Contents

DaVinci PSP 03.20 version 03.20.00.06

Release Notes

October 01, 2009

Document License

Introduction

This is Release 03.20.00.06 of DaVinci PSP Software Development Kit (SDK). The SDK serves to provide a fundamental software platform for development, deployment and execution of Linux based applications on Texas Instruments OMAP-L138 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)
DaVinci Linux Kernel	2.6.31-rc7 (Linux kernel version)	http://git.kernel.org/?p=linux/kernel/git/khilman/linux-davinci.git;a=summary	14e84779069cf8c1e99f90d022e87e62179e224e
U-Boot	2009.01	http://git.denx.de/?p=u-boot.git;a=summary	v2009.01

The File system is based on the Arago, version 2009.09.

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

Component	Repository (Branch)	Baseline Tag	Release Tag
DaVinci Linux Kernel	http://arago-project.org/git/people/?p=sekhar/linux-omapl1.git (staging)	v2.6.31-rc7-03.20.00.06-baseline	REL_DAVINCIPSP_03.20.00.06_alpha
U-Boot		v2009.01	REL_DAVINCIPSP_03.20.00.06_alpha

	http://arago-project.org/git/people/?p=sekhar/u-boot-omapl1.git (wakeup)		

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

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

Documentation

The User Guide provides instructions on how to use the PSP SDK package. A copy of the User Guide is included in the `docs` folder of the SDK package.

The datasheet included in the `docs` folder of the SDK package provides performance benchmarks on drivers included with the PSP SDK package.

What's Supported

The SDK package supports the following components:

- U-Boot supporting SPI, NAND and NOR Flash.
- User Boot Loader for SPI, NAND and NOR flash (CCStudiov3.3 and CCStudiov4 based)
- SPI, NAND and NOR flash writer utilities (CCStudiov3.3 and CCStudiov4 based)
- DaVinci Linux Kernel and device drivers.
    - Audio (McASP)
    - Ethernet
    - USB MSC Host
    - USB HID Host
    - USB MUSB HCD
    - USB OHCI HCD
    - SPI, NAND and NOR Flash
    - Graphical and Character LCD
    - MMC/SD
    - UART
    - I2C
    - RTC
    - Watchdog
    - SPI
    - SATA
    - McBSP (serial)
    - CPUFreq (frequency and voltage scaling) in the kernel. Note: Drivers are not updated to take care of frequency/voltage transitions.
- EDMA, GPIO and McBSP examples.
- Pre-built binaries for Linux kernel and modules, U-Boot, UBL, Flash writer and Examples.

What's Not Supported

- Following Linux drivers are not supported:
    - SDIO - WLAN
    - VPIF (Video Port Interface)
    - UPP (Universal Parallel Port)
    - USB OTG
    - ISO - Audio transfers (USB Host Mode)
    - CDC/RNDIS (USB Device Mode)
    - Power Management for drivers and CPUIdle

Additional Kernel Patches released over DaVinci GIT Baseline

Subsystem	Patch Description	Status/Comments/Roadmap
Base Port	Exception while handling MEM Hole on OMAP3 / ARM Cortex A8	This patch is from the OMAP mailing list: http://patchwork.kernel.org/patch/46116/
	davinci: enable ARCH_HAS_HOLES_MEMORYMODEL for DaVinci platforms	To be submitted to DaVinci mailing list
	davinci: DA850/OMAP-L138: Limit number of legacy PTYs to 8	
	davinci: Modify NOR partition info	
	davinci: fix build issue with DA830/OMAP-L137 config	

	davinci: Enable 4-bit ecc support for da850/omap-l138	
	davinci: Add gpio7[4] pin to mux table	
	DA850/OMAP-L138: Check menuconfig options to setup McASP over McBSP	
	DA850/OMAP-L138: Enable McBSP in default config file	
	davinci: DA8XX/OMAP-L1XX: JTAG ID register should offset from SYSCFG base	Pulled into DaVinci GIT post release
	davinci: DA8XX/OMAP-L1XX: Avoid use of IO_ADDRESS for SYSCFG module	
	davinci: DA8XX/OMAP-L1XX: It's SYSCFG not BOOT_CFG	
	davinci: DA8xx/OMAP-L1xx: defconfigs: remove SYSFS_DEPRECATED flag	
Audio	ASoC: Correct FIFO initialization	Accepted in ALSA GIT tree - topic/asoc branch, yet to be pulled into DaVinci GIT tree. The patch is in DaVinci mailing list at: http://patchwork.kernel.org/patch/49466/
	ASoC: Increase the PCM buffer size	To be submitted to DaVinci mailing list.
	ASoC: DaVinci: Add audio support fot DA850/OMAP-L138 EVM	Pulled into DaVinci GIT post release
	ASoC: DaVinci: Add a DAI format to McASP driver	Accepted in ALSA GIT tree, yet to be pulled into DaVinci GIT tree. The patch is in DaVinci mailing list at: http://patchwork.kernel.org/patch/40555/
	ASoC: DaVinci: McASP driver enhacements	Present in ALSA GIT tree, yet to be pulled into DaVinci GIT tree. This patch is in DaVinci mailing list: http://patchwork.kernel.org/patch/40553/
	ASoC: DaVinci: Support Audio on DA830 EVM	Pulled into DaVinci GIT post release
EMAC	ARM: DaVinci: RMII support for DA850/OMAP-L138 EVM	This patch is in DaVinci mailing list: http://patchwork.kernel.org/patch/47967/
	TI DaVinci EMAC: delay DaVinci EMAC initialization	Pulled into DaVinci GIT post release
	mtdpart: memory accessor interface for MTD layer	
	DA850: Enabling EMAC driver in da850_omapl138_defconfig	To be submitted to DaVinci mailing list
Character LCD	staging/panel/panel.c: Add support for TI CLCD interface	Pulled into DaVinci GIT post release
	lcd: Add character LCD driver for da850/omap-l138	This patch will need re-sumbission to LKML (http://patchwork.kernel.org/patch/45047/)
	davinci: Add platform data for da850/omap-l138 char lcd	Submission of this patch to davinci git depends on the acceptance of the above two patches.
Graphical LCD	GLCD: Disable end-of-frame interrupt	Queued for acceptance into mmotm tree
	davinci: Correct the GPIO number for LCD panel power	Pulled into DaVinci GIT post release
Power Management	davinci: DA850/OMAP-L138 EVM: add support for TPS65070 PMIC	Submitted to DaVinci list (http://patchwork.kernel.org/patch/45175/)
	davinci: DA850/OMAP-L138: add support for voltage regulation	Submitted to DaVinci list (http://patchwork.kernel.org/patch/45173/)
	davinci: cpufreq: add support for voltage regulation	Submitted to DaVinci list (http://patchwork.kernel.org/patch/45176/)
	davinci: cpufreq: use cpufreq_frequency_table_target() to search freq table	Submitted to DaVinci list (http://patchwork.kernel.org/patch/45174/)
	davinci: DA850/OMAP-L138: add CPUFreq support	Submitted to DaVinci list (http://patchwork.kernel.org/patch/44855/)
	cpufreq: add generic CPUFreq driver for DaVinci	Submitted to DaVinci list (http://patchwork.kernel.org/patch/44850/)
	regulator: tps650xx - build fixes for x86_64	Pulled into DaVinci GIT post release
	Regulator: Adding TPS65023 and TPS6507x in Kconfig and Makefile	
	Regulator: Add TPS6507x regulator driver	
	Regulator: Add TPS65023 regulator driver	
	davinci: DA850/OMAP-L138: allow async3 source to be changed	
	davinci: support re-parenting a clock in the clock framework	
	davinci: support changing the clock rate in clock framework	
	davinci: make clock rate re-calculation easy	
	davinci: enable easy top down traversal of clock tree	
McBSP	DA850/OMAP-L138: Add McBSP driver	To be submitted to DaVinci mailing list.

SATA	Add DA850 SATA peripheral support to AHCI module.	New infrastructure needed. This is a major change in the SATA driver infrastructure. Need to bifurcate the libata, ahci.c files to creat a clean seperation for PCI and non PCI platforms.
	Fix for implementing PSC workaround for SATA peripheral.	Will be submitted on completion of above task.
	Add DA850 platform support for SATA peripheral.	Will be submitted on completion of above task.
RTC	RTC: Add RTC driver for da8xx/omap-l1xx	This patch will be replaced by version submitted to DaVinci list in the next release (http://patchwork.kernel.org/patch/48186/)
	davinci: Add rtc support for da850/omap-l138	Submission of this patch depends on acceptance of main RTC patch
SPI	spi: Add SPI driver support	This patch will be replaced by version submitted to DaVinci list in the next release. Current release does not include this patch because of lack of EDMA support. (http://patchwork.kernel.org/patch/45101/)
	davinci: SPI: add SPI flash support for da850/omap-l138	Submission of this patch depends on acceptance of main SPI patch
NAND	This patch adds a new "page" parameter to all NAND read_page/read_page_raw APIs	Pulled into DaVinci GIT post release
	This patch adds the new mode NAND_ECC_HW_OOB_FIRST in the nand code	
	This patch adds 4-bit ECC support for large page NAND chips	
	This patch adds 4-bit ECC support for large page NAND chips	
USB	Fix for Host compile failure.	All USB patches will be worked upon after acceptance of OMAP-L137 patches submitted by MontaVista.
	Fix for RNDIS/CDC gadget support.	
	USB Gadget RNDIS oid crash fix	
	usb: fix-for-cppi41-schedule-table-add/removal of dma channel	
	USB1: Adding support for USB1(OHCI) interface on OMAPL138 Beta EVM.	
	usb: cppi 4.1 de-initialization patch	
	Fix for USB0(MUSB) stall handling.	
	Fix for USB0(MUSB) interface to update the sched_table correctly during table init.	
	Fix for USB0(MUSB) interface to correctly handle ep0 giveback state changes.	
	Fix for USB0(MUSB) interface to handle starvation interrupt.	
	This patch implements the workaround requied for "advisory 1.1.2" errata on USB0(MUSB) interface. It implements the	
	Do CSR reading after the delay when flushing.	
	Fix for USB0(MUSB) CPPI DMA teardown.	
	Fix for USB0(MUSB) ISO Tx path when DMA is enabled.	
	Update Mode 2 Config to optimally use the 4K Fifo.	
	Fix for setting the DISPING bit on Endpoint 0 IO.	
	Fix for USB0(MUSB) module for handling ISO IN traffic when configured in DMA mode.	
	actual length has to be zero at the start of new dma programming.	
	Fix for module compile with CPPI41 enabled.	
	Move the cppi41_init to musb component so that init can happen once clocks are turned on in the musb module.	
	USB0: Update to DA850 platform to initialize platform specific CPPI41 infrastructure.	
	USB1: Fix for USB1 interface module compile support in DA850 platform.	
	Fix USB0 phy configuration to reflect the compiled in mode of operation. Minor fix for try_idle inclusion for DA850.	
	Update the transceiver structure access to be in line with OTG changes.	

	USB0: This patch adds OMAPL138 support to MUSB module.	
	USB0: OMAPL138 MUSB platform glue. This patch implements the platform specific hookup for USB0(MUSB) controller	
	Adding cppi41 related checks when configuring DMA in Host mode.	
	MUSB: CPPI 4.1 DMA driver (take 2)	
	DaVinci: add support for CPPI 4.1	
	Fix for OHCI module remove crash. Look for ocic_notify availability before calling the function.	
	Fix for DA8xx OHCI module w.r.t returning the correct probe status.	
	Fix for checking USB0 PHY for USB1 enabled/disabled state.	
	[PATCH] USB1 : DA850-Base port related Glue for OHCI interface.	
	OHCI: DA830/OMAP-L137 glue layer	
	MUSB: DA830/OMAP-L137 glue layer	

Fixed in this Release

Issue Identifier	Issue headline
SDOCM00059727	MMC: rmmod of MMC kernel module results in kernel crash
SDOCM00059963	Audio: Mono mode not supported
SDOCM00059995	Playback/Capture failure at 96kHZ sample rate
SDOCM00060482	Freon: ENET: Option to choose RMII PHY should be present in code
SDOCM00062112	Audio loopback results in error sometimes
SDOCM00062146	u-boot: LPA register bit masks to be corrected
SDOCM00062155	NOR: flash_eraseall of the only NOR partition is erasing UBL and u-boot
NA	u-boot: Though mDDR was at 150MHz, u-boot was printing mDDR frequency as 300MHz. This has been corrected in u-boot.
NA	ubl: mDDR was wrongly being configured at 150MHz. UBL has been modified to configure mDDR at 132MHz.

New in this Release

Since version 03.20.00.05, the following features have been added:

- McBSP (serial) driver
- Character LCD driver
- CPUFreq support in kernel
- NOR flash support in User Boot Loader, Flash Writers, U-Boot and Linux kernel
- CCSv4 support for User Boot Loader and Flash writers
- Linux kernel updated to version 2.6.31-rc7

Known Issues

Issue Identifier	Issue headline	Known Workaround(s)
SDOCM00059900	usb device mode : kernel crashes appears while using rndis gadget driver when evm connected to PC through usb cable	None
SDOCM00060331	DMA enabled musb_hdrc.ko module insertion\removal in a loop fails for the iteration greater than 15	Use USB2.0 (musb_hdrc) as part of the kernel
SDOCM00059993 & SDOCM00060004	During audio playback/capture, sometimes underrun/overrun errors are observed	None
SDOCM00059994	Unable to playback/capture in mmap mode	Use the default mode
SDOCM00060003	Noise is observed during audio capture	None
SDOCM00059996	Default playback volume is low	Use amixer controls to increase the playback volume
SDOCM00059997	amixer controls to control left/right playback volume is inverted	None

SDOCM00060000	amixer controls to switch on/off, left/right playback is inverted	None
SDOCM00060006	amixer control to switch on/off capture is not working	None
SDOCM00060007	GLCD flickering is observed whenever SPI flash is accessed. This is due to the muxing of GLCD backlight control pins (EPWM) and SPI flash chip select pins	None
SDOCM00062442	No sound cards when the audio driver is built as module	Use audio as part of kernel
SDOCM00062443	Unable to create jffs2 partion on nand using flash_eraseall -j	flash_eraseall can be used without -j option and the partition can still be mounted with jffs2 file system

Installation and Usage

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

Upgrade and Compatibility Information

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

This version does not have an in-compatibility with previous versions.

Dependencies

The DaVinci PSP release depends on Code Sourcery tool chain and Code Composer Studio (CCStudio). CCStudio is needed for initial (or recovery) flashing of UBL and U-Boot (Serial Flash utility is an alternate option without having to use CCS). As long as U-Boot remains functional on the EVM, CCStudio will not be needed.

Device Support

This release supports the Texas Instruments OMAP-L138 Evaluation Module (EVM).

Validation Information

Please use the Linux Functional Test Bench (LFTB) included in the release package for validating the release. Documentation on using LFTB is included in the LFTB package itself.

Versioning

This is Release 03.20.00.06 of DaVinci PSP SDK product.

Technical Support and Product Updates

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

DaVinci Linux Mailing List: http://linux.davincidsp.com/mailman/listinfo/davinci-linux-open-source.