

# Release Notes

**BIOS PSP DA830 02.00.00.04**

**December 12, 2008**

This page has been intentionally left blank.

---

## **IMPORTANT NOTICE**

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its hardware products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

TI assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using TI components. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any TI patent right, copyright, mask work right, or other TI intellectual property right relating to any combination, machine, or process in which TI products or services are used. Information published by TI regarding third-party products or services does not constitute a license from TI to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. Reproduction of this information with alteration is an unfair and deceptive business practice. TI is not responsible or liable for such altered documentation.

Resale of TI products or services with statements different from or beyond the parameters stated by TI for that product or service voids all express and any implied warranties for the associated TI product or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

Mailing Address:  
Texas Instruments  
Post Office Box 655303  
Dallas, Texas 75265

Copyright ©. 2008, Texas Instruments Incorporated

This page has been intentionally left blank.

---

## TABLE OF CONTENTS

---

<b>1</b>	<b>Introduction</b> .....	<b>7</b>
1.1	Release Category .....	7
1.2	Text Conventions .....	7
<b>2</b>	<b>Out-of-Box Contents</b> .....	<b>8</b>
<b>3</b>	<b>Drivers/Components for this release</b> .....	<b>9</b>
3.1	Changes from previous release (Version 02.00.00.03) .....	9
3.2	Other changes .....	9
<b>4</b>	<b>Known Issues</b> .....	<b>10</b>
4.1	MISRA C (All components).....	10
4.2	Instrumentation (all components) .....	10
4.3	SPI (DSP/BIOS™).....	10
4.4	I2C (DSP/BIOS™) .....	10
4.5	UART (DSP/BIOS™).....	10
4.6	McASP (DSP/BIOS™).....	10
4.7	GPIO (DSP/BIOS™) .....	11
4.8	Audio Interface driver (DSP/BIOS™).....	11
4.9	Aic3106 Codec driver (DSP/BIOS™) .....	11
4.10	LCDC Raster Controller (DSP/BIOSTM).....	11
<b>5</b>	<b>Limitations</b> .....	<b>12</b>
5.1	I2C (DSP/BIOS™) Device Driver .....	12
5.2	UART (DSP/BIOS™) Device Driver.....	12
5.3	GPIO (DSP/BIOS™) Device Driver .....	12
5.4	McASP (DSP/BIOSTM) Device Driver.....	12
5.5	LCDC LIDD Controller Device Driver (DSP/BIOSTM).....	12
5.6	evmDA830 EVM Limitation .....	12
<b>6</b>	<b>Fixed in this release</b> .....	<b>13</b>
6.1	SPI (DSP/BIOS™) Device Driver.....	13
6.2	I2C (DSP/BIOS™) Device Driver .....	13
6.3	UART (DSP/BIOS™) Device Driver.....	13
6.4	Audio (DSP/BIOSTM) Device Driver .....	13
6.5	McASP (DSP/BIOSTM) Device Driver.....	14
6.6	Aic3106 Codec driver (DSP/BIOS™) .....	14
<b>7</b>	<b>Special notes</b> .....	<b>14</b>
<b>8</b>	<b>Technical Support BIOS PSP</b> .....	<b>14</b>
<b>9</b>	<b>Release History</b> .....	<b>15</b>
9.1	Release 02.00.00.03.....	15

---

9.2	Release 02.00.00.02.....	16
-----	--------------------------	----

## 1 Introduction



PSP Package serves as fundamental software platform for development, deployment and execution of application software on DA830 based platform. PSP abstracts the functionality provided by the DA830<sup>1</sup>.

PSP package is intended for the DSP that runs DSP/BIOS™ (user guide that came along with this release details the system requirements).

### 1.1 Release Category

This PSP release versioned 02.00.00.04 is an Engineering drop (BETA) for EVM DA830. Please refer to section [Drivers/Components for this release](#) for details of this release.

### 1.2 Text Conventions

	<p>This bullet indicates important information. Please read such text carefully.</p>
	<p>This bullet indicates additional information.</p>

---

<sup>1</sup> PSP may not provide abstraction for all the features provided by DA830.

## 2 Out-of-Box Contents

BIOSPSP\_02\_00\_00\_03\_DA830\_Setup.exe contains following:

1.	<ul style="list-style-type: none"> <li>- Source code for driver and other necessary abstractions.</li> <li>- Project files (DSP/BIOS™), CCS4 build files and XDC package.bld files, to build PSP package in host environment. Please note that at this point of time CCSV4 does not support building xdc based libraries. Hence only option available as of now is to build the libraries through command prompt xdc command (Please refer the user guide available with this release for detailed build instructions)</li> <li>- The above mentioned items are located inside the &lt;installation dir&gt;\pspdriers_02_00_00_xx\packages\ti directory</li> <li>- Please note that the CCS setup files and GEL files are <u>NOT</u> provided with this release and this would be available with latest CCSv4 releases or from EVM manufacturer.</li> </ul>
2.	Release Notes (this document) providing an overview of this release.
3.	User Guide that provides information on package usage and each drivers usage.
4.	CDOC based driver API (generated) documentation for all the drivers inside package.
5.	High level design document of each driver (Complete list of the documents is available in the User Guide).



### 3 Drivers/Components for this release

This section lists the driver / components that are delivered as part of this release.

- DSP/BIOS™ 6.10 Drivers
  - Serial (UART, I2C and SPI)
  - Audio (McASP, AUDIO interface and CODEC)
  - GPIO
  - PSC (that helps to turn the clock on/off for the modules)
  - LCDC Raster controller driver
  - LCDC LIDD controller driver
  - CSLr and examples of CSLr usage
- Sample applications that demonstrate the use of above drivers

Please note that at this point of time the drivers does not have any abstraction for the OS APIs and they use the OS (DSP/BIOS™ 6.10) inside the drivers.

#### 3.1 Changes from previous release (Version 02.00.00.03)

- 1) This release contains the LCDC Raster controller driver and the LCDC LIDD controller driver and their usage examples in addition to the previous release components.
- 2) SPDIF mode support for McASP, in McASP driver, is implemented and tested in this release
- 3) Usage of Hardware FIFO in McASP is implemented, in McASP driver, is implemented and tested in this release
- 4) Implementation of IRs (Known issues and Bugs) raised on the previous release. Please refer to "Fixed in this release" section for a list of IRs fixed in this release

#### 3.2 Other changes

None

## 4 Known Issues

### 4.1 MISRA C (All components)

- **SDOCM00052184:** MISRA C check was not run on the code base as we had issues in running MisraC tools on this package. Tool had issues to scan the xdc based header files and we are currently working on it).

**Workaround:** None.

### 4.2 Instrumentation (all components)

- **SDOCM00052185:** Instrumentation code is not yet implemented as the XDC/CCSv4 version at the point of development did not support RTA and instrumentation APIs

### 4.3 SPI (DSP/BIOS™)

- **SDOCM00048829:** Slave mode is not tested, due to absence of on-board SPI master. The plan is to test the slave mode using board to board communication in future releases.

**Workaround:** None.

- **SDOCM00052186:** Use of GPIO pin as SPI Chip select is not tested.

**Workaround:** None

### 4.4 I2C (DSP/BIOS™)

- **SDOCM00048829:** Slave mode is not tested, due to absence of on-board I2C master. The plan is to test the slave mode using board to board communication in future releases.

**Workaround:** None.

### 4.5 UART (DSP/BIOS™)

- **SDOCM00050476:** UART driver fails during data transfer when built for Polled mode in debug profile using command line compilation.

**Workaround:** None

- **SDOCM00048830:** UART Hardware flow control is not tested. This test is planned for future release.

**Workaround:** None

### 4.6 McASP (DSP/BIOS™)

- **SDOCM00052187:**McASP is not tested in the master mode.

**Workaround:** None.

- **SDOCM00052285:** The audio output contains noise at increased input (to the board) audio volume levels

**Workaround:** Adjust input volume to the board to optimum levels

#### 4.7 GPIO (DSP/BIOS™)

- **SDOCM00048745** :The GPIO sample application configures the GPIO interrupt to be generated at rising edge. However the interrupt is generated at rising edge as well as falling edge. This issue is being analyzed.

**Workaround:** None.

#### 4.8 Audio Interface driver (DSP/BIOS™)

- **SDOCM00052188**: The IOCTL for the audio sample rate configuration is not working properly.

**Workaround:** None

#### 4.9 Aic3106 Codec driver (DSP/BIOS™)

- None

#### 4.10 LCDC Raster Controller (DSP/BIOS™)

- **SDOCM00052150**: The LCDC Raster controller driver sample application hangs randomly when built in debug profile.

**Workaround:** None

- **SDOCM00052578**: The LCDC Raster driver does not return the proper sub-panel position, using `Raster_IOCTL_GET_RASTER_SUBPANEL_CONF` IOCTL, set previously by the `Raster_IOCTL_SET_RASTER_SUBPANEL_POS` IOCTL.

**Workaround:** None

- **SDOCM00052575**: The LCDC Raster driver does not return the proper sub-panel default data value, using `Raster_IOCTL_GET_RASTER_SUBPANEL_CONF` IOCTL, set previously by the `Raster_IOCTL_SET_RASTER_SUBPANEL_DATA` IOCTL.

**Workaround:** None

- **SDOCM00052573**: The LCDC Raster driver does not return the proper lines per pixel threshold value, using `Raster_IOCTL_GET_RASTER_SUBPANEL_CONF` IOCTL, set previously by the `Raster_IOCTL_SET_RASTER_SUBPANEL_LPPT` IOCTL.

**Workaround:** None

- **SDOCM00052543**: The image displayed by the LCDC Raster sample application contains artifacts. The issue is being analysed.

**Workaround:** None

- **SDOCM00052487**: Successive creation and deletion of raster channel fails.

**Workaround:** None

- **SDOCM00052471**: Dynamic allocation of frame buffers by the driver on application's behalf via `Raster_IOCTL_ALLOC_FB`, fails. The memory is not allocated. For the frame buffers is not allocated. The issue is being analyzed.

**Workaround:** Use statically created buffers (frame buffer arrays)

## **5 Limitations**

### **5.1 I2C (DSP/BIOS™) Device Driver**

- Loopback is not supported in interrupt mode
- In case of time bound IO requests, on timeout the driver is not able to perform any operations on the peripheral. (This peripheral limitation is documented in the technical reference manual of I2C under ICMR register)

### **5.2 UART (DSP/BIOS™) Device Driver**

- Loopback is not supported in DMA mode of operation.
- UART Baud rates greater than 115200 are not supported. This is due to high error percentage observed for baud rates greater than 115200. Please refer UART datasheet sprufm6, section 2.1 (Table 1) for more details.

### **5.3 GPIO (DSP/BIOS™) Device Driver**

- The GPIO driver now supports only one instance, fixed number of banks (eight) and fixed number of pins per bank (sixteen). This is a limitation, as there are issues in getting initialization done for variable length arrays (inside structures, instance parameters etc) through the XDC framework.
- The GPIO driver provides the APIs, Gpio\_(get/set)PinUseStatus and Gpio\_(get/set)BankUseStatus for checking if the pin or bank is in use (as a functional pin and hence not available as GPIO). These, APIs should be used before calling any GPIO module APIs on setting data or status for the pins/banks. Though, GPIO driver shall make explicit check for use status for individual pin operations, it does not do it for group (or all pins in a bank) operations since it becomes an overkill every time, especially if the group of pins is used for data transfer etc. Hence, the application should make this check at least once before use of the required GPIO pins and then can proceed.

### **5.4 McASP (DSP/BIOS™) Device Driver**

- Mcasp Driver does not support switching from DIT mode to TDM mode dynamically.

### **5.5 LCDC LIDD Controller Device Driver (DSP/BIOS™)**

- The driver supports only character displays, up to 4 lines. Other STN displays are not supported.
- The driver supports only 8-bit data interface to the character displays.

### **5.6 evmDA830 EVM Limitation**

- None

---

## 6 Fixed in this release

### 6.1 SPI (DSP/BIOS™) Device Driver

- SDOCM00048831 - The SPI driver need to have "use a GPIO" as chip select feature. This IR is fixed in this release. However, this feature could not be tested using current EVM

**Files Modified:** Spi.c, Spi.xdc.

- SDOCM00049818 - SPI sample application stream creates fails in debug profile. This IR is fixed in this release.

**Files Modified:** spiSample\_io.c

- SDOCM00051114 - Spi\_IOCTL\_CANCEL\_PENDING\_IO ioctl returns failure. This IR is fixed in this release.

**Files Modified:** Spi.c.

### 6.2 I2C (DSP/BIOS™) Device Driver

- SDOCM00049900 - I2C Set bit rate IOCTL commands fails. This IR is fixed in this release.

**Files Modified:** I2c.c

- SDOCM00050946 - Driver hangs for I2C write to invalid slave address in Interrupt and DMA mode. This IR is fixed in this release.

**Files Modified:** I2c.c.

- SDOCM00050948 - I2C Driver Deviation from RDD. This IR is fixed in this release

**Files Modified:** I2c.c.

### 6.3 UART (DSP/BIOS™) Device Driver

- SDOCM00050475 - UART Baud rates greater than 115200 are not supported. This IR is fixed in this release.

**Files Modified:** none. (Please refer to the section 5.2)

- SDOCM00050477 - UART Multiple submit calls (transmit) results in failure in dma mode. This IR is fixed in this release.

**Files Modified:** Uart\_edma.c, Uart.xdc.

- SDOCM00050835 - UART sample application fails in interrupt mode, when a file greater than 1000 bytes is given as input. This IR is fixed in this release.

**Files Modified:** uartSample\_io.c.

### 6.4 Audio (DSP/BIOS™) Device Driver

- SDOCM00049862 - "The audio interface driver does not implement some IOCTLs" is fixed. All the audio driver IOCTLs are implemented.

**Files modified** Audio.c.

## 6.5 McASP (DSP/BIOSTM) Device Driver

- SDOCM00050686 - "SPDIF mode is not tested for McASP driver". This feature is implemented in this release.

**Files modified** Mcaspc.c and Mcaspc\_edma.c.

- SDOCM00049904 - "McASP Mute on/off IOCTL commands fails" is fixed in this release.

**Files modified** Mcaspc\_ioctl.c

- SDOCM00049851 - "Usage of hardware FIFO in Mcaspc driver is not implemented". This feature is implemented in this release.

**Files modified** mcaspc.c, mcaspc.xdc

- SDOCM00049850 - "Mcaspc clock failure error handling is not implemented". This feature is implemented in this release.

**Files modified** Mcaspc.c

## 6.6 Aic3106 Codec driver (DSP/BIOS™)

- SDOCM00050490 - "The left channel of the HPOUT is muted for aic31 codec driver" is fixed in this release.

**Files modified** Aic31.c, Aic31.xdc.

- SDOCM00049855 - "AIC31 driver does not support some IOCTLs" is fixed.

**Files Modified** Aic31.c, Aic31.xdc,

- SDOCM00049853 - "Aic31 driver does not support more than one codec instance" is fixed in this release.

**Files modified** Aic31.c, Aic31.xdc.

## 7 Special notes

- Please refer the user guide for installation, build instructions and tool version information.
- The resource allocation is the responsibility of application (system integrator)

## 8 Technical Support BIOS PSP

To submit questions about issues with this BIOS PSP drivers release please go to the external forums at <http://community.ti.com/> or to <http://support.ti.com> for email support.

---

## 9 Release History

### 9.1 Release 02.00.00.03

This was the EA2 release for DA830.

#### 9.1.1 New in the release

- Drivers for UART, SPI, I2C, McASP, Audio Interface, Codec, GPIO and PSC.

#### 9.1.2 Fixed in this release

- None

#### 9.1.3 Known Issues

##### 9.1.3.1 MISRA C (All components)

- MISRA C check was not run on the code base as we had issues in running MisraC tools on this package. Tool had issues to scan the xdc based header files and we are currently working on it). **Workaround:** None.

##### 9.1.3.2 Instrumentation (all components)

- Instrumentation code is not yet implemented as the XDC/CCSV4 version at the point of development did not support RTA and instrumentation APIs

##### 9.1.3.3 SPI (DSP/BIOS™)

- In SPI sample application "stream\_create" fails in debug profile of the application. We are analyzing this issue. **Workaround:** To have the application profile as "whole\_program\_debug".
- Slave mode is not tested, due to absence of on-board SPI master. The plan is to test the slave mode using board to board communication in future releases. **Workaround:** None.
- SPI driver fails in interrupt mode and configured for loopback (DLB). **Workaround:** None.
- SPI data transfer works for 8 and 16 bits character length only. **Workaround:** None.

##### 9.1.3.4 I2C (DSP/BIOS™)

- Slave mode is not tested, due to absence of on-board I2C master. The plan is to test the slave mode using board to board communication in future releases. **Workaround:** None.
- IOCTL command for setting the bit rate for data transfer fails. **Workaround:** None.

##### 9.1.3.5 UART (DSP/BIOS™)

- UART driver fails in EDMA mode and configured for loopback (DLB). **Workaround:** None.
- SDOCM00050477. Multiple read/write fails in the UART sample application, when the driver is configured in EDMA mode. **Workaround:** None. This will be fixed in the next release

- SDOCM00050476. The release mode executable for UART sample application in this release package fails. **Workaround:** None

#### 9.1.3.6 *McASP (DSP/BIOS™)*

- McASP FIFO support is not yet implemented and is planned for future releases.  
**Workaround:** None.
- SPDIF mode is not tested and planned for future release.  
**Workaround:** None.
- McASP clock failure error handling is not yet implemented.  
**Workaround:** None.
- IOCTL command for MUTE on/off is not working yet. This is being analyzed.  
**Workaround:** None

#### 9.1.3.7 *GPIO (DSP/BIOS™)*

- The GPIO sample application configures the GPIO interrupt to be generated at rising edge. However the interrupt is generated at rising edge as well as falling edge. This issue is being analyzed.  
**Workaround:** None.

#### 9.1.3.8 *Audio Interface driver (DSP/BIOS™)*

IOCTLs for the following are not yet implemented.

- Configuring the receive channel sample rate for a given Audio configuration
- Configuring the transmit channel sample rate for a given Audio configuration

#### 9.1.3.9 *Aic3106 Codec driver (DSP/BIOS™)*

IOCTLs for the following are not yet implemented.

- Select the input Audio mode Line-In or Mic-In.
- Select the output Audio mode Line-Out or Speaker-Out
- Increase or Decrease the input volume

## 9.2 **Release 02.00.00.02**

- This was the EA1 release for DA830 that contained the rCSLs and their examples.