TI81xx-HDVPSS-01.00.01.37 ReleaseNotes

HDVPSS Version 01.00.01.37

Release Notes
February 22, 2012

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Introduction

This release notes provides important information that will assist you in using the HDVPSS software package. This document provides the product information and know issues that are specific to the HDVPSS software package.

New in this Release

Common

- Defect Fixes

TI816x

- Defect Fixes

TI814x

- **M2M DEI Driver** - Addition of `IOCTL_VPS_DEI_OVERRIDE_PREV_FLD_BUF` IOCTL to support low FPS deinterlacing operation.
  - This IOCTL replaces the internal state of the previous field buffers. This could be used by the application to control the previous fields used to deinterlace the next request. This will be useful if the application wants to operate with lower FPS and still wants to perform proper deinterlacing operation.
  - The argument to this IOCTL is `Vps_M2mDeiOverridePrevFldBuf *`.
    - `fldBufFrameList` member of this structure containing the previous field buffers for the requried channels.<br
    - `channelNum` in `FVID2_Frame` will be used to update the corresponding channel field buffers in driver objects.
    - `numFrames` in all the `FVID2_FrameList` should be same and less than `numCh` created during `FVID2_create`.
    - N-1 field buffer is at index 0, N-2 at index 1 and so on.
  - The driver will return the FVID2 frames held by the driver in the same input structure.
  - When using this IOCTL the application should ensure that there is no input request pending with the driver. Otherwise the driver will return error.
  - This is valid only for TI814x platform where the input frame acts as a previous field buffers in the subsequent frames.
- Defect Fixes

TI8107

- First release (Alpha)

Installation and Usage

Installation and Usage of the HDVPSS package could be found at HDVPSS User Guide

Upgrade and Compatibility Information

If migrating from a older release, kindly refer to release notes present at `$HDVPSS_Install_Dir\docs\relnotes_archive\HDVPSS_ReleaseNotes_01_00_01_xx.pdf` for other upgrade information done in those releases.

- **Application CFG file - New section added for remote print utility shared memory** - A new section (non-cached) `.bss:extMemNonCache:remoteDebugCoreShm` is added to statically allocate the shared memory for remote print utilty. Application should add this section in its cfg file to make this section as external non-cached section.

```
Program.sectMap[".bss:extMemNonCache:remoteDebugCoreShm"] = "HDVPSS_DESC_MEM";
```

- **VIP Capture Driver - Added interface to set VPDMA maximum width** - Added `maxOutWidth` to `Vps_CaptOutInfo` structure to set the VPDMA max width parameter. Application could use this to restrict the VPDMA from overwriting the frame buffer if the input width from the external decoder is wider than expected (as it happens typically during connect/disconnect). If no restriction is required, application should set this to `VPS_CAPT_MAX_OUT_WIDTH_UNLIMITED`.
- **VIP Capture Driver - Added interface to set start channel ID in case of multiplexed capture** - Added `muxModeStartChId` to `Vps_CaptCreateParams` to set the start channel ID in pixel or line mux mode. Used to add an offset to start channel mapping. This will be used when the decoder start channel ID is other than 0.
  For example some decoder's channel 0 CHID starts from 4 instead of 0. Note: This is valid only in multi-channel mode and is ignored in single channel or other modes.
- **M2M DEI and M2M SC Drivers - Per handle mode of operation is not supported** - In M2M DEI and M2M SC drivers, per handle mode of operation `VPS_M2M_CONFIG_PER_HANDLE` is no more supported. Now application has to use only per channel mode `VPS_M2M_CONFIG_PER_CHANNEL` of operation.
- **TVP5158 Decoder - Video Detect IOCTL** - The busy loop and delay in `IOCTL_VPS_VIDEO_DECODER_GET_VIDEO_STATUS` IOCTL is removed from the TVP5158 driver. Now application has to use the delay (say 100ms) and busy loop (say 5) to properly detect the video. This change is done so that application could call this IOCTL at runtime to detect any video loss and take any appropriate action.
- **Example Utility** - Moved vps utils folder in `packages/ti/psp/platforms/utils` folder to `packages/ti/psp/examples/utility`. This utils contains application helper functions like heap, tasks, tiler etc.. Application using this should include `hdvpss_examples_utility` in its `COMP_LIST_m3vpss` in `Makefile`. Header file inclusion should be done as per the new path.

Dependencies

This release requires following tools/packages to be installed.

- Code Composer Studio Version: 4.2.0.09000 or 5.1.0.09000
- XDC Tools Version: 3.23.01.43
- BIOS Version: 6.33.02.31
- CG Tool (TMS470) Version: 4.9.2
- IPC: 1.24.02.27

Devices Supported

- TI816x EVM
- TI814x EVM
- TI8107 EVM

Application Boards Supported

- TI816x VS application board
- TI816x VC application board
- TI816x Catalog application board
- TI814x VS application board
- TI814x VC application board
- TI814x Catalog application board
- TI8107 VS application board
- TI8107 VCAM application board

What is Supported

Common

- Supports HDVPSS drivers for TI816x, TI814x and TI8107 EVMs
- Supports FVID2 interfaces for all the supported drivers
- Package includes HDVPSS DSP/BIOS driver sources, sample applications that demonstrate use of HDVPSS DSP/BIOS drivers, sample applications executables

Display Drivers

- Supports Display Controller driver
- Supports Bypass Path Display driver
- Supports Secondary Path SD Display driver
- Supports Graphics Display driver

Capture Drivers

- Supports VIP capture driver

Memory to Memory Drivers

- Supports Scalar driver through Secondary Path 0-SC5
- Supports Scalar driver through Bypass Path 0/1-SC5
- Supports SC3/4 Scalar driver through Secondary Path 0/1-SC3/4- VIP0/1
- Supports Noise filter driver
- Supports DEI driver

Driver Maturity

Driver Maturity

Driver	TI816x	TI814x	TI8107
VIP 0/1 Capture	Beta 1.0	Beta 1.0	Alpha 1.0
Display Controller	Beta 1.0	Beta 1.0	Alpha 1.0
Bypass Path 0/1 Display	Beta 1.0	Beta 1.0	Alpha 1.0
Secondary Path 1 SD Display	Beta 1.0	Beta 1.0	Alpha 1.0
GRPX Path 0/1/2 Display	Beta 1.0	Beta 1.0	Alpha 1.0
NSF M2M	Beta 1.0	Beta 1.0	Alpha 1.0
DEIH-WB0 M2M	Beta 1.0	NA	NA
DEIH-VIP0 SC3 M2M	Beta 1.0	NA	NA
DEIH-WB0-VIP0 SC3 M2M	Beta 1.0	NA	NA
DEI-WB1 M2M	Beta 1.0	NA	NA
DEI-VIP1 SC4 M2M	Beta 1.0	NA	NA
DEI-WB1-VIP1 SC4 M2M	Beta 1.0	NA	VA
DEI-WB0 M2M	NA	Beta 1.0	Alpha 1.0
DEI-VIP0 SC3 M2M	NA	Beta 1.0	Alpha 1.0
DEI-WB0-VIP0 SC3 M2M	NA	Beta 1.0	Alpha 1.0
SC2-WB1 M2M	NA	Beta 1.0	Alpha 1.0

SC4-VIP1 M2M	NA	Beta 1.0	Alpha 1.0
SC2-SC4-WB1-VIP1 M2M	NA	Beta 1.0	Alpha 1.0
Secondary Path 0 - SC5 M2M	Beta 1.0	Beta 1.0	Alpha 1.0
Bypass Path 0/1 - SC5 M2M	Beta 1.0	Beta 1.0	Alpha 1.0
Secondary Path 0/1 - VIP SC3/4 M2M	Beta 1.0	Beta 1.0	Alpha 1.0
Proxy Server	Beta 1.0	Beta 1.0	Alpha 1.0

Supported/Validated Examples

Supported/Validated Examples

Examples	TI816x	TI814x	TI8107
VIP Capture	YES	YES	YES
Chains	YES	YES (All the options of chains are not supported)	YES (All the options of chains are not supported)
Mosaic Display	YES	YES	YES
SD Display	YES	YES	YES
Tri Display	YES	YES	YES
GRPX Display	YES	YES	YES
M2M NSF	YES	YES	YES
M2M NSF Subframe	YES	YES	YES
M2M DEI	YES	YES	YES
M2M DEI Mode 1	YES	NA	NA
M2M SC Multi Channel	YES	YES	YES

- Examples could be found at `$HDVPSS_Install_Dir\packages\ti\psp\examples\common\vps\`
- Platform specific examples could be found at `$HDVPSS_Install_Dir\packages\ti\psp\examples\ti816x or ti814x or ti8107`

What is Not Supported

Common

- Runtime parameters are not supported for all m2m drivers(except NF) while operating in Subframe mode.
- Hardware Mosaic feature is not supported because of flicker observed in display when the system is loaded.

TI816x

- None

TI814x

- Chains sample applications - Option 5 and 8 of chains sample application in VC Daughter card is not supported
- Chains sample applications - Options "a" through "f" is not supported on VC Daughter card
- All Chains sample applications - tiler is not supported for both VC & VS Daughter card
- Stenciling feature of GRPX Display Driver is not supported

TI814x ES 1

- TNF, SNF, TNF+SNF bypass mode of Noise filter is not supported
- Catalog board is not validated with ES 1.0 version silicon

TI8107

- Single channel output on VC application card
- Discrete sync capture mode
- VGA output on base EVM

Fixed in this Release

Common

- SDOCM00086933 - [TVP5158] Delay and busy-loop should be moved from Vps_tvp5158GetVideoStatus() to the application
- SDOCM00086935 - [Resource Manager] Assert at Vrm_deInit() should be changed to warning
- SDOCM00087754 - [M2M DEI] Runtime VIP output frame parameter change every frame results in very high CPU utilization
- SDOCM00084952 - [Sii9022A]: Provide an interface to set the input/output interface and data format
- SDOCM00087604 - [Venc]Venc Timings are not passing Compliance Test.
- SDOCM00086714 - [TVP7002]Overflow happens when resolution is changed without stopping capture driver.
- SDOCM00086602 - [HDVPSS]TVP7002 capture is not working with 720P60 input
- SDOCM00086237 - [display] VENC timings are not as per the CEA standards
- SDOCM00083286 - Behavior change in vps_platformDeviceInit from previous release not documented.
- SDOCM00081265 - [DCTRL] Enable multiple VENC Simultaneously causing problem
- SDOCM00078387 - [Display]: Mode 1080I is not working on some of the TVs on HDMI output
- SDOCM00087624 - [M2MSc]- dataformat is not updated for slice based scaling
- SDOCM00086751 - [Capture]: Resource Allocation fails for RGB input and YUV420+RGB output
- SDOCM00086012 - [NSF] NSF driver should return an error in case input format is 422SP or 420SP, which are not supported by H/W

- SDOCM00080591 - [Chains] Chains sometimes hangs at IOCTL_VPS_VIDEO_DECODER_GET_VIDEO_STATUS ioctl
- SDOCM00086795 - [CSCHal]:CSC HAL asserts for custom coefficients
- SDOCM00088589 - [Display] One of the display flickers if the VSYNCs of all the displays occur within 0.5 ms
- SDOCM00088013 - [Proxy Server] Existing FBDEV/V4L2 doesn't work with 01.00.01.36 proxy server
- SDOCM00086936 - [Remote Print Utils] Static memory allocation should be used instead of dynamic allocation from Descriptor heap
- SDOCM00085074 - [VIP Capture] Driver changes needed to support Techwell decoder
- SDOCM00084655 - [capture] VIP_Parser or inline SC should trim VBLK area in case of discrete sync with active video from TVP7002
- SDOCM00082779 - [Display] One frame delay needed between VENC configuration and SIL9022 encoder start
- SDOCM00082925 - [DISPLAY]Example demonstrating how and what to configure on A8 when data is passed via M3 is missing
- SDOCM00088908 - [capture] In drop data descriptor, write descriptor bit should be set to 1 and MODE (1D/2D) should be the same as capture
- SDOCM00087949 - [capture] Need API to set max width in addition to max height
- SDOCM00088390 - [GRPX] GRPX caused VPDMA hung when handling certain scaling ratios
- SDOCM00088040 - [GRPX]runtime scaling was not updated properly if other runtime parameters was not provided
- SDOCM00087989 - [GRPX]Veritcal Anti-Flicker filter coefficient was chosen based on the horizotnal scaling information

TI816x

- SDOCM00087980 - with .35 version - one or two instances of capture driver stop capturing video with long runs
- SDOCM00083062 - CONFIG_Sys_Link can be turned off even when HDVPSS is selected as a module
- SDOCM00083768 - [I2C] I2C Regsiter address does not match with I2C Spec
- SDOCM00080950 - [chain] SD display fps is only ~10 fps in chain #8
- SDOCM00087928 - Netra lockup issue when camera is turned ON/OFF
- SDOCM00087785 - [Chains] - SD display for Option 8 of VS Netra, video is vertically shifted
- SDOCM00084823 - [Mosaic Display] fps found is wrong for 480P display mode while running VS Mosaic Display Sample APP
- SDOCM00082762 - HDVPSS 1.00.00.28 - Release packaging and installer issues from a usability perspective
- SDOCM00084907 - Netra EVM (rather board) level library - Packaging
- SDOCM00087521 - DEI : when comprEnable parameter of VPS_M2mDeiChParams is enabled hang is obsereved.
- SDOCM00082413 - [EDE Quality] EDE register settings needs to be fine tuned for sharper image

TI816x ES2.0

- None

TI814x

- SDOCM00083814 - Centaurus HDVPSS - Netra device name is used for the filename of the HDMI user guide.
- SDOCM00086038 - [Mosaic Display] Application is not working for on-chip output on TI814x
- SDOCM00087746 - [GEL] HDVPSS is powered-on by default in TI814x GEL files
- SDOCM00082571 - [M2M DEI] First frame is shifted down when looking at the TI814x sample application output
- SDOCM00083818 - HDMI documentation has a typo for changing mode

TI8107

- None (First Release)

Known Issues / Limitations

Common

- **INFORMATION** Please refer TI816x ES1.1, TI816x ES2.0 or TI814x ES2.1 silicon errata for non-software limitations.
- **INFORMATION** Chip level pin mux configuration is done through proxy server binaries assuming VS and VC daughter cards. For other custom boards, pin mux configuration should be overwritten from A8.
- **INFORMATION** NTSC capture through VIP will result in 243 lines per field instead of 240 lines. There is no mechanism to crop this in the VIP. Hence application has to allocate a bigger buffer and ignore the extra lines
- **INFORMATION** Few seconds delay is needed between board power cycle. When power cycle is done very fast, board doesn't get reset properly and hence I2C devices don't respond
- **INFORMATION** For few versions(F,G,H) of TI816x base board we observed that vip clock polarity should be set to falling edge from application, else we see video not getting detected.Yet to root cause this issue.

  :vipPortCfg.pixClkEdgePol = VPS_VIP_PIX_CLK_EDGE_POL_FALLING;
- **INFORMATION** VIP capture hardware hangs if odd number of lines are received by VIP. This happens if YUV420SP is the output of VIP to memory. This normally occurs while we try to change the capture mode when capture is active. So care should be taken care to reset and restart VIP in case odd number of lines are received in VIP. This issue is solved in ES2.0 silcion version of DM816x. This is cause of Advisory 1.1.7 of Errata on DM816x. DM814x is not affected with this bug.
- SDOCM00082578 [Chains] Applications option 7 & 8 - The statistics reported by application indicates good number of frames are dropped by capture for 1080P input. This is due to scalar application limitation. Scalar can process 1 1920X1080 P input real time, in this application we are trying to scale ~ 3 1080P60.
- SDOCM00082577 [Chains] Display displays at 30 FPS instead of 60 FPS, for options 1, 2, 3 & 7
- SDOCM00082578 [Chains] Option 2 & 3 Capture reports field drops
- SDOCM00082575 [Display] DVO1/DVO2/HD DAC ~2 pixels on the left border of the screen is blanked out (cropped)
- SDOCM00082574 [Capture] FID Repetition seen in sample application, provided in the release
- SDOCM00074833 [User Guide] Table of contents missing in HDVPSS user guide
- SDOCM00084444 [m2mSc] Sub-frame scaling output file shows blank first sub-frame when Lazy Loading is enabled
- SDOCM00084843 [Capture] Seeing 24ms in periodic mode call back = false
- SDOCM00086715 [Vipcapture]Framerate drops when HDMI is connected/disconnected

- SDOCM00087076 [Capture] Switching from Interlaced to Progressive Capture frees buffer twice
- SDOCM00088091 [Capture]: IOCTL_VPS_VIDEO_DECODER_GET_VIDEO_STATUS returns incorrect frameHeight and Width
- SDOCM00083294 [SD Display] Field Merged Interlaced display is not supported in Tiled Mode

TI816x (ES1.1 and ES2.0)

- SDOCM00074110 [Capture]: ioctl IOCTL_VPS_CAPT_GET_CH_STATUS does not return size of the frame correctly.
- SDOCM00075324 [capture] When TVP5158 is set to CIF, Vps_captPrintAdvancedStatistics() shows 0 fps for even field and 30 fps for odd field
- SDOCM00086092 [Capture TVP5158] VIP detection test case failed for non muxed embedded sync mode for VIP1 Port A/B and ALL instance.
- SDOCM00080161 Display FVID2_start for HDDAC and then HDMI later leads to HDMI output visible but HDDAC output not visible on TV
- SDOCM00075035 [HDVPSS]codes lost in VpsDlm_startStopClients
- SDOCM00081104 [SDVENC] NTSC output level is 10% less than it should be
- SDOCM00075501 [TVP7002]: Brightness from tvp7002 seems to be very low
- SDOCM00084836 [Capture] When inline CSC is used, descriptor reports all fields as even for interlaced input
- SDOCM00088751 [Display] Embedded sync sequence seems to be wrong for DVO2
- SDOCM00088986 [M2M SC] First and Last Slice is corrupted when running sample application
- SDOCM00087938 Display frame-rate drop for start and stop of displays
- SDOCM00087534 [Capture] Shift seen for TI816x 1080i capture in embedded sync mode
- SDOCM00081365 [Display] YUV422I & YUV422SP Smaller frame video with width equal to VENC width and height less than VENC height hangs

TI816x ES 2.0

- SDOCM00084807 [Chains] Lot of FID repeat seen in VS chains for most of the channels in long run
- SDOCM00085418 [VESA Display] Hoizontal shift is observed in VESA display through HDDAC (using internal syncs) in TI816x PG2.0

TI814x

- SDOCM00077359 [capture] When TVP5158 is set to mux 4ch CIF mode, VIP overflows during the first field
- SDOCM00081363 [Capture]: Scalar in VIP can cause VIP overflow under high DDR bandwidth on Centaurus PG2.1
- SDOCM00078550 [Capture - TI814X] TVP7002 - 24 Bit Discrete Sync capture doesn't work as expected. Reports wrong width, shaking video. This is a board limitation.
- SDOCM00084050 [CAPTURE]: Centaurus DSS Line Mux mode with 1/2 D1 resolution from TVP5158 is resulting in device hang
- SDOCM00086742 [Capture] VIP Overflows when creating the capture driver in 8 bit discerete sync mode. Can re-cover by applying VIP reset
- SDOCM00082582 [Display] When XDS560 V2 USB emulator is used no output seen on ON-CHIP HDMI & OFF_CHIP HDMI
- SDOCM00082403 [GRPX] Observed flickers in Resource conflict test case for graphics - when mutiple planes GRPX is routed to single display
- SDOCM00086719 [PLL]Jittter is observed on PLL outputs on Centaurus.

TI814x ES 1.0

- SDOCM00077344: Stenciling feature is not supported in GRPX display driver - Hardware Limitation
- SDOCM00078546: HDMI PLL doesn't get locked on some of Centaurus boards
- SDOCM00077946: [M2M NSF]SNF only and SNF and TNF both bypass modes not working -- HW bug, Fixed in ES2.1 silicon

TI8107

- None

Validation Information

- This release is validated on TI816x, TI814x and TI8107 EVMs for the above mentioned components.

Technical Support and Product Updates

For further information or to report any problems, contact http://e2e.ti.com or http://community.ti.com or http://support.ti.com.

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