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AM335x-PSP 04.06.00.08 Release Notes

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Texas Instruments

AM335x-PSP 04.06.00.08 Release Notes

Linux PSP

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AM335x PSP 04.06.00.08

Release Notes

Release Date: August 1, 2012

Introduction

This is Release 04.06.00.08 of AM335x ⧉ Linux PSP. This release supports:

- BeagleBoard Bone ⧉ (version A3 and above)
- AM335x Evaluation Module ⧉ (version 1.1A and above)
- AM335x Evaluation Module-StarterKit (version 1.2B and above)

The Linux PSP serves to provide a fundamental software platform for development, deployment and execution of Linux based applications on Texas Instruments silicon.

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)
Linux Kernel	v3.2	http://git.kernel.org/?p=linux/kernel/git/tmlind/linux-	6489f6de3a219dfd23a91261eea1b09fba7ae128

		omap.git;a=summary 🔗	
U-Boot	2011.09	http://git.denx.de/?p=u-boot.git;a=summary 🔗	v2011.09

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

Component	Repository & Branch	Release Tag
Linux Kernel	http://arago-project.org/git/projects/?p=linux-am33x.git;a=shortlog;h=refs/heads/AM335XPSP_04.06.00.08 🔗 (The kernel obtained directly from the above repository needs PM firmware to build when building using default configuration. Link to PM firmware repository containing the firmware binary is available below in this table. Copy the firmware binary .bin file into the firmware/ folder of the kernel sources)	**v3.2_AM335xPSP_04.06.00.08**
U-Boot	http://arago-project.org/git/projects/?p=u-boot-am33x.git;a=shortlog;h=refs/heads/AM335XPSP_04.06.00.08 🔗	**v2011.09_AM335xPSP_04.06.00.08**
Power Management Firmware	http://arago-project.org/git/projects/?p=am33x-cm3.git;a=shortlog;h=refs/heads/AM335XPSP_04.06.00.08 🔗	**AM335xPSP_04.06.00.08**

Obtaining the Release Package

The PSP release package can be obtained from TI's Technology and Software Publicly Available (TSPA) download site 🔗.

Dependencies

Tool/Component	Description	Release Version	Required for
Code Composer Studio (CCS) 🔗	IDE and ARM compiler	5.1.0.09000	Building CCS based flash writers
Arago Toolchain 🔗	GCC ARM cross compiler	2011.09 (GCC 4.5.3)	Building Linux kernel, U-Boot, Linux examples
Filesystem 🔗	Target filesystem	NA	Linux boot

Documentation

The User's Guide provides instructions on how to use the PSP Release package.

The AM335x-PSP 04.06.00.08 Features and Performance Guide provides information on various device driver features and provides performance numbers.

What's Supported

The Linux PSP package supports the following components:

- SPL and U-Boot v2011.09 supporting SPI, NAND, MMC/SD and Ethernet boot modes
- Linux Kernel v3.2 and device drivers
- CCS based NAND flash writers.
- Linux examples.

Linux feature support on EVM (Rev 1.1A and above)

Peripheral	Instance	Support Status
UART	UART0	Supported.
	UART1	Supported in SDK using Bluetooth module
	UART2	Supported
	UART3	Planned
	UART4	Planned
	UART5	Planned
Ethernet Switch	CPSW0	Supported. IEEE1588 support planned.
SPI	SPI0	Supported
	SPI1	Not available in EVM
	I2C0	Supported

Category	Module	Status
I2C	I2C1	Supported
McASP	McASP0	Not available in EVM
	McASP1	Supported
DCAN	DCAN0	Not available in EVM
	DCAN1	Supported
EDMA	EDMA0	Supported
Timer	Timer0	Not Tested (Not used in Linux)
	Timer1	Supported (Schedule Tick)
	Timer2	Supported (Clocksource)
	Timer3	Not Tested (Not used in Linux)
	Timer4	Not Tested (Not used in Linux)
	Timer5	Supported (CPSW Interrupt pacing)
	Timer6	Supported (CPSW Interrupt pacing)
	Timer7	Not Tested (Not used in Linux)
	Watchdog timer	Supported
RTC	RTC0	Supported
ePWM	eHRPWM0	Not available in EVM
	eHRPWM1	Not available in EVM
	eHRPWM2	Supported (used by Haptics module on EVM)
	eQEP0	Not available in EVM
	eQEP1	Not available in EVM
	eQEP2	Not available in EVM
	eCAP0	Supported in PWM mode (APWM), used as LCD backlight control. Capture mode not supported.
	eCAP1	Not available in EVM
	eCAP2	Not available in EVM
Touchscreen/ADC	TSCADC0	Touchscreen supported, Raw ADC not supported.
MMC/SD	MMC/SD0	Supported
	MMC/SD1	Supported (Profile 2)
	MMC/SD2	Not available in EVM
GPIO	GPIO0	Supported
	GPIO1	Supported
	GPIO2	Supported
	GPIO3	Tested using WLAN/Bluetooth in SDK
USB	USB0	Supported
	USB1	Supported
GPMC	GPMC0	NAND is Supported, NOR is planned.
LCD Controller	LCDC0	GLCD is supported, Character LCD is not supported in EVM
Power Management	CPU Idling	Planned (only ARM WFI supported currently)
	Dynamic Voltage and Frequency Scaling (DVFS)	Supported
	DeepSleep0	Supported (Suspend-to-RAM)
On-board components	Accelerometer	Supported
	Ambient Light Sensor	Supported
	Temperature Sensor	Supported
	Haptics	Supported

	GPIO keypad	Supported

Linux support feature support on BeagleBone (Rev A3 and above)

Peripheral	Support Status
UART0	Supported.
Ethernet Switch	Supported.
MMC/SD0	Supported.
USB0	Supported.
USB1	Supported.
Power Management	Supported as in EVM

Linux support feature support on EVM-SK (Rev 1.2B and above)

Peripheral	Support Status
UART0	Supported.
LCD	Supported.
Touchscreen	Supported.
McASP (audio)	Supported.
Ethernet Switch (both ports)	Supported
MMC/SD0	Supported.
USB0	Supported.
USB1	Supported.
Power Management	Supported as in EVM
Accelerometer	Supported.
GPIO-keypad	Supported.
GPIO-LED	Supported.

The PSP package also includes:

- Pre-built binaries for U-Boot, Linux kernel, flash writers and examples
- Relevant Documents

New in this Release

- Support for EVM-SK (Rev 1.2B and later)
- Ethernet Switch
  - Support for two external ports as independent network interfaces
  - Support for VLAN and ALE entry configuration interface
- Suspend-to-RAM (DeepSleep0) with DDR3 support
- DDR3 support in U-Boot
- Support for SPI and Ethernet boot modes in U-Boot

Fixed in this Release

This section lists issues fixed in this release:

ALSA

Issue Identifier	Issue Headline
SDOCM00089719 🔒	ALSA: loopback fails when driver is built as module

Base Port

Issue Identifier	Issue Headline
SDOCM00091114 🔒	BasePort: Pin Mux: debugfs shows wrong values
SDOCM00091865 🔒	BasePort: Interrupts in bank 4 are not handled

Ethernet

Issue Identifier	Issue Headline
SDOCM00086213 🔒	Ethernet: "#ethtool eth0" is not showing complete information of Ethernet device
SDOCM00091636 🔒	Ethernet: CPSW: must turn off the AM335x internal delay feature on transmit clock

MMC/SD

Issue Identifier	Issue Headline
SDOCM00085920 🔒	MMC/SD: Beaglebone: multiple times of insert and remove mmc modules with R/W operation causes dut to hang
SDOCM00092044 🔒	MMC/SD: HSPE bit needs to be set when MMC/SD clock is above 25MHz

Power Management

Issue Identifier	Issue Headline
SDOCM00091540 🔒	Power Management: BeagleBone: cpufreq should not set frequencies greater than 500MHz when device is powered using USB
SDOCM00090692 🔒	Power Management: I/O error observed when copy files from one USB drive to another USB driver along with suspend resume operation.
SDOCM00090696 🔒	Power Management: "LCDC sync lost" and "Kernel core reported suspend failure" messages appear when MMC/SD to MMC/SD file copy along with suspend resume operation
SDOCM00090962 🔒	Power Management: Resume operation fails on some beaglebone boards (~1/3 of boards tested)
SDOCM00091029 🔒	Power Management: USB: Resume operation take 90 seconds if connected USB device is removed during suspend operation
SDOCM00091208 🔒	Power Management: shut down TSC/ADC during suspend if TSC wake is not required
SDOCM00092110 🔒	Power Management: 'pll_lock' macro does not correctly wait for PLL lock to happen
SDOCM00093513 🔒	Power Management: Fix erratum 1.0.15: OPP50 on MPU domain is not supported

U-Boot

Issue Identifier	Issue Headline
SDOCM00089686 🔒	U-Boot: EVM: fails when profile 2 is selected to boot using mmc1
SDOCM00092035 🔒	U-Boot: boot fails on using uEnv.txt for setting environment variables

USB

Issue Identifier	Issue Headline
SDOCM00088841 🔒	USB: Video capture : USB video capture is not working for 640x480 resolution and exit with the message "select timeout"
SDOCM00089422 🔒	USB: Wifi driver can not be initialized on AM335x EVM (works on BBB)
SDOCM00090435 🔒	USB: using USB2Ethernet interface leads to kernel oops
SDOCM00090439 🔒	USB: while transfer big file from EVM to laptop through Atheros wifi dongle a kernel oops occurs
SDOCM00090690 🔒	USB: audio: Corrupted audio heard after pause
SDOCM00091275 🔒	USB: audio: kernel crashes when attempting to remove mass storage gadget
SDOCM00093764 🔒	USB: kernel panic when proc_read() is done after removing g_ether module

Known Issues

This section lists known issues in this release.

Audio

Issue Identifier	Issue Headline	Known Workaround(s)
SDOCM00086121 🔒	ALSA: Audio loopback prints error messages	The warnings are harmless and can be

Issue Identifier		Issue Headline	Known Workaround(s)
SDOCM00089121 🔒		ALSA: Audio loopback prints error messages	ignored.
SDOCM00089663 🔒		SD card removal results in noise during ALSA playback/loopback	None
SDOCM00088830 🔒		ALSA: arecord: Unable to capture audio at exact 24KHz sample rate	None

Base Port

This section notes issues with U-Boot and basic kernel board support.

Issue Identifier	Issue Headline	Known Workaround(s)
SDOCM00085443 🔒	WDT1 timeout inaccurate.	None
SDOCM00086716 🔒	HWMOD warnings upon doing WDT file operations	The warning is harmless and can be ignored.
SDOCM00085737 🔒	After soft reboot, dhcp or tftp sometimes timeout in U-Boot.	Power cycle the board (hard reboot).

Ethernet

Issue Identifier	Issue Headline	Known Workaround(s)
SDOCM00086066 🔒	Ethernet: MAC address configuration is not supported in kernel	None
SDOCM00086717 🔒	EVM: NFS: arecord takes longer than expected time to record file to NFS filesystem	None
SDOCM00085982 🔒	Beaglebone: UDP client performance at 100Mbps and the throughput is less than 1 Mbps	UDP performance drops suddenly after 95Mbps. UDP rate needs to be throttled to 95Mbps for better performance.
SDOCM00091328 🔒	Ethernet: Performance drops to half with file storage IO in progress	None
SDOCM00090654 🔒	Ethernet: kernel crashes if removing ethernet module without bringing down network interface	Bring down the network interface before removing ethernet module

I2C

Issue Identifier	Issue Headline	Known Workaround(s)
SDOCM00087207 🔒	I2C controller timeout for some slave devices connected on i2c1 at 400KHz	Operating at 100Khz does not cause these timeouts.

MMC/SD

Issue Identifier	Issue Headline	Known Workaround(s)
SDOCM00085738 🔒	mmcsd write performance is very low when card is mounted as sync.	It is highly recommended to use async mode for good MMC/SD performance
SDOCM00085770 🔒	MMC 8bit is not supported.	None
SDOCM00087204 🔒	EVM: write protection for mmc1 in daughter board doesn't work	None
SDOCM00089663 🔒	SD card removal results in noise during ALSA playback/loopback	None
SDOCM00090498 🔒	MMC: hsmmc driver doesnt support 1.8v MMC cards	None
SDOCM00090756 🔒	MMC1: One SD card could not be used as rootfs when in slot1; The same card works in slot0	This issue happens with one card at the moment and needs further debug.
SDOCM00090970 🔒	MMC1 in profile 2: some SD or MMC cards cause DUT to hang	None

NAND

		Known

Issue Identifier	Issue Headline	Known Workaround(s)
SDOCM00086033 🔒	Nand mtdtest oob test and subpage test fail.	None
SDOCM00090530 🔒	Nand performance in this release is lower than the previous (04.06.00.06) release.	None

On-board Components

Issue Identifier	Issue Headline	Known Workaround(s)
SDOCM00091115 🔒	AM335X: HAPTICS doesn't work on all board revisions	update CPLD to version 1.0E or later.

Power Management

Issue Identifier	Issue Headline	Known Workaround(s)
SDOCM00087097 🔒	cpu_idle reports wrong power consumption numbers for WFI and DDR SR states	None
SDOCM00089584 🔒	cpufreq: Unable to change OPP in AM335x evm	This issue is because of misbehavior of I2C client contained inside the CPLD on the EVM. BeagleBone can be used to test CPUFreq on AM335x. BeagleBone does not have a CPLD and does not suffer from the same limitation as the EVM.
SDOCM00090470 🔒	Suspend/Resume during MMC/SD write using dd with large block size write causes the file write to not complete	Please use "sync" command before suspending to avoid losing data. Also, please use small block size (eg 512/1024 bytes) for transfer if there is chance of system going to suspend while transfer is going on.
SDOCM00090946 🔒 , SDOCM00094203 🔒	Suspend: Sometimes (~25 times out of 1000), DUT might abort the suspend process and come back safely to prompt	When this happens, user space can and should retry the suspend operation.
SDOCM00090689 🔒	AM335x: USB: aplay/arecord exit with error if system is suspended while playback/recording is ongoing	This issue is because of limitation of USB audio stack in Linux and can be observed on a PC too. Please wait for USB audio to finish before suspending or alternately, retry the audio operation after resume completes.
SDOCM00091071 🔒	AM335x: Suspend-to-RAM does not reduce core voltage	None.
SDOCM00091498 🔒	AM335x: cpuidle C2 state is not entered	None.
SDOCM00091330 🔒	AM335x: i2cdetect throw timeout errors and after that dut hangs after soft reboot	On the EVMs where this issues comes up, i2c usage in suspend-resume via cpufreq should be avoided by disabling cpufreq in the kernel.
SDOCM00094261 🔒	AM335x [USB] System does not wake up on inserting USB devices in Suspend state.	None. Using other wakeup modes is recommended.

SPI

Issue Identifier	Issue Headline	Known Workaround(s)
SDOCM00094016 🔒	SPI: SPI_IOC_MESSAGE or read hangs when data read byte is above 158 and bits per words is 16.	For any SPI transfer > 160 bytes, select 8 bits-per-word mode.

UART

Issue Identifier	Issue Headline	Known Workaround(s)
SDOCM00085586 🔒	UART: hardware flow control is not working	This is an issue because of mis-configuration of CPLD present on EVM. The UART driver is expected to work correctly with flow-control. Bluetooth module on EVM used UART flow control successfully.

USB

Issue Identifier	Issue Headline	Known Workaround(s)

SDOCM00085670 🔒	USB: NFS stops working when CDC/RNDIS gadget module is inserted with Arago FS	None. This is being tracked as a filesystem issue. http://arago-project.org/cgi-bin/bugzilla3/show_bug.cgi?id=11 🗗
SDOCM00085673 🔒	USB File storage gadget: instability when pendrive connected to host port exposed as storage media from gadget port to PC	None
SDOCM00087173 🔒	USB: MassStorageGadget: Issues when MMC card is used as storage media or gadget port	None
SDOCM00087229 🔒	USB: PIO mode read performance numbers are almost 50% less as compared to that of DMA mode read performance	Use DMA mode of operation if performance is critical. There are some outstanding issues with DMA mode, please go through the rest of this table for information regarding them.
SDOCM00089374 🔒	USB: High cpu loading with CDC gadget when connected to another EVM or local loopback	None
SDOCM00089782 🔒	USB command verifier (CV) test fails	None
SDOCM00091464 🔒	USB: UVC: The UVC camera does not capture the frames after several times of camera turned off and on	None
SDOCM00087342 🔒 , , SDOCM00089599 🔒	USB: CPPI4.1 DMA locks up when CPU mode transfer is done in parallel to DMA transfer. Sometimes USB resets are seen.	Use PIO mode when there is possibility of control transfer in parallel to DMA transfers. Such as when using WiFi and mass storage together or when connecting and disconnecting devices connected to a hub port when DMA transfers are active on another port. Please refer to USB User's Guide for detail on how to enable PIO mode.

Installation and Usage

Please look for detailed installation and usage instructions in the AM335x PSP User's Guide

Upgrade and Compatibility Information

There are no known incompatibilities from previous release.

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 🗗

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Links

ARM Microcontroller MCU 🗗	ARM Processor 🗗	Digital Media Processor 🗗	Digital Signal Processing 🗗	Microcontroller MCU 🗗	Multi Core Processor 🗗
Ultra Low Power DSP 🗗	8 bit Microcontroller MCU 🗗	16 bit Microcontroller MCU 🗗	32 bit Microcontroller MCU 🗗	

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