BSP-01.02.03.04 ReleaseNotes

BSP Version 01.02.03.04

Release Notes
14th November 2014

Important Note

This release is for TDA3xx, TDA2xx and TI814x (for serial drivers only) platforms

Document License

Introduction

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

New in this Release

- Common
  - Support for TDA3xx 12x12 EVM
- VIP
  - Support for 4-ch Multi-deserializer board for TDA3xx EVM
  - Support for REV E TDA2xx VISION board having ADV7611 HDMI receiver instead of SIL9127 HDMI receiver
- DSS
  - Verified TDA3xx SIL9022 off-chip HDMI with BT656, BT1120 and 24-bit discrete sync RGB formats
  - Added `IOCTL_VPS_DCTRL_GET_ERROR_STATS` IOCTL to get the OVerlay sync lost status
- Bug Fixes

Installation and Usage

Installation and Usage of the BSP package could be found at BSP_UserGuide

Upgrade and Compatibility Information

- **Common**
  - `syncMode` member is removed from video encoder create params `Bsp_VidEncCreateParams` and `Bsp_VidEncConfigParams`. Instead `videoIfMode`, `videoIfWidth` and `videoDataFormat` members are added to `Bsp_VidEncConfigParams` structure to support generic interface like embedded sync or discrete sync. Also `Bsp_VidEncSyncMode` enum is removed.
- **VIP Capture**
  - None

- **ISS Capture**
  - OV10640 Parallel Input: I2C transaction fails on address 0x33 for some of the OV10640 Parallel sensor. In this case, Change the I2C address to 0x31 for the macro BOARD_OV10640_I2C_ADDR_CPI in the file src/boards/src/bsp_boardPriv.h
- **ISS M2M**
  - None
- **VPE M2M**
  - None
- **DSS Display**
  - None
- **UART**
  - None
- **McSPI**
  - None
- **I2C**
  - None
- **McASP**
  - None
- **Audio**
  - None

Dependencies

This release requires following tools/packages to be installed.

- Starterware Package: 01.02.04.05
  - **ISS WDR & LDC Requires additional starterware add on package**.
- Code Composer Studio Version: 5.5.0.00077
- XDC Tools Version: 3.30.04.52 core
- BIOS Version: 6.40.03.39
- CG Tool (TMS470) Version: 5.1.5
- CG Tool (C6000) Version: 7.4.2
- EDMA LLD: 02.12.00.20

Devices Supported

- TDA3xx ES1.0
- TDA2xx ES1.0, ES1.1
- TI814x (for Serial Drivers only)

Application Boards Supported

- TDA3xx Base board + LCD board
- TDA3xx Multi-deserializer board
- TDA2xx Base board + LCD board
- TDA2xx Vision application board
- TDA2xx Vision application board with Multi-deserializer board
- TDA2xx MonsterCam board
- TDA2xx JAMR3 application board

What is Supported

Common

- Supports TDA3xx and TDA2xx EVM
- Supports FVID2 interfaces for all the supported drivers
- Package includes BSP driver sources, sample applications that demonstrate use of drivers and sample applications executables
- SYS BIOS mode is tested
- Benelli M4 (IPU1) Core 0 for TDA2xx & TDA3xx
- Virtual to physical address translation for VPDMA descriptor memory is supported

VIP Capture Driver

- Supports VIP capture driver (12 instance on TDA2xx, 4 instance on TDA3xx)
- Support for OV10635 sensor
- Support for Aptina AR0132
- Support for HDMI SIL9127 receiver
- Support for 6-channel LVDS capture from multi-deserializer board
- Support for LI sensor
- Support for TVP5158 decoder

VPE M2M Driver

- Supports VPE1 path
- Supportted Input Formats: YUV422I, YUV420SP and YUV422SP
- Supportted Output Formats: YUV422I, YUV420SP, YUV422SP, RGB888 and YUV444
- Supports SC and DEI
- Supports sliced based scaling

DSS Display Driver

- Supports DSS display driver with all pipelines going to any LCD, blended or without blending
- Supports display controller driver to set the display paths and VENC resolution
- Supports LCD and On-Chip HDMI display(only for tda2xx) (only 1080p,720p,1080i and 480P HDMI modes supported)
- Supports Off-Chip HDMI (Sil9022a, supports 1080P60, 720P60. Only for Tda3xx)
- Supports On Chip SD-VENC output (NTSC and PAL formats - only for tda3xx)

UART Driver

- Device Driver for UART on IPU core 0
- Sample Application that demonstrate the use of driver for UART - Echo Test.

McSPI Driver

- Device Driver for McSPI on IPU core 0
- Sample Applications that demonstrate the usage of Driver:
  - Writes to On Board Serial Flash in case of TI814X
  - EVM to EVM Communication for TDA3xx, TDA2xx and TI814x
  - Loopback Testing for TDA3xx and TDA2xx

I2C Driver

- Device Driver for I2C on IPU core 0
- GIO and IOM Model APIs are supported for Application
- Sample Application that demonstrate the usage of Driver:

McASP Driver

- Device Driver for McASP on DSP Core
- Sample Application that demonstrate the usage of Driver:
- Driver expects the data (samples) to be in a specific format when requesting for an IO transfer based on below configurations
  - Single Serializer
  - Multiple Serializer
  - BurstMode
  - Multislot TDM/I2S
  - DIT

Audio Driver

- Device Driver for Audio on DSP Core
- Every Instance can support multiple codecs
- Sample Applications that demonstrate the usage of Driver
  - Sine Tone Generation
  - Loopback Application

ISS Capture

- Supports CAL based capture driver
- Supports capture of CSI2 and parallel video streams
- Support for sensor OV10640 - Both CSI2 and Parallel
- Support for sensor AR0132

ISS M2M

- Supports 12bit Bayer RAW Input
- Supports YUV422/YUV420/Bayer RAW as output
- Supports decompanding of companded input
- Supports Wide Dynamic Range merge of two long and short exposure inputs and then converts output of WDR operation into YUV422/YUV420
- Supports configuring all ISP Submodules
- Supports Two outputs from Resizer

ISS M2M SIMCOP

- Supports SIMCOP Sub-block of ISS
- LDC
  - Meshtable programmable for every frame
  - Output Data Format same as input format
  - Supported Input Formats: YUV422I & YUV420SP (NV12)
  - Supported Output Formats: YUV422I & YUV420SP (NV12)
- VTNF
  - Reference frame programmable for every frame
  - Supports YUV420 as input & output data format

Aic31 Driver

- Device Driver for AIC31 on DSP Core
- Appropriate interfaces to configure the initial values of gain, sample rate
- Interfaces to control the codec specific features like sample rate etc

Features

VIP Capture Driver Features

Feature	Supported	Tested on TDA2xx EVM	Tested on TDA3xx EVM
12 Ports for TDA2xx, 4 Ports for TDA3xx	YES	YES	YES
8-bit Embedded Sync (BT.656)	YES	YES	NO
16-bit Embedded Sync (BT.1120)	YES	NO	NO
24-bit Embedded Sync	YES	NO	NO
8-bit Discrete Sync	YES	YES (only VSYNC/HSYNC mode)	YES (only VSYNC/HSYNC mode)
16-bit Discrete Sync	YES	YES (only VSYNC/HSYNC mode)	YES (only VSYNC/HSYNC mode)
24-bit Discrete Sync	YES	NO	NO

8-bit YUV422 Input	YES	YES	YES
16-bit YUV422 Input	YES	YES	YES
24-bit YUV444 Input	YES	NO	NO
16-bit RGB656 Input	YES	NO	NO
24-bit RGB888 Input	YES	NO	NO
12-bit RAW Input	YES	YES	YES
16/24-bit RAW Input	YES	NO	NO
YUV422I, YUV420SP, YUV422SP, RGB888, YUV444 and RAW output formats	YES	YES	YES
Embedded Sync Multiplexed Modes	NO	NO	NO
Ancillary (VBI) data capture	NO	NO	NO
Bypass mode (RAW to RAW - no processing)	YES	NO	NO
Inline SC Support (cropping, down scaling)	YES	YES	YES
Inline CSC	YES	YES	YES
Configurable VPDMA Line Limit Feature	YES	YES	YES
Tiled (2D) output	NO	NO	NO
Dual stream output (scaled/non-scaled)	YES	YES	YES
Sub-frame based capture	YES	YES	YES
Sub-frame based OTF use case	YES	YES	YES
Re-packer	YES	YES (only on TDA2xx Zebu)	NO
VIP Parser Crop	YES	YES	YES
Buffer Capture Modes - drop frame, last frame repeat, circular frame repeat	YES	YES	YES
Frame Drop IOCTL	YES	YES	YES
Instance and channel status	YES	YES	YES

VPE M2M Driver Features (Only on TDA2xx)

Feature	Supported	Tested on EVM
VPE1 instance	YES	YES
YUV422I, YUV420SP, YUV422SP input formats	YES	YES
YUV422I, YUV420SP, YUV422SP, RGB888, YUV444 output formats	YES	YES
Tiler (2D) input/output	YES	YES
Tiler Rotation/Mirroring	YES	YES
SC (cropping, scaling)	YES	YES
DEI (bypass and in deinterlacing mode)	YES	YES
VC1 range mapping and reduction	NO	NO
DEI FMD mode	NO	NO
Multi-Handle	YES	YES
Multi-Channel	YES	YES

Lazy loading of SC coefficient	YES	YES
Slice based scaling (only horizontal slices)	YES	YES
Runtime parameter change	YES	YES

DSS Display Driver Features

Feature	Supported	Tested on TDA2xx EVM	Tested on TDA3xx EVM
Video pipeline (Video 1,2,3)	YES	YES	YES (Except Video 3)
Graphics pipeline (GRPX1)	YES	YES	YES
Writeback pipeline	NO	NO	NO
All LCD/DPI outputs	YES	YES (only DPI1 tested on EVM)	YES (only DPI1 tested on EVM)
On-Chip HDMI 1.4 Support (Only on TDA2xx)	YES(only 1080P60,720P60,1080I60,480P resolutions in HDMI mode supported)	YES	NA
HDMI 3D (Only on TDA2xx)	NO	NO	NA
HDMI 36-bit RGB Color (Only on TDA2xx)	NO	NO	NA
HDMI HDCP 1.4 (Only on TDA2xx)	NO	NO	NA
HDMI Deep color mode (Only on TDA2xx)	NO	NO	NA
8-bit Embedded Sync (BT.656)	YES	NO	YES (with SIL9022)
16-bit Embedded Sync (BT.1120)	YES	NO	YES (with SIL9022)
24-bit Discrete Sync	YES	YES	YES
8/16 bit Discrete Sync	NO	NO	NO
HDMI PLL (Only on TDA2xx)	YES	YES	NA
VIDEO PLL	YES	YES	YES
YUV422I (YUYV),YUV422I (UYVY),YUV420SP, RGB888 input formats	YES	YES	YES
YUV444 input formats	NO	NO	NO
Tiler Memory (2D)	NO	NO	NO
Tiler Rotation/Mirroring	NO	NO	NO
VC1 Range Mapping (for Video Pipes)	NO	NO	NO
Bypass mode	NO	NO	NO
Inline SC	YES	YES	YES
Inline CSC	YES	YES	YES
Blending	YES	YES	YES
Low-latency display (ability to queue frame to driver/hardware just before VSYNC)	YES	YES	YES
Interlaced scan format	YES	YES	YES
Fields merged and separated interlaced buffers	YES	YES	YES
On-Chip SD-Display NTSC and PAL	YES	NA	YES

UART Driver Features

Feature	Supported	Tested on TDA2xx EVM	Tested on TDA3xx EVM
Single instance	YES	YES	YES
Multi instance and Re-Entrant	YES	YES	YES
Each Instance as Transmitter and / or receiver	YES	YES	YES
DMA Mode Of Operation	YES	YES	YES
POLLED Mode Of Operation	YES	YES	YES
INTERRUPT Mode Of Operation	YES	YES	YES

I2C Driver Features

Feature	Supported	Tested on TDA2xx EVM	Tested on TDA3xx EVM
Single instance	YES	YES	YES
Multi instance and Re-Entrant	YES	YES	YES
Slave Device Probe IOCTL	YES	YES	YES
Each Instance as Master Transmitter	YES	YES	YES
DMA Mode Of Operation	NO	NO	NO
POLLED Mode Of Operation	YES	YES	YES
INTERRUPT Mode Of Operation	YES	YES	YES

McSPI Driver Features

Feature	Supported	Tested on TDA2xx	Tested on TDA2xx	Tested on TI814x
Single instance	YES	YES	YES	YES
Multi instance and Re-Entrant	YES	YES	YES	YES
Each Instance as Transmitter and / or receiver	YES	YES	YES	YES
DMA Mode Of Operation	YES	YES	YES	YES
POLLED Mode Of Operation	YES	YES	YES	NO
INTERRUPT Mode Of Operation	YES	YES	YES	NO

Audio Driver Features

Feature	Supported	Tested on TDA2xx	Tested on TI814x
Multi instance and Re-Entrant	YES	YES	YES
Each Instance as Transmitter and / or receiver of an audio device	YES	YES	YES
DMA Mode Of Operation	YES	YES	YES
POLLED Mode Of Operation	NO	NO	NO
INTERRUPT Mode Of Operation	NO	NO	NO

McASP Driver Features

Feature	Supported	Tested on TDA2xx	Tested on TI814x
Single instance	YES	YES	YES
Multi instance and Re-Entrant	YES	YES	YES
Each Instance as Transmitter and / or receiver	YES	YES	YES
Multiple Data Formats	YES	NO	NO
Configurations to operate: multi-slot TDM, I2S, DSP	YES	YES	YES
Configurations to operate: DIT (S/PDIF)	YES	NO	NO
Desired data (such as NULL tone), when idle Transmission Mechanism.	YES	YES	YES
Explicit control of PIN directions for High Clock, Bit Clock and Frame Sync PINS.	YES	YES	YES
DMA Mode Of Operation	YES	YES	YES
POLLED Mode Of Operation	NO	NO	NO
INTERRUPT Mode Of Operation	NO	NO	NO

AIC31 Codec Driver Features

Feature	Supported	Tested
Multi instance and Re-Entrant	YES	YES
Independent Configuration of Transmitter and receive of an audio device with and multiple audio codecs	YES	YES
Interfaces to control the codec specific features like sample rate etc	YES	YES
Appropriate interfaces to configure the initial values of gain, sample rate etc	YES	YES

Driver Maturity

Driver Maturity

Driver	TDA2xx	TDA3xx	TI814x
VIP Capture	Beta 1.0	Alpha	NA
VPE M2M	Beta 1.0	Alpha	NA
DSS Display	Beta 1.0	Alpha	NA
UART	Beta 1.0	Alpha	Beta 1.0
McSPI	Beta 1.0	Alpha	Beta 1.0
I2C	Beta 1.0	Alpha	Beta 1.0
McASP	Beta 1.0	Alpha	Beta 1.0
ISS Capture	NA	Alpha	NA
ISS M2M ISP	NA	Alpha	NA
ISS SIMCOP	NA	Alpha	NA

Supported/Validated Examples

Supported/Validated Examples

Examples	Supported	Validated on TDA2xx EVM	Validated on TDA3xx EVM
VIP Capture	YES	YES	YES
VIP Sub-frame	YES	YES	YES
VPE M2M	YES	YES	NA
DSS Display	YES	YES	YES
Loopback	YES	YES	YES
UART ECHO	YES	YES	YES
MCSPI LOOPBACK	YES	YES	YES
MCSPI MASTER SLAVE SPI1 to SPI2	YES	YES	YES
MCSPI PERFORMANCE APP	YES	YES	YES
I2C ON Board LED Blink	YES	YES	YES
Audio Sinetone	YES	YES	NA
Audio Loopback Application	YES	YES	NA
ISS Capture CSI2	YES	NA	YES
ISS Capture Parallel	YES	NA	YES
ISS M2M WDR	YES	NA	YES
ISS M2M ISP	YES	NA	YES
ISS M2M SIMCOP	YES	NA	YES

- Examples could be found at `$BSP_Install_Dir\examples\`

What is Not Supported

- Checking for most of the input parameters for out of range and invalid values is not done
- Scaler lazy loading and user coefficient loading are not supported in VIP capture driver
- Mux-mode VIP capture is not supported
- McASP does not support Interrupt/Polled mode
- I2C is not supported in DMA mode

Fixed in this Release

Fixed in this Release

ID	Headline	Module	Remarks
OMAPS00312079	Driver returns wrong display undeflow status	DSS Display Driver	NA
OMAPS00312131	[DSS] - preloadtype is not configured in DSS registers	DSS Display Driver	NA
OMAPS00314038	DSS - Line number configuration incorrect for Standard resolution	DSS Display Driver	NA
OMAPS00315192	[DSS]-Error in programming background color	DSS Display Driver	NA
OMAPS00312402	[Display] - Check in driver for invalid pitch configuration missing	DSS Display Driver	NA
OMAPS00313762	[Display] - IOCTL_VPS_DISP_GET_DSS_PARAMS wont return correct memtype	DSS Display Driver	NA
OMAPS00314240	[Loopback] Create HDMI 9022 display after OV capture results in I2C hang	On-board Device Driver	NA
OMAPS00315188	[TVP5158] Re-run of TVP5158 test case results in error	On-board Device Driver	NA
OMAPS00314772	[I2C] Probe all when multi-serializer board results in failure	I2C Driver	NA
OMAPS00313417	lld_i2c_close() has an incorrect prototype	I2C Driver	NA
OMAPS00315755	[MCASP] - Checking Rx Interrupts intead of Tx in ISR	McASP Driver	NA
OMAPS00314586	[McASP] - Under run error recovery fails in FIFO mode	McASP Driver	NA

Known Issues / Limitations

Known Issues

ID	Headline	Module	Workaround in this release
OMAPS00314110	[DSS-SDDAC] - SDDAC display results in SyncLost	Display Driver	NA
OMAPS00312929	Display: HDMI Output is shifted left by few pixels for 1080P60 Mode in TDA3xx EVM	Display Driver	NA
OMAPS00313660	[Display]-sil9022a off chip HDMI display is shifted right by 3 pixels	Display Driver	NA
OMAPS00291957	Display:- Low latency display is not supported for Overlays other than LCD1.	Display Driver	This is DSS IP Limitation in TDA2xx platform

OMAPS00296239	Display: VID3 pipeline output results in black output when zorderEnable is disabled	Display Driver	Enable Z-order and assign proper order
OMAPS00297821	[Display] - BT656 display mode not working	Display Driver	This is DSS IP Limitation in TDA2xx platform
OMAPS00315883	[Display] HDMI testcases results in failed to start phy	HDMI Driver	NA
OMAPS00306536	No Signal warning in the HDMI display with some TV	HDMI Driver	NA
OMAPS00308882	[HDMI] - Fields are swapped for 1080I display	HDMI Driver	NA
OMAPS00301476	[LVDS] Re-run of the any LVDS option results in I2C issues	Capture Driver	Disable I2C probe all at the start of device init by setting isI2cProbingReq of Bsp_DeviceInitParams init parameter to FALSE
OMAPS00301599	Random FVID2_TIMEOUT error during sensor configuration in LVDS use case	Capture Driver	After debugging, this is root caused because of Deserializer watchdog time out of 500ms for the control channel to the serializer. This needs to be debugged further with the EVM team
OMAPS00302737	RGB IN -> SCALER -> YUV OUT path does not work	Capture Driver	NA
OMAPS00314145	Output Quality Issues for capture from OV10640 and AR0132 sensors	ISS capture Driver	NA
OMAPS00314147	OV10640 Capture frame per second rate is 22/23, instead of 30	ISS Capture Driver	NA
OMAPS00312092	[Tda3xx] - Probe to address 0x18 results in I2C Bus busy	I2C Driver	NA
OMAPS00305622	[I2C] I2C read to a known slave fails after I2C write to absent slave timesout	I2C Driver	NA
OMAPS00313753	[TDA3xx] OV10640 Device Driver - I2C writes / reads un-reliable @ 400KHz	On-board Device Driver	Use 100KHz Instead
OMAPS00312940	McSPI performance app gives data mismatch for spi3 and spi4 in TDA3xx EVM	McSPI Driver	NA
OMAPS00294864	[Vayu] McASP Slave Mode Testing for audio codec application is not supported	McASP Driver	This is TDA2xx EVM Limitation

Common

- None

VIP Capture Driver

- In case of TDA3xx ADV7611 HDMI in capture, first few frames in the first run after power cycle might have artifacts. This is because when the ADV7611 is configured, it programs the internal EDID for 1080p60 and does Hot Plug Assert (HPA). When this happens the video source will read the EDID and reconfigure itself for the new timing. At this time the video might be corrupted.
- 24-bit RAW capture - No support in EVM
- RGB888 input to VIP - No support in EVM
- Various discrete sync modes except HSYNC/VSYNC mode - No support in EVM

- In case of dual output streams from same capture source, below limitations applies
  - YUV422SP output should always be stream 0 (first stream)
  - For YUV422I scaled and YUV420SP non-scaled outputs, YUV422I scaled output should always be stream 0 (first stream)
  - Scaled outputs on both the streams are not supported

VPE M2M Driver

- None

DSS Display Driver

- None

Serial Drivers

- UART Baud rates greater than 115200 are not supported due to high error percentage observed for baud rates greater than 115200
- UART single byte transfer is supported in Polled Mode and not in DMA Mode
- A15 needs to be running while loading and running applications on DSP Core

OV10640 Sensor Drivers

- On some TDA3xx EVMs, I2C register write for the OV10640 sensor is failing at 400KHz I2C frequency
- In this case, change the I2C frequency to 100KHz in gBoardTda3xxI2cInstData[1].busClkKHz in the file bspdrivers_\src\board\src\bsp_boardTda3xx.c file.

```
diff --git a/bspdrivers_/src/boards/src/bsp_boardTda3xx.c
b/bspdrivers_/src/boarindex 517306b..ba76593 100755 ---
a/bspdrivers_/src/boards/src/bsp_boardTda3xx.c +++
b/bspdrivers_/src/boards/src/bsp_boardTda3xx.c @@ -281,7 +281,7 @@ static
Bsp_BoardI2cInstData gBoardTda3xxI2cInstData[] = BSP_DEVICE_I2C_INST_ID_1, /*
instId */ SOC_I2C2_BASE, /* baseAddr */ CSL_INTC_EVENTID_I2CINT2, /* intNum */
- 400U /* busClkKHz */ + 100U /* busClkKHz */ } };
```

- I2C transaction fails on address 0x33 for some of the OV10640 Parallel sensor.
- In this case, change the I2C address to 0x31 for the macro BOARD_OV10640_I2C_ADDR_CPI in the file src/boards/src/bsp_boardPriv.h

Validation Information

- This release is validated on TDA3xx (Silicon Revisions ES1.0) EVM 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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