

TI81XX PSP 04.04.00.01 Release Notes



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Linux PSP

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IMPORTANT

TI81xx refers to DM816x, DM814x and DM813X.

Important

This document covers details for TI81xx 04.04.00.01 release. This release has been tested on DM8168/AM389x EVM (Base board + Daughter Card required for second Ethernet port and NOR), DM8148/AM387x EVM and DM813x EVM. Refer Validation Information section for validation details.

Release Notes

04.04.00.01 Release: Feb 04, 2012

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Read This First

TI81xx

Changes in NAND flash

- The **default ECC** scheme used across Uboot, Kenrel and File System is changed to **8-bit BCH ECC**.
- The release supports both 8 and 16 bit NAND flash. To use **8-bit NAND**, set the CS0BW (buswidth) switch on the EVM to **OFF** state. To use **16-bit NAND**, set the CS0BW (buswidth) switch on the EVM to **ON** state.
- **UBIFS** file system support has been enabled by default in the kernel.

Introduction

This is Release 04.04.00.01 of TI81xx Linux PSP tested on following devices:

- DM8168/AM389x EVM. The EVM consists of base board (Rev B/C/D DDR2/DDR3) with daughter card having second Ethernet port and NOR. **In the rest of the document, we will refer this setup as DM8168 EVM.**
- DM8148 EVM. The EVM(Rev B DDR3) consists of base board, catalog application card and LCD adapter board **In the rest of the document, we will refer this setup as DM8148 EVM.**
- DM813X EVM. The EVM(Rev A DDR3) consists of base board **In the rest of the document, we will refer this setup as DM813X EVM.**

The Linux PSP serves to provide a fundamental software platform for development, deployment and execution of Linux based applications on Texas Instruments DM8168/DM8148 EVM. The Linux kernel and U-Boot software in this release are based on the following open source repositories:

| Component | Version | Base Repository | Base Tag (or commit id) |
|---------------------|------------------------------|-----------------|--|
| TI81XX Linux Kernel | 2.6.37(Linux kernel version) | [2] | 2b3ea6aa16956e15f1ba8e7b70898aaacbec2237 |
| U-Boot | 2010.06 | [3] | v2010.06 |

The code base for Linux kernel and U-Boot included in this release is hosted at the following repositories:

| Component | Repository (Branch) | Baseline Tag/Commit | Release Tag |
|---------------------|---------------------|--|--------------------------------|
| TI81xx Linux Kernel | [4] (ti81xx-master) | 2b3ea6aa16956e15f1ba8e7b70898aaacbec2237 | v2.6.37_TI81XXPSP_04.04.00.01 |
| TI81xx U-Boot | [5] (ti81xx-master) | v2010.06 | v2010.06_TI81XXPSP_04.04.00.01 |

For detailed information on the various software components included in the release and how to use them, please refer to the User Guide.

The kernel and U-Boot have been compiled with CodeSourcery GNU Toolchain for ARM Processors 2009-q1-203^[6] based on GCC 4.3.3

Documentation

Please refer the User Guide included in the docs folder of the package for how to use the PSP Release Package.

Dependencies

For complete list of components versions that will work with this release, please refer to the Software BOM page at http://processors.wiki.ti.com/index.php/Category:EZSDK_Software_BOM

This release requires following tools/packages to be installed for fbdev/v4l2 drivers:

| Tool/Component | Release Version |
|----------------|-----------------|
| CCS | 5.0.3.00013 |
| CGTools | 4.9.2 |
| XDC | 3_23_01_37 |
| BIOS | 6_33_02_27_eng |
| IPC | 1_24_01_24 |
| Syslink | 2_10_02_17 |
| HDVPSS Binary | 01.00.01.37 |

What's Supported

The Linux PSP package supports the following components:

U-Boot Features

| | TI816X | TI814X | TI813X |
|--|--------|--------|--------|
| NAND | YES | YES | YES |
| NOR | YES | YES | NO |
| SPI | YES | YES | YES |
| SD | YES | YES | YES |
| Ethernet | YES | YES | YES |
| Pre-built binaries for U-Boot (for SD and NAND boot mode only), Linux kernel | YES | YES | YES |
| Pre-Built binaries for NAND, NOR and SPI flash writers | YES | YES | NO |

Linux Device Drivers

| | TI816X | TI814X | TI813X | Remarks |
|--|--------|--------|--------|---|
| NAND | YES | YES | YES | |
| UART | YES | YES | YES | |
| I2C | YES | YES | YES | |
| SATA | YES | YES | YES | |
| NOR | YES | YES | NO | |
| EDMA | YES | YES | YES | |
| SPI | YES | YES | YES | |
| V4L2 Capture | YES | YES | YES | |
| V4L2 Display | YES | YES | YES | |
| SI9022a external HDMI transmitter driver | YES | YES | YES | |
| HDMI Audio | YES | YES | YES | |
| AIC3106 Audio | YES | YES | YES | |
| ADC3101 Audio | NO | NO | NA | |
| Ethernet | YES | NA | NA | |
| Ethernet Switch | NA | YES | YES | |
| PCIe RC | YES | YES | NO | |
| PCIe EP Boot | YES | YES | NO | Bootting DM814x/DM816x EP set in PCIe boot mode when connected to DM816x, x86 PC or DM814x Root Complex. Refer this application note ^[7] for considerations when using a non DM816x/DM814x RC. |
| PCIe EP Driver | YES | YES | NO | |
| MMC/SD | YES | YES | YES | |
| Watchdog Timer | YES | YES | YES | |
| GPIO | YES | YES | YES | |
| TILER | YES | YES | YES | |
| IOMMU | YES | YES | YES | |
| AVS | YES | NA | NA | |

| | | | | |
|------------|-----|-----|-----|---------------------|
| Pinmux | YES | YES | YES | |
| USB Host | YES | YES | YES | HID/MSC/Audio/Video |
| USB Gadget | YES | YES | YES | CDC/RNDS/FSG |
| RTC | | | | |
| CIR | NO | NO | NO | |

New in this Release

Following features have been added in this release

- 8-bit BCH ECC scheme as default across Uboot, Kernel and File System(TI81XX)
- Video Capture driver
- Auto Detection of Kernel Load Address and Run Time RAM Base feature enabling flexible load address of kernel(TI81XX)
- Dual EMAC Support (TI814x/TI813x)
- EMAC Boot Support(TI814x/TI813x)

Fixed in this Release

This section lists issues fixed in this release:

TI81XX

| Issue Identifier | Issue Headline |
|------------------|---|
| SDOCM00083234 | [HDMI] Setting mode via sysfs fails once in a while |
| SDOCM00087438 | [HDMI] Compliance Testing failing for HDMI |
| SDOCM00085998 | [FBDEV] FBDEV driver does not take bpp change effect first time |
| SDOCM00088316 | EVM fails to boot the second time using UBIFS |

TI814X

| Issue Identifier | Issue Headline |
|------------------|---|
| SDOCM00087658 | ti814x: clock: Add clock domain data for ISP and OCMC domains |
| SDOCM00085253 | Failure in invoking omap2_clk_enable() for second time |
| SDOCM00085007 | TI814X ALSA SoC Audio Resume Fails due to Input/output error |

Known Issues

This section lists known issues observed in this release:

TI81xx

| Issue Identifier | Issue Headline | Known Workaround(s) |
|------------------|--|---|
| SDOCM00081588 | TI81XX:USB: After four times insmod and rmmod of ti81xx.ko in loop causes crash in dma_alloc_free in cppi41dma driver | Remove all the modules in reverse order and insert all modules in right order again. |
| SDOCM00087448 | TI81XX: USB_Audio : DUT hangs for 8 to 10 sec while unplugging the USB audiodevice during playback | Recommended to stop the audio playback before unplugging of audio device. |
| SDOCM00088375 | TI81XX: USB: multiple resets occurring while creating a file on specific 8GB HP Disk key. No issues with other HP drives. | No workaround, usb reset occurs but the write to disk continues. |
| SDOCM00088385 | TI81XX: Audio gap seen while playing audio test tone file on audio headset | None. |
| SDOCM00088387 | USB audio through aplay does not work intermittently when stopped (by control-c) and started again | None. |
| SDOCM00085989 | TI81xx:V4L2 Capture: FPS is low with capture +fbdev loop back | None |
| SDOCM00085993 | TI81xx:V4L2 Capture: Kernel dump is seen on starting capture | None |
| SDOCM00086261 | TI81xx:V4L2 Capture: Filter is always selected for 1080P60 mode | None |
| SDOCM00087388 | TI81xx:V4L2 Capture: I2CAadapter on which slave is connected should be a platform device field. | Change V4L2 driver code to hardcode the adapter to which slave is connected |
| SDOCM00083627 | TI81xx: 6Gbps supporting harddisk negotiates at 1.5Gbps on DM8168 Linux PSP package. Both TI816x and TI814x exhibit inter-op issues with Gen3 HDDs | Connect the HDD behind a Gen2 PMP. |
| SDOCM00082602 | SD removal while IO is in progress causes system hang | None. It is recommended not to remove the card while I/O is in progress. |
| SDOCM00089115 | Subpage support in NAND is not implemented | None |

TI814X

| Issue Identifier | Issue Headline | Known Workaround(s) |
|------------------|--|--|
| SDOCM00084561 | USB:TI814X: Dynamic detection of USB-ID pin not working on DM814X PG2 when device connected after linux bootup | Use onboard jumper J22/J23 (on TIEVM) to short (for host mode) and open (for device mode) to configure usb-id pin of usb0/usb1. |
| SDOCM00086735 | TI814X: USBOTG: The SRP (Session Request Protocol) initiated from OTG-B peripheral device is not working | None. |
| SDOCM00084809 | ti814x: cpsw: PTP time synchronization not happening when connected to Port 2 | None. |
| SDOCM00089067 | TI814X/TI813X HDMI Audio Compatability issue due to S/W ACR generation. HDMI audio is not compatible(audio is muted)with some TV model. | Work in progress. |
| SDOCM00078276 | MMC/SD card's write protect status is not detected. Writes can happen on the SD/MMC card irrespective of whether the write protect switch on the card is on or off. | Known Issue. The signal MMC1_SD_WP is by default not connected to pin AG4. Instead signal UART0_DSRn is connected. So I2C2 on the daughter cards will be lost on using Write Protect functionality. |

TI813X

| Issue Identifier | Issue Headline | Known Workaround(s) |
|------------------|--|---|
| SDOCM00078276 | MMC/SD card's write protect status is not detected. Writes can happen on the SD/MMC card irrespective of whether the write protect switch on the card is on or off. | Known Issue. The signal MMC1_SD_WP is by default not connected to pin AG4. Instead signal UART0_DSRn is connected. So I2C2 on the daughter cards will be lost on using Write Protect functionality. |

Installation and Usage

Please look for detailed installation and usage instructions in the User Guide

Upgrade and Compatibility Information

To upgrade to new PSP release, simply delete the old release and extract the new release in its place.

Device Support

This release supports the Texas Instruments DM8168/C6A8168/AM389x (on DM8168 EVM)

Validation Information

This release is tested on

- DM816x
 - DM8168 EVM (Rev-B DDR2/ Rev C/D DDR3) with AM389x filesystem built from arago.
 - ARM is running at 1 GHz and DDR2 at 400 MHz (effective 800MHz data rate) or DDR3 running at 800MHz clock.
 - Note that the DDR2 based setup has undergone sanity test only.
- DM814x
 - DM8148EVM (Rev.B DDR3, PG2.1)
 - ARM running at 600Mhz and DDR3 at 400Mhz
- DM813x
 - DM813xEVM (Rev.A, DDR3,PG1.0)
 - ARM running at 600Mhz and DDR3 at 400Mhz

Versioning

This is 04.04.00.01 release of TI81XX Linux PSP product.

Useful Links

PSP 04.04.00.01 User Guide

PSP 04.04.00.01 Feature and Performance Guide

PSP 04.04.00.01 Release Download Page ^[8]

Technical Support and Product Updates

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

OMAP Linux Mailing List: <http://vger.kernel.org/vger-lists.html#linux-omap> </div>

References

- [1] <http://creativecommons.org/licenses/by-sa/3.0/>
- [2] <http://git.kernel.org/?p=linux/kernel/git/tmlind/linux-omap-2.6.git;a=commit;h=2b3ea6aa16956e15f1ba8e7b70898aaacbec2237>
- [3] <http://git.denx.de/?p=u-boot.git;a=summary>
- [4] <http://arago-project.org/git/projects/?p=linux-omap3.git;a=shortlog;h=refs/heads/ti81xx-master>
- [5] <http://arago-project.org/git/projects/?p=u-boot-omap3.git;a=summary>
- [6] <http://www.codesourcery.com/sgpp/lite/arm/portal/release858>
- [7] http://processors.wiki.ti.com/index.php/DM816x_C6A816x_AM389x_PCIe_Clocking_Schemes
- [8] http://software-dl.ti.com/dsps/dsps_public_sw/psp/LinuxPSP/

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