# Vision Software Development Kit

## Version 02.08.00

**Release Notes**
**October 2015**

## Contents



- **NOTES:**
  - For TDA2Ex SoC and Multi-Sensor Fusion Platform (MonsterCam), this is a preliminary release with limited testing (Alpha Quality).

# Build ID: 02.08.00.00

**IMPORTANT NOTE:** Vision SDK by default supports the TDA2xx, TDA3xx & TDA2Ex super set device configuration. Please refer to the datasheet of the specific part to know the details of the CPUs supported in that part. Vision SDK supports selecting only the CPUs available for the specific part.

## Major Features in the Release

New features in the release vs previous Vision SDK release are highlighted in **blue**.

### SDK Features (BIOS ONLY)

- Support the following SoC/Platforms
  - TDA2x SoC ES1.0/ES1.1 EVM
  - TDA3x SoC ES1.0/ES1.0A (15x15, 12x12 POP) EVM
  - TDA2Ex Soc ES1.0 EVM
  - TDA2x SoC ES1.1 MonsterCam
- Support for all CPU's in the TDA2xx Device (IPU1-0, IPU1-1, DSP1, DSP2, EVE1, EVE2, EVE3, EVE4, A15-0)
  - Single-channel Capture via VIP for OV10635 sensor, HDMI receiver
  - Multi-channel Capture (via VIP with LVDS, via Ethernet with AVB)
  - Dual Display and Display Controller for VENCs (LCDx and On-Chip HDMI)
  - Single-channel DSS Write Back Capture
  - VPE (Scalar), Encode (MJPEG/H264), Decode (MJPEG/H264)
  - Stripe based capture – support for OTF processing
  - MonsterCam – Stereo and Main camera support, examples of algorithm integration on Main Imager input
  - Dual A15 support (SMP BIOS mode)
  - 4CH OV10635 capture via UB960/OV490/TIDA00455 to support for Low cost surround view on TDA2xx
- Support for all CPU's in the TDA3xx Device (IPU1-0, IPU1-1, DSP1, DSP2, EVE)
  - Single-channel Capture via VIP for OV10365 sensor, HDMI receiver
  - Multi-channel Capture (via VIP with LVDS)
  - Capture via ISS CAL OV10640 (CSI2/Parallel), AR132 (Parallel), AR140 (parallel), IMX224 (CSI2)
  - ISS M2M-ISP & ISS M2M-SIMCOP Links
  - Single Display and Display Controller for VENCs (LCD, SD VENC (NTSC/PAL) and Off-Chip HDMI)

    - 64MB memory map for TDA3x 12x12 POP package (IPU1-0, IPU1-1, DSP1, EVE1)
    - ISS Image tuning tool (DCC – Dynamic Camera Configuration), AWB, AE library
    - Tuned AR140, OV10640, IMX224 with WDR
    - Multiple channel processing support for ISS CAPTURE and ISS M2M-SIMCOP Links.
    - Fast boot mode which allows capture-display to bring up first without DSP and EVE. POR to Display in < 320 ms (excluding sensor initialization).
        - Seamless switch to Object Detect usecase after DSP and EVE are up
    - Frame freeze detect using display write back & HW CRC
    - 4CH AR140 CAL CSI2 capture via UB960 CSI2 Hub for Low cost surround view.
        - **With HW LDC support for distortion correction.**
    - **RTI configuration, expiry detection and recovery.**
- Support for all CPU's in the TDA2Ex Device (IPU1-0, IPU1-1, DSP1, A15-0)
    - Single-channel Capture via VIP for OV10365 sensor
    - Multi-channel Capture (via VIP with LVDS)
    - Display and Display Controller for VENCs (LCD and On-Chip HDMI)
    - VPE (Scalar), Encode (MJPEG/H264), Decode (MJPEG/H264)
- TDA2x MC – Calibration use-case
    - Improved camera calibration process for Stereo, no need for PC based tools. Refer VisionSDK_MultiSensorFusionStereoCalibrationGuide.pdf
    - **Supported 3ch Capture + Display FPD link use-case**
    - **CAN validated in board to board communication**
- All SoC supports Links Such as Dup, Merge, Select, Sync, NullSrc, Null and IPC (In/Out).
    - Gate Link – Gives selective control to application on part of usecase data flow.
        - Typical usecases - power management, boot time optimizations
    - Split Link (TDA2xx only) – Allows single video buffer of higher resolution to be split into multiple channels of lower resolutions on same output queue.
        - Typical usecase - surround view using OV490 on TDA2xx.
- Algorithm link with algorithm plug-in's support on all CPU's
- Integrated below TI algorithms (sample reference algorithms only)
    - Pedestrian Detection
    - Traffic Sign Recognition
    - Lane Detection
    - Sparse Optical Flow
    - Dense Optical Flow
    - Edge Detection

    - Stereo (MsonterCam ONLY)
    - 2D Surround View
    - 3D Surround View (Linux+BIOS Vision SDK ONLY)
- System and Local EDMA support on all cores
- TCP/IP support via NDK/NSP on IPU1-1 (TDA2xx, TDA3xx, TDA2Ex), A15-0 (TDA2xx,TDA2Ex)
- **Support for FAT File system with MMC/SD card. (When networking is enabled FAT FS is disabled)**
- Support Auto use-case generation tool. Refer VisionSDK_UsecaseGen_Overview.pdf & VisionSDK_UsecaseGen_UserGuide.pdf under docs folder for details.
- Power Management
    - CPU idle (A15 – Retention, M4 – Auto Clock Gate, DSP – Auto Clock Gate, **EVE – Auto Clock Gate**) & Temperature measurement support.
    - Thermal management Limp Home Mode demonstration.
    - **Demonstration of DSP and EVE to power domain off and reboot for analytics standby low power state in TDA3xx Fast Boot use case.**
- Links framework, BSP/Starterware drivers modified to support optional static memory allocation (Refer VisionSDK_DevelopmentGuide.pdf for more details).
- Debug and Instrumentation Framework
    - Performance log (FPS, CPU Load, Heap memory usage)
    - Debug log (exception log, assert log)
    - DDR BW statistics via HW statistic collectors
    - PRCM status and reading clock frequencies of different modules.
    - Reading Voltage values of different device voltage rails from PMIC.
    - Link statistics logic updated to get link statistics and CPU status without sending command to remote core.
- Multiple boot mode support
    - TDA2x EVM: QSPI boot, SD boot, NOR boot, CCS boot
    - TDA3x EVM: QSPI boot, QSPI+SD boot (SBL in QSPI, AppImage in SD card), CCS boot
    - TDA2Ex EVM: QSPI boot, SD boot, NOR boot, CCS boot
    - TDA2x MC: QSPI boot, SD boot, CCS boot

**Installation and Usage (BIOS ONLY)**

- Kindly refer user guides vision_sdk/docs/VisionSDK_UserGuide_TDAxxx.pdf

### Example use-cases (BIOS ONLY)

- Vision SDK demonstrates use-cases as examples. Below table lists these usecases and also indicates the SOC/Platform it is validated on.

| No. | Usecases | TDA2xx EVM | TDA2xx MC | TDA2Ex EVM | TDA3xx EVM |
|---|---|---|---|---|---|
| Single Camera Use-cases | | | | | |
| 1. | 1CH VIP capture + Display | √ | √ | √ | √ |
| 2. | 1CH VIP capture + Alg Frame Copy (DSP1) + Display | √ | √ | √ | √ |
| 3. | 1CH VIP capture + Alg Frame Copy (EVE1) + Display | √ | √ | X | √ |
| 4. | 1CH VIP capture + Alg Frame Copy (A15) + Display | √ | √ | √ | X |
| 5. | 1CH VIP capture + Edge Detect (EVE1) + Display | √ | √ | X | √ |
| 6. | 1CH VIP capture + Dense Optical Flow (EVEx) + Display (HDMI) | √ | √ | X | √[1] |
| 7. | 1CH VIP capture (HDMI) + Pedestrian and Traffic Sign Detect (EVE1 + DSP1) + Display | √ | X | X | √ |
| 8. | 1Ch VIP capture + Sparse Optical Flow (EVE1) + Display | √ | √ | X | √ |
| 9. | 1Ch VIP capture (HDMI) + Lane Detect (DSP1) + Display | √ | X | √ | √ |
| 10. | 1CH VIP capture + Alg Subframe Copy (EVE1) + Display | √ | √ | X | √ |
| 11. | 1Ch VIP capture (HDMI) + FrontCam Analytics (PD+TSR+LD+SOF) (DSPx, EVEx) + Display (HDMI) | √ | X | X | √ |
| 12. | 1Ch VIP capture + DSSWB + CRC + Display | X | X | X | √ |
| 13. | 1Ch VIP capture + ENC + DEC + VPE + Display | √ | √ | √ | X |
| Multi-Camera LVDS Use-cases | | | | | |
| 14. | 4CH VIP Capture + Mosaic Display | √ | X | √ | X |
| 15. | 4CH VIP Capture + Surround View (DSP) + Display (HDMI) (TDA2x & TDA2Ex ONLY) | √ | X | √ | X |
| 16. | 5CH VIP Capture + Surround View (DSPx) + Analytics (DSP/EVE) + Ultrasound (DSPx) + HDMI Display (HDMI) (TDA2x ONLY) | √ | X | X | X |
| 17. | 4CH VIP Capture + Surround View (DSPx) + Display (HDMI) (TDA3x ONLY) | X | X | X | √ |
| 18. | 2CH VIP Capture (2560x720 TIDA0455) + Surround View (DSPx) + Display | √ | X | X | X |
| AVB RX Use-cases, (TDA2x ONLY) | | | | | |
| 19. | 4CH AVB Capture + Decode + VPE + Sync + Alg DMA SW Mosaic (IPU1-0) + Display | √ | X | X | X |
| 20. | 5CH AVB Capture + Surround View (DSPx) + Edge Detect (EVE1) + Display (HDMI) | √ | X | X | X |
| Dual Display Use-cases, (TDA2x EVM ONLY) | | | | | |
| 21. | 1CH VIP capture + Dual Display | √ | X | X | X |
| 22. | 1CH VIP capture + Edge Detect (EVE1) + Dual Display | √ | X | X | X |
| 23. | 2CH LVDS VIP capture + Dual Display | √ | X | X | X |
| ISS Use-cases, (TDA3x ONLY) | | | | | |
| 24. | 1CH ISS capture + ISS ISP + ISS LDC+VTNF + Display | X | X | X | √ |
| 25. | 4CH ISS Capture + ISS ISP + Surround View (DSP1) + DISPLAY | X | X | X | √ |
| 26. | 4CH ISS capture + ISS ISP + Simcop + Surround View (DSP1) + Display | X | X | X | √ |
| 27. | 1CH ISS capture (AR0132) + ISS ISP Monochrome + Display | X | X | X | √ |

| No. | Usecases | TDA2xx EVM | TDA2xx MC | TDA2Ex EVM | TDA3xx EVM |
|---|---|---|---|---|---|
| Stereo Use-cases, (TDA2x MonsterCam ONLY) | | | | | |
| 28. | 2CH VIP capture + Stereo (DSPx, EVEx) + Display (HDMI) | X | √ | X | X |
| 29. | Network capture + Stereo (DSPx, EVEx) + PD+TSR+LD+SOF (DSPx, EVEx) + Display (HDMI) | X | √ | X | X |
| 30. | 2CH VIP capture + SoftISP + Remap + Display - USED for Stereo Calibration | X | √ | X | X |
| 31. | Network + Stereo + Display (HDMI) | X | √ | X | X |
| Other Use-cases | | | | | |
| 32. | File IO using MMCSD | √ | √ | X | √ |

- [1] Only EVE1 is used in TDA3xx

**SDK Features (Linux + Bios)**

- Support the following CPU's in the TDA2xx system (IPU1-0, DSP1, DSP2, EVE1, EVE2, EVE3, EVE4, A15-0)
- Single-channel Capture via VIP for OV10365 sensor
- Multi-channel Capture (via VIP with LVDS, via Ethernet with AVB)
- DRM based Display (support both LCDx and On-Chip HDMI)
- VPE (Scalar), Encode (MJPEG/H264), Decode (MJPEG/H264)
- IPU1 based EVE loader
- Improved 3D SRV link using SGX (Open-GL Algo) for creating the "360 degree view of the car with virtual camera motion" is integrated
- AVB and NDK support on IPU1_0 when A15 is running Linux
- This release supports Rev-E and higher versions of TDA2xx EVM only
- Support the following CPU's in the TDA2Ex system (IPU1-0, DSP1, A15-0)
- Single-channel Capture via VIP for OV10365 sensor
- Multi-channel Capture (via VIP with LVDS)
- DRM based Display (support both LCDx and On-Chip HDMI)
- VPE (Scalar), Encode (MJPEG/H264), Decode (MJPEG/H264)
- Linux on A15 (3.14 kernel) & BIOS on all other cores
- sgxDisplay, sgx3Dsrv, Dup, Merge, Select, Sync, NullSrc, Null and IPC (In/Out) links.
- Inter processor communication framework infrastructure between A15 running Linux and other cores running BIOS,
- This release doesn't support late attach & error recovery features supported by remoteproc module
- Basic SGX/OpenGL support - SGX link on A15 can be used to render/texture the video frames
- Auto use case generation tool (same as BIOS only Vision SDK)
- Debug and Instrumentation Framework (same as BIOS only Vision SDK)

**Installation and Usage (Linux + Bios)**

- Kindly refer vision_sdk/linux/docs/VisionSDK_LinuxUserGuide.pdf

**Example use-cases (Linux + Bios)**

- Vision SDK demonstrates use-cases as examples. Below table lists these usecases and also indicates the SOC/Platform it is validated on.

| No. | Usecases | TDA2xx EVM | TDA2xx MC | TDA2Ex EVM | TDA3xx EVM |
|---|---|---|---|---|---|
| Single Camera Use-cases | | | | | |
| 1 | 1CH VIP capture + SGX DISPLAY(A15) | √ | X | √ | X |
| 2 | 1CH VIP capture + Encode + Decode + SGX DISPLAY(A15) | √ | X | √ | X |
| 3 | 1CH VIP capture + PD + TSR (EVE1 + DSPx) + SGX DISPLAY(A15) | √ | X | X | X |
| Multi-Camera LVDS Use-cases | | | | | |
| 4 | 4CH VIP LVDS capture + SGX DISPLAY (Mosaic, A15) | √ | X | √ | X |
| 5 | 4CH VIP LVDS capture + 3D SRV (SGX/A15) + SGX/DRM DISPLAY(A15) - Only HDMI 1080p display supported | √ | X | X | X |
| 6 | 2CH OV490 2560x720 capture + Split + 3D SRV (SGX/A15) + SGX/DRM DISPLAY(A15) - Only HDMI 1080p display supported | √ | X | X | X |
| AVB RX Use-cases, (TDA2x ONLY) | | | | | |
| 7 | 4CH AVB Capture + Decode + SGX DISPLAY (Mosaic, A15) | √ | X | X | X |

## Component Versions

Color **blue** indicates update in component version vs previous Vision SDK release

| Component / Tools | Version |
|---|---|
| Code gen tools (Bios) | |
| Code gen tools for IPU | **ti-cgt-arm_5.2.5** |
| Code gen tools for DSP | C6000_7.4.2 |
| Code gen tools for EVE | **arp32_1.0.7** |
| Code gen tools for A15 | gcc-arm-none-eabi-4_7-2013q3* |
| Code Composer Studio – used only for loading and debug | 6.0.1.00040* (SDK also works with 5.4.0.00091 and 5.5.0.00077) |
| Dynamic Camera Configuration (DCC) Tuning Tool (TDA3x only) | Version - 2.0 (Refer the TDA3x user guide for the download link) |
| OS tools (Bios) | |
| BIOS | **6_42_02_29**‡ |
| IPC | **3_40_00_06** |
| XDC tools | **3_31_02_38_core** |
| OS tools (Linux) | |
| Linaro tools for A15 | gcc-linaro-arm-linux-gnueabihf-4.7-2013.03-20130313_linux |
| Linux Kernel | 3.14.31 |
| Linux Uboot | 2014.07 |
| OpenGL ES | 2.0 |
| Linux SGX drivers | 1.9.0.12-r1 |
| Linux Target FileSystem | 1.9 |
| Drivers (Bios) | |
| BSP drivers | **01_04_00_08** |
| Starterware | **01_04_00_10** |
| EDMA3LLD driver | 02_12_00_20 |
| Networking Tools (Bios) | |
| NDK (TCP/IP Stack) | 2_24_02_31 |
| NSP (Ethernet driver) | 4_13_00_00 |
| AVB (AVB protocol stack) | 0_09_00_01 |
| Algorithm / Codecs (Bios) | |
| Framework components | **3_40_01_04** |
| XDAIS | 7_24_00_04 |
| HDVICP2 API library | 1_00_00_23 |

| Component / Tools | Version |
|---|---|
| MJPEG Encode | 01_00_16_01 |
| MJPEG Decode | 01_00_13_01 |
| H264 Encode | 02_00_09_01 |
| H264 Decode | 02_00_17_01 |
| DSP VLIB | **3_3_0_0** |
| EVE software package | **01_10_00_00** |
| DSP SRV Alg | 1_2_0_0 |
| DSP Alg Object detection | 00_04_00_00 |
| DSP Lane detection | 00_02_01_00 |
| DSP Stereo Post Process | 00_02_02_00 |
| AWB Library | 1_0_0_0 |
| DCC Library | 1_0_0_0 |

* Not included in the SDK package. Needs to be downloaded separately, refer user guide for download details.

‡ Updated the BIOS package with a patch on the file packages\ti\sysbios\family\shared\vayu \TimerSupport.xs

## Validation Hardware

This software package is tested with the below hardware

- **TDA2xx EVM**
  - Single Camera use-cases: Vision Application Board + OV10635 sensor or HDMI capture + LCD or HDMI display
  - LVDS Multi Camera use-cases: Vision Application Board + De-serializer board + 4~5xSerializer board + 4~5x OV10635 sensor + LCD or HDMI display
  - AVB Multi Camera use-cases: Vision Application Board + HDMI display + AVB talker (on Linux on PC)

- **TDA3xx EVM**
  - Single Camera VIP use-cases: OV10635 sensor or HDMI capture + LCD or SDTV or HDMI display
  - LVDS Multi Camera use-cases: De-serializer board + 4xSerializer board + 4x OV10635 sensor + SDTV display
  - Single Camera ISS use-cases: OV10640 (CSI2/Parallel) or AR0132 (Parallel) sensor + LCD or SDTV or HDMI display
  - Surround view use-case: Requires UB960 EVM with 4 TIDA00262 camera modules and HDMI Display

- **TDA2xx MonsterCam**
  - Single Camera use-cases: DM388 capture (AR0132) + HDMI display

- Stereo Camera use-cases: Stereo capture (AR0132 RCCC) + HDMI display
- Network capture + 4 Algorithms + Stereo + HDMI display

- **TDA2Ex EVM**
  - Single Camera use-cases: Vision Application Board + OV10635 sensor + HDMI display
  - LVDS Multi Camera use-cases: Vision Application Board + De-serializer board + 4xSerializer board + 4x OV10635 sensor + HDMI display

Refer user guide for exact board number and revision that this release is validated with.

## SW Quality – Status

| Software Component | System / Component Testing | MISRA - C * | Static code analysis | Quality Compliance** |
|---|---|---|---|---|
| SBL – TDA2x | Yes | Yes | Yes | Yes (QM) |
| SBL - TDA3x | Yes | Yes | Yes | Yes (QM) |
| StarterWare | Yes | Yes | Yes | Yes (QM) |
| ISS StarterWare | Yes | **Yes** | Yes | Yes (QM) |
| BSP / Drivers | Yes | Yes | Yes | Yes (QM) |
| EVE Library | Yes | **Yes** | Yes | Yes (QM) |
| EVE StarterWare | Yes | Yes | Yes | Yes (QM) |
| DSP (C66x) VLIB | Yes | Yes | Yes | Yes (QM) |
| NDK | Yes | Yes | Yes | Yes (QM) |
| NSP | Yes | Yes | Yes | Yes (QM) |
| AVB | Yes | Yes | Yes | Yes (QM) |
| IVAHD MJPEG Dec | Yes | No | Yes | Yes (QM) |
| IVAHD H.264 Enc/Dec | Yes | No | Yes | Yes (QM) |
| EDMA LLD | Yes | Yes | Yes | Yes (QM) |
| Framework Components | Yes | Yes | Yes | Yes (QM) |
| BIOS | Yes | Yes | Yes | Yes (QM) |
| BIOS-IPC | Yes | Yes | Yes | Yes (QM) |
| Links Framework | Yes | **Yes** | Yes | Yes (QM) |

- * MISRA-C compliance is with respect to a set of accepted rules, using TI-CGT or Klockworks for compliance.
- **Following TI QSS 024-412 Rev. I process

## Bugs Fixed In This Release

| Defect ID | Headline |
|---|---|
| OMAPS00317328 | [TDA3xx ] ISS usecase output for AR0140 sensor is slightly noisy with WDR enabled for black scene |
| OMAPS00319193 | [TDA3xx ] NTSC to PAL switching is not working |
| OMAPS00319577 | Dark spot is observed when light source is pointed at sensor (OV10640 CSI2) |
| OMAPS00320065 | Monstercam - Census Link Stats show I/p frame rate on 2nd Channel 0 |
| OMAPS00320192 | Output is Blank for ISS Usecase when ENABLE_UART is disabled |
| OMAPS00320193 | DCC Parser error should be returned to network tool |
| OMAPS00321060 | Monster CAM +Testsuite] Assert observed for H.264 encode decode while stopping usecase |
| OMAPS00321691 | [Vision SDK Linux] - Problem with multiple use case selection/switching (DRM Error) |
| OMAPS00323433 | System instability with AR0140 |
| OMAPS00323721 | Performance Stats are not displayed completely |
| OMAPS00323723 | TDA2xx 256M and TDA3xx 64M memory build is failing |
| OMAPS00324308 | [Vision SDK Linux] - Exit option "x" make Kernel crash for ENC/DEC usecase with TDA2Ex |
| OMAPS00324533 | AR0132 Sensor does not work always, randomly, it outputs grey/white frames. Also sometimes, it does not output any frames. |
| OMAPS00324711 | DRA7xx: INFOADAS : SRV: Assertion in IpcOut Link in [IPU1-0] or [DSP2] |
| OMAPS00324819 | Simcop Link uses ISP Lock |
| OMAPS00324965 | [Vision SDK] - issue in building Algos, its not getting build even if set BUILD_ALGORITHMS=yes in rules.make |
| OMAPS00325162 | C6XDSP_main() for TDA3xx misses calling the Cache/L2 configuration function Utils_dspCacheInit() |
| OMAPS00325811 | non-executable files like ".h" or ".c" or ".pdf" should not be marked as executable |
| OMAPS00325873 | Minor issue with  ISS Use-cases menu |
| OMAPS00326027 | [vision SDK Linux] TDA2x - 3D srv demo of vision SDK Linux is not working with new FS & Kernel |
| OMAPS00326032 | align DSP, M4, EVE, A15 tools name across VSDK & STW |
| OMAPS00326040 | [Linux ] PD +TSR usecase is not working with latest kernel/u-boot/sgx |
| OMAPS00326160 | [Monster Cam] stereo usecase hangs while exiting usecase |

| | |
|---|---|
| OMAPS00326162 | [Monster Cam] Not able to exit from  Single camera usecase menu |
| OMAPS00326195 | [vision sdk linux] Load bar does not show correct values, its shows some random figures |
| OMAPS00326280 | Sync Link time stamp calcucation issue causes frame drops in the system |
| OMAPS00326660 | Subframe copy usecase is not working |
| OMAPS00326858 | utils_c66_cache.c hardcodes MPU settings, also sets incorrect L2 MPU registers |
| OMAPS00326989 | Network Tx/RX usecase is notworking |
| OMAPS00326998 | Network capture with front camera analytic usecase is not working |
| OMAPS00327094 | Setting FATFS_PROC_TO_USE=ipu1_0 and loading code through CCS causes IPU Abort |
| OMAPS00327120 | TDA2xx 2D SRV with analytics usecase is not working |
| OMAPS00327361 | TD3xx 4ch LVDS usecase is not working |
| OMAPS00327362 | AVB or Encode+decode usecase hangs during exiting usecase |
| OMAPS00327601 | TDA3x, Front Camera analytics demo assert when run back to back |
| OMAPS00327602 | CPU for DSP and IPU is not correct in Linux+Vision SDK |
| OMAPS00327603 | 7-inch LCD on TDA3x is not working |
| OMAPS00327605 | [TDA3x] ISP monochorma use-case is not working |
| OMAPS00327607 | [TDA3xx]: ISP link asserts when used with 7 Inch LCD |
| OMAPS00327608 | [TDA3x] CPU load bar is not appearing on display |
| OMAPS00327656 | TDA3xx DSS write back usecase hangs for SD NTSC |
| OMAPS00327734 | TDA3xx PAL to HDMI switch takes around 16sec to start usecase |
| OMAPS00327736 | TDA3xx DOF one pyramid video displayed with very low light |
| OMAPS00327737 | TDA3xx PD+TSR usecase Assertion hapeens when runrepeatedly |
| OMAPS00327745 | Linux binaries are not working hangs during demo app launch |

## Known Issues / Limitations

| Module | Description | Workaround | Frequency of Occurrence | CQ ID |
|---|---|---|---|---|
| Vision SDK | [TDA2xx ] Random crash noticed when running 5 algo demo on Monstercam with Network streaming | NA | Always (after ~2/3 hours of running) | OMAPS00319043 |
| Vision SDK | [VSDK] - With SMP BIOS on A15 - Observed random crash with NDK/NSP on A15 | NA | Always | OMAPS00322330 |
| Vision SDK | [Vision_SDK] LVDS Hardware (I2C) hangs very rarely while stop and start the usecase | NA | Rarely | OMAPS00301208 |
| Vision SDK | [Vision SDK] After running SOF usecase , Subframe usecase is failing | NA | Always | OMAPS00319592 |
| Vision SDK | LD and OD when run on same DSP causes a crash. Need to memset LD L2SRAM area to workaround this | Yes | Always | OMAPS00324706 |
| Vision SDK | TDA3x - fast boot with analytics on/off usecase doesn't work in long run | NA | Always | OMAPS00327615 |
| Vision SDK | [TDA3x] Fast boot with IPU1-1 and DSP ON/OFF does not work | NA | Always | OMAPS00327783 |
| Vision SDK | [TDA3x] When RTI is enabled FAST BOOT does not work | NA | Always | OMAPS00327846 |
| Vision SDK | [TDA3x] CRC_INCLUDE flag in misleading since it refers to ALG CRC and not CRC feature in general | NA | Always | OMAPS00327847 |

Refer also to BSP / Starterware /InfoAdas Release Notes for additional known issues

## Compatibility Info

This section contains information about compatibility of APIs between this release and 02.06.00.00

NOTE: It is recommended to recompile the user created use-cases, alg plugins, links against the new release interface files even if no code level change is required in the user application.

### Link API

| Module | Interface file | Change in user application required | Change details |
|---|---|---|---|
| Alg Link | algorithmLink.h | No | Added new Algorithm Link Ids TDA3xx only 2D surround view with HW LDC. |
| Alg Link | algorithmLink_geometricAlignment.h | Yes | Added paramters to the structure AlgorithmLink_GAlignCreateParams for LDC configuration. |
| Alg Link | algorithmLink_objectDetection.h | Yes | Added advanced tuning parameters to AlgorithmLink_ObjectDetectEnableAlgParams. Added image width and height inputs to AlgorithmLink_ObjectDetectionCreateParams. |
| Alg Link | algorithmLink_synthesis.h | Yes | Added new parameters for LUT configuration and LDC Frame width and height parameters to AlgorithmLink_SynthesisCreateParams. |
| Graphics Link | grpxSrcLink.h | No | Added command for printing a string on the display without clearing previous strings. |
| ISS Capture Link | issCaptureLink.h | No | Added support to enable detection and reporting of errors in CAL. |
| ISS ISP M2M Link | issM2mIspLink.h | No | Added support for configuration of buffer allocation size in the IssM2mIspLink_ChannelParams. |
| ISS SIMCOP M2M Link | issM2mSimcopLink.h | No | Added override controls on the input and output frame size for LDC only mode. Added flag and support to enable a second input queue for LDC LUT. |
| RTI Link | rtiLink.h | Yes | New Feature to enable RTI on TDA3xx. |
| Sync Link | syncLink.h | Yes | Removed SyncLink_ChannelParams from SyncLink_CreateParams and added support for Delta Time parameters to sync frames and timeout to drop frames. |
| System Link | system.h | Yes | Updated System_deInit API input to include option to shut down remote cores or not. This is always FALSE in BIOS only case. |
| System Buffer Link | system_buffer.h | No | Added structure System_EglPixmapVideoFrameBuffer to hold the EGLPixmap Buffer. |
| System Link Constants | system_const.h | No | Added enumerations for System_VideoFrameStatus and added enum for EGL Pixel Map Buffer Type. |
| System Link ID | system_linkId.h | No | Support for 3D Surround view Link and RTI Link IDs |
| System Common Link | systemLink_common.h | No | Removed system configuration for switching between EVE Auto clock gate and EVE Idle Low Power Configuration. |

### Utils API – This API is used by users when writing an algorithm plugin or use-case or link

| Module | Interface file | Change in user application required | Change details |
|---|---|---|---|
| UTILS | file_api.h | No | New Feature. Added APIs to use FAT File system with MMC/SD |
| UTILS | utils_boot_slaves.h | Yes | Updated Utils_BootSlaves_Params to support CRC calculation on Application image and DSP and EVE power on off. |
| UTILS | utils_idle.h | No | Removed support for run time configuration of EVE Idle vs Auto clock gate low power mode. |
| UTILS | utils_mem.h | No | Added APIs for reading the statistics of used size, free memory, freed size and check memory leak. |
| UTILS | utils_prcm_stats.h | No | Added support for reading voltage of voltage rails using STW PM APIs. |