 s: DISPLAY: Create Done !!!

[IPU1-0] 14.871500 s: GRPXSRC: Create in progress !!!

[IPU1-0] 15.639388 s: SRV\_MEDIA: Reading LDC LUT for view point 15 …

[IPU1-0] 16.632221 s: SRV\_MEDIA: Reading LDC LUT for view point 20 …

[IPU1-0] 17.422039 s: GRPXSRC: Create Done !!!

[IPU1-0] 17.423442 s: DISPLAY: Create in progress !!!

[IPU1-0] 17.423839 s: DISPLAY: Create Done !!!

[IPU1-0] 17.424022 s: SYSTEM: SW Message Box Msg Pool, Free Msg Count = 1022

[IPU1-0] 17.424327 s: SYSTEM: Heap = LOCAL\_DDR @ 0x00000000, Total size = 262144 B (256 KB), Free size = 155384 B (151 KB)

[IPU1-0] 17.424510 s: SYSTEM: Heap = SR\_OCMC @ 0x40300000, Total size = 524288 B (512 KB), Free size = 524288 B (512 KB)

[IPU1-0] 17.424662 s: SYSTEM: Heap = SR\_DDR\_CACHED @ 0x85483000, Total size = 368050176 B (351 MB), Free size = 221152256 B (210 MB)

[IPU1-0] 17.424845 s: SYSTEM: Heap = SR\_DDR\_NON\_CACHED @ 0xbff00000, Total size = 96896 B (0 MB), Free size = 96128 B (0 MB)

[IPU1-0] 17.425730 s: QSPI Read Started, please wait!

[IPU1-0] 17.426096 s: QSPI Read Completed Sucessfully

[IPU1-0] 17.426310 s: CHAINS: DCC Tag ID check failed for QSPI

[IPU1-0] 17.426401 s: CHAINS: Using DCC Profile from Driver

[DSP1 ] 14.867168 s: ALGORITHM: Create Done (algId = 3) !!!

[DSP1 ] 14.867351 s: IPC\_OUT\_0 : Create in progress !!!

[DSP1 ] 14.867412 s: IPC\_OUT\_0 : Create Done !!!

[DSP1 ] 14.869578 s: ALGORITHM: Create in progress (algId = 6) !!!

[DSP1 ] 14.871408 s: ALGORITHM: Create Done (algId = 6) !!!

[DSP1 ] 17.425486 s: SYSTEM: SW Message Box Msg Pool, Free Msg Count = 1023

[DSP1 ] 17.425516 s: SYSTEM: Heap = LOCAL\_L2 @ 0x00800000, Total size = 227264 B (221 KB), Free size = 96192 B (93 KB)

[DSP1 ] 17.425577 s: SYSTEM: Heap = LOCAL\_DDR @ 0x00000000, Total size = 524288 B (512 KB), Free size = 522200 B (509 KB)

[IPU1-0] 17.655493 s: SRV\_MEDIA: Reading LDC LUT for view point 25 …

[IPU1-0] 18.662874 s: SRV\_MEDIA: Reading LDC LUT for view point 30 …

[IPU1-0] 19.662386 s: SRV\_MEDIA: Reading LDC LUT for view point 35 …

[IPU1-0] 19.673549 s: Sensor Config time = 2229 msec

[IPU1-0] 19.681937 s: HDMI\_TX: hdmiId.deviceId = 176,hdmiId.deviceProdRevId = 2, hdmiId.hdcpRevTpi = 0, hdmiId.tpiRevId = 3

[IPU1-0] 19.682242 s: HDMI\_TX: hpdPrms.busError = 2, hpdPrms.hpdEvtPending = 0, hpdPrms.hpdStatus = 4

[IPU1-0] 19.693832 s: DISPLAY: Start in progress !!!

[IPU1-0] 19.693893 s: DISPLAY: Start Done !!!

[IPU1-0] 20.479777 s: DISPLAY: Start in progress !!!

[IPU1-0] 20.479838 s: DISPLAY: Start Done !!!

[IPU1-0] 20.480723 s: ISSCAPTURE: Start in progress !!!

[IPU1-0] 20.480906 s: ISSCAPTURE: Start Done !!!

[IPU1-0] 20.481455 s:

[IPU1-0]

[IPU1-0] ====================

[IPU1-0] Chains Run-time Menu

[IPU1-0] ====================

[IPU1-0]

[IPU1-0] 0: Stop Chain

[IPU1-0] 1: Save a Captured RAW frame from channel 0 (Will be saved in DDR)

[IPU1-0] 2: Save a DeWarp Output Frame (Will be saved in DDR)

[IPU1-0] 3: Save ISP output frames (Will be saved in MMC/SD : All channels)

[IPU1-0] s: Stop / Start Transitions

[IPU1-0] n: Change to Next View Point, after transitions are stopped

[IPU1-0] r: Change to Previous View Point, after transitions are stopped

[IPU1-0]

[IPU1-0]

[IPU1-0] p: Print Performance Statistics

[IPU1-0]

[IPU1-0] Enter Choice:

[IPU1-0]

[IPU1-0] 20.713902 s: SRV\_MEDIA: Reading LDC LUT for view point 40 …

[IPU1-0] 21.848898 s: SRV\_MEDIA: Reading LDC LUT for view point 45 …

[IPU1-0] 22.980723 s: SRV\_MEDIA: Reading LDC LUT for view point 50 …

[IPU1-0] 24.115537 s: SRV\_MEDIA: Reading LDC LUT for view point 55 …

[IPU1-0] 25.248673 s: SRV\_MEDIA: Reading LDC LUT for view point 60 …

[IPU1-0] 26.387665 s: SRV\_MEDIA: Reading LDC LUT for view point 65 …

[IPU1-0] 27.530104 s: SRV\_MEDIA: Reading LDC LUT for view point 70 …

[IPU1-0] 28.667327 s: SRV\_MEDIA: Reading LDC LUT for view point 75 …

[IPU1-0] 29.805313 s: SRV\_MEDIA: Reading LDC LUT for view point 80 …

[IPU1-0] 30.939547 s: SRV\_MEDIA: Reading LDC LUT for view point 85 …

[IPU1-0] 31.844903 s: SRV\_MEDIA: Time taken to read 89 view point data = 19737 msec

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# Revision History

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| --- | --- | --- |
| **Version** | **Date** | **Revision History** |
| 0.1 | 1st March 2016 | Draft |
| 0.2 | 11th March 2016 | Updated for 2.9 Release |
| 0.3 | 6th July 2016 | Updated for 2.10 Release |

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