


StellarisWare Release Notes



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Revision Information

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Table of Contents

Copyright	2
Revision Information	2
1 Release Notes for StellarisWare Revision 8049 (September 16, 2011)	23
2 Release Notes for StellarisWare Revision 8028 (September 9, 2011)	25
2.1 New Features in Stellaris Peripheral Driver Library	25
2.1.1 Updated Hibernate driver for Cortex-M4F parts may affect older parts (Reference 13772)	25
2.1.2 Libraries renamed in adding support for Cortex M4F (Reference 13852)	25
2.2 New Features in Stellaris Graphics Library	26
2.2.1 Added support for international character sets (Reference 13789)	26
2.2.2 Updates to ftrasterize (Reference 13781)	26
2.2.3 Additions to and reorganization of graphics library fonts (Reference 13774)	26
2.2.4 Libraries renamed in adding support for Cortex M4F (Reference 13852)	26
2.2.5 mkstringtable updated to handle UTF8 strings (Reference 13857)	27
2.3 New Features in Third Party Packages	27
2.3.1 Additions to and reorganization of graphics library fonts (Reference 13774)	27
2.4 New Features in Stellaris Host Tools	27
2.4.1 Updates to ftrasterize (Reference 13781)	27
2.4.2 Windows data logging application added (Reference 13826)	28
2.4.3 mkstringtable updated to handle UTF8 strings (Reference 13857)	28
2.5 New Features in Stellaris USB Library	28
2.5.1 Add support for forcing USB mode from an application (Reference 13820)	28
2.5.2 Libraries renamed in adding support for Cortex M4F (Reference 13852)	28
2.6 Bug Fixes in Stellaris USB Library	29
2.6.1 USB Device classes fail USB certification Chapter 9 test (Reference 13720)	29
2.6.2 USB Device Library was not properly handling FIFO configuration (Reference 13768)	29
2.6.3 USB Host Audio class improperly configured DMA (Reference 13841)	29
2.6.4 USBHCDPowerConfigSet() was not correctly setting power fault action (Reference 13664)	29
2.7 New Features in Stellaris Utility Library	30
2.7.1 New functions added to ustdlib (Reference 13890)	30
2.8 New Features in DK-LM3S9B96 Firmware Package	30
2.8.1 FontView example application added (Reference 13807)	30
2.9 Bug Fixes in DK-LM3S9B96 Firmware Package	30
2.9.1 Broken link in safertos_demo web site fixed (Reference 13637)	30
2.9.2 The usb_dev_msc application was using a slow SSI clock (Reference 13742)	30
2.10 New Features in DK-LM3S9D96 Firmware Package	31
2.10.1 FontView example application added (Reference 13807)	31
2.11 Bug Fixes in DK-LM3S9D96 Firmware Package	31
2.11.1 Broken link in safertos_demo web site fixed (Reference 13637)	31
2.11.2 The usb_dev_msc application was using a slow SSI clock (Reference 13742)	31
2.12 Bug Fixes in EK-LM3S3748 Firmware Package	31
2.12.1 The usb_dev_msc application was using a slow SSI clock (Reference 13742)	31
2.13 Bug Fixes in EK-LM3S9B96 Firmware Package	32
2.13.1 usb_dev_audio example was incorrectly adjusting sample rate (Reference 13896)	32
2.14 New Features in EK-LM4F232 Firmware Package	32
2.14.1 Windows data logging application added (Reference 13826)	32
2.14.2 Added support for EK-LM4F232 and Cortex M4F (Reference 13867)	32
2.15 New Features in RDK-IDM Firmware Package	32
2.15.1 FontView example application added (Reference 13807)	32

2.16	New Features in RDK-IDM-L35 Firmware Package	33
2.16.1	FontView example application added (Reference 13807)	33
2.17	New Features in RDK-IDM-SBC Firmware Package	33
2.17.1	FontView example application added (Reference 13807)	33
2.18	New Features in Stellaris Firmware Development Package	33
2.18.1	Deprecation of macro named SYSCTL_PERIPH_PWM (Reference 13816)	33
3	Release Notes for StellarisWare Revision 7611 (July 2, 2011)	35
3.1	New Features in Stellaris Bluetopia Bluetooth Library	35
3.1.1	Added Bluetopia Bluetooth stack and examples (Reference 13295)	35
3.2	Bug Fixes in Stellaris Boot Loader	36
3.2.1	USB DFU device does not pass USB 2.0 Command verifier (Reference 13432)	36
3.3	New Features in Stellaris Peripheral Driver Library	36
3.3.1	Added header files for new devices (Reference 13552)	36
3.4	Bug Fixes in Stellaris Peripheral Driver Library	36
3.4.1	The USBHostEndpointConfig() was setting endpoint 0 speed incorrectly (Reference 13511)	36
3.4.2	Fix order of interrupt disable in USBIntUnregister() and CANIntUnregister() functions (Reference 13313)	36
3.5	New Features in Stellaris Graphics Library	36
3.5.1	Ftrasterize updated to allow better support for some ISO8859 variants (Reference 13112)	36
3.6	New Features in Stellaris Host Tools	37
3.6.1	Ftrasterize updated to allow better support for some ISO8859 variants (Reference 13112)	37
3.7	Bug Fixes in Stellaris Host Tools	37
3.7.1	LMDFU.DLL state initialisation corrected (Reference 13418)	37
3.8	New Features in Stellaris USB Library	37
3.8.1	USB library now supports rebuilding with ROM calls (Reference 13515)	37
3.9	Bug Fixes in Stellaris USB Library	38
3.9.1	USB endpoint status was not cleared when switching modes (Reference 13290)	38
3.9.2	USB MSC device mode not properly closing USB device mode (Reference 13259)	38
3.9.3	USBOTGModelInit function was not clearing USB mode (Reference 13496)	38
3.9.4	USB device mode not properly clearing Data toggle in some cases (Reference 13448)	38
3.9.5	USB CDC device class 64 byte packet handling corrected (Reference 13567)	38
3.10	New Features in Stellaris Utility Library	39
3.10.1	swupdate.c can be configured not to use ROM boot loader (Reference 13270)	39
3.10.2	ustrncpy and ustrlen functions added to ustdlib (Reference 13422)	39
3.11	Bug Fixes in DK-LM3S9B96 Firmware Package	39
3.11.1	SimpliciTI addresses corrected to ensure uniqueness (Reference 13505)	39
3.11.2	Fix value of dummy CRC in FatFs SD card driver that was causing a problem with some SD cards (Reference 13300)	39
3.11.3	Additional SimpliciTI binaries added (Reference 13630)	40
3.12	New Features in DK-LM3S9D96 Firmware Package	40
3.12.1	New firmware development package (Reference 13566)	40
3.13	Bug Fixes in DK-LM3S9D96 Firmware Package	40
3.13.1	Additional SimpliciTI binaries added (Reference 13630)	40
3.14	Bug Fixes in EK-EVALBOT Firmware Package	40
3.14.1	SimpliciTI addresses corrected to ensure uniqueness (Reference 13505)	40
3.15	Bug Fixes in EK-LM3S1968 Firmware Package	41
3.15.1	Display driver disabled chip select too soon (Reference 12987)	41
3.16	Bug Fixes in EK-LM3S2965 Firmware Package	41
3.16.1	Display driver disabled chip select too soon (Reference 12987)	41
3.17	Bug Fixes in EK-LM3S3748 Firmware Package	41
3.17.1	Fix value of dummy CRC in FatFs SD card driver that was causing a problem with some SD cards (Reference 13300)	41

3.17.2	usb_boot_demo2 system clock was too slow (Reference 13625)	41
3.18	Bug Fixes in EK-LM3S6965 Firmware Package	41
3.18.1	Display driver disabled chip select too soon (Reference 12987)	41
3.18.2	Fix value of dummy CRC in FatFs SD card driver that was causing a problem with some SD cards (Reference 13300)	42
3.19	Bug Fixes in EK-LM3S8962 Firmware Package	42
3.19.1	Display driver disabled chip select too soon (Reference 12987)	42
3.19.2	Fix value of dummy CRC in FatFs SD card driver that was causing a problem with some SD cards (Reference 13300)	42
3.20	New Features in EK-LM3S9D90 Firmware Package	42
3.20.1	New firmware development package (Reference 13566)	42
3.21	New Features in EK-LM3S9D92 Firmware Package	42
3.21.1	New firmware development package (Reference 13566)	42
3.22	Bug Fixes in RDK-ACIM Firmware Package	43
3.22.1	Recode motor kit math functions to avoid problems with CCS/TI compiler optimizer (Reference 12968)	43
3.23	Bug Fixes in RDK-BDC Firmware Package	43
3.23.1	Recode motor kit math functions to avoid problems with CCS/TI compiler optimizer (Reference 12968)	43
3.24	Bug Fixes in RDK-BDC24 Firmware Package	43
3.24.1	Recode motor kit math functions to avoid problems with CCS/TI compiler optimizer (Reference 12968)	43
3.25	Bug Fixes in RDK-BLDC Firmware Package	43
3.25.1	Recode motor kit math functions to avoid problems with CCS/TI compiler optimizer (Reference 12968)	43
3.26	Bug Fixes in RDK-IDM Firmware Package	44
3.26.1	Fix value of dummy CRC in FatFs SD card driver that was causing a problem with some SD cards (Reference 13300)	44
3.27	Bug Fixes in RDK-IDM-L35 Firmware Package	44
3.27.1	Fix value of dummy CRC in FatFs SD card driver that was causing a problem with some SD cards (Reference 13300)	44
4	Release Notes for StellarisWare Revision 7243 (March 19, 2011)	45
4.1	New Features in Stellaris Peripheral Driver Library	45
4.1.1	Enhanced TimerConfigure to allow match interrupts (Reference 13107)	45
4.1.2	USBOTGMode API added to allow mode to be switched back to OTG (Reference 13191)	45
4.2	Bug Fixes in Stellaris Peripheral Driver Library	45
4.2.1	ADCProcessorTrigger now configures global sync correctly (Reference 13194)	45
4.2.2	Incorrect operation of TimerControlEvent fixed (Reference 13219)	46
4.2.3	Changed order of operations in GPIOPinTypeGPIOOutput (Reference 12607)	46
4.3	Bug Fixes in Stellaris USB Library	46
4.3.1	USB Library Device endpoint 0 receive state incorrect (Reference 12997)	46
4.3.2	USB library improperly handles a device error (Reference 13094)	46
4.3.3	USB audio device was checking wIndex value incorrectly (Reference 12992)	46
4.3.4	USB Audio Device current volume should be a signed value (Reference 13235)	47
4.3.5	USB Audio Device was checking the incorrect parameter on interface changes (Reference 12991)	47
4.4	New Features in Stellaris Utility Library	47
4.4.1	Added random number function to ustdlib.c (Reference 13258)	47
4.5	Bug Fixes in Stellaris Utility Library	47
4.5.1	Incorrect macro definitions in checkpoint.h (Reference 13227)	47
4.6	New Features in DK-LM3S9B96 Firmware Package	47
4.6.1	Example applications now use DriverLib in ROM (Reference 13262)	47
4.7	New Features in EK-EVALBOT Firmware Package	48

4.7.1	Add new evaluation board, ek-evalbot (Reference 13250)	48
5	Release Notes for StellarisWare Revision 6852 (January 11, 2011)	49
5.1	Bug Fixes in Stellaris Boot Loader	49
5.1.1	CAN boot loader had incorrect timing values for a 16MHz crystal (Reference 12982)	49
5.2	Bug Fixes in Stellaris Peripheral Driver Library	49
5.2.1	ASSERT Macro incorrect in USBHostPwrConfig() (Reference 12795)	49
5.2.2	Recode some library functions to avoid problems with CCS/TI compiler optimizer (Reference 12962)	49
5.3	New Features in Stellaris Graphics Library	50
5.3.1	SliderVerticalSet macro added to GrLib (Reference 12915)	50
5.3.2	SliderBackgroundFillOn and SliderBackgroundFillOff macros added to GrLib (Reference 12926)	50
5.3.3	Font support extended to allow up to 256 characters to be encoded (Reference 12947)	50
5.4	Bug Fixes in Stellaris Graphics Library	50
5.4.1	Recode some library functions to avoid problems with CCS/TI compiler optimizer (Reference 12962)	50
5.5	Bug Fixes in Stellaris USB Library	51
5.5.1	USB Library HID definitions incorrect (Reference 12591)	51
5.6	New Features in Stellaris Utility Library	51
5.6.1	Added CRC-8-CCITT and CRC-16 functions (Reference 12925)	51
5.7	Bug Fixes in DK-LM3S9B96 Firmware Package	51
5.7.1	SDCard Stop Transmission Command Fix (Reference 12973)	51
5.7.2	Bad links in enet_io web site fixed (Reference 12972)	51
5.8	Bug Fixes in EK-LM3S3748 Firmware Package	51
5.8.1	SDCard Stop Transmission Command Fix (Reference 12973)	51
5.9	Bug Fixes in EK-LM3S6965 Firmware Package	52
5.9.1	SDCard Stop Transmission Command Fix (Reference 12973)	52
5.9.2	Bad links in enet_io web site fixed (Reference 12972)	52
5.10	Bug Fixes in EK-LM3S8962 Firmware Package	52
5.10.1	SDCard Stop Transmission Command Fix (Reference 12973)	52
5.10.2	Bad links in enet_io web site fixed (Reference 12972)	52
5.11	Bug Fixes in RDK-BDC Firmware Package	52
5.11.1	Performance improvements in the CAN interface (Reference 12904)	52
5.11.2	CAN boot loader had incorrect timing values for a 16MHz crystal (Reference 12982)	53
5.12	Bug Fixes in RDK-BDC24 Firmware Package	53
5.12.1	Performance improvements in the CAN interface (Reference 12905)	53
5.12.2	CAN boot loader had incorrect timing values for a 16MHz crystal (Reference 12982)	53
5.13	Bug Fixes in RDK-IDM Firmware Package	53
5.13.1	SDCard Stop Transmission Command Fix (Reference 12973)	53
5.14	Bug Fixes in RDK-IDM-SBC Firmware Package	53
5.14.1	SDCard Stop Transmission Command Fix (Reference 12973)	53
6	Release Notes for StellarisWare Revision 6734 (November 29, 2010)	55
6.1	Bug Fixes in Stellaris Boot Loader	55
6.1.1	CAN and Ethernet boot loader did not set SYSDIV properly (Reference 12826)	55
6.1.2	USB DFU bootloader and dfuprog do not allow updating bootloader (Reference 12834)	55
6.2	New Features in Stellaris Peripheral Driver Library	56
6.2.1	Added new uDMA function to read base address of alternate control structure (Reference 12782)	56
6.2.2	Addition of scatter-gather features to uDMA driver (Reference 9460)	56
6.2.3	Added new part-specific header files (Reference 12832)	56
6.3	Bug Fixes in Stellaris Peripheral Driver Library	56
6.3.1	uDMA driver was not correctly calculating buffer addresses when the item size was different from the increment size (Reference 10793)	56
6.3.2	Fixed error in calculation of destination buffer pointer for scatter- gather transfers (Reference 12467)	56

6.4	Bug Fixes in Third Party Packages	57
6.4.1	Fix LWIP Diagnostic Macros in Porting Layer (Reference 12778)	57
6.5	Bug Fixes in Stellaris Host Tools	57
6.5.1	USB DFU bootloader and dfuprog do not allow updating bootloader (Reference 12834)	57
6.6	Bug Fixes in Stellaris USB Library	57
6.6.1	USBHCDPipeFree() function can corrupt memory (Reference 12803)	57
6.7	Bug Fixes in Stellaris Utility Library	57
6.7.1	Fixed the NetworkConfigChange code in lwiplib (Reference 12706)	57
6.8	New Features in DK-LM3S9B96 Firmware Package	58
6.8.1	Quickstart application now allows TFTP to SDCard (Reference 12788)	58
6.9	Bug Fixes in DK-LM3S9B96 Firmware Package	58
6.9.1	TFTP server now handles incoming ERROR packets correctly (Reference 12798)	58
6.10	Bug Fixes in EK-LM3S6965 Firmware Package	58
6.10.1	TFTP server now handles incoming ERROR packets correctly (Reference 12798)	58
6.11	Bug Fixes in EK-LM3S8962 Firmware Package	58
6.11.1	TFTP server now handles incoming ERROR packets correctly (Reference 12798)	58
6.12	New Features in EK-LM3S9B90 Firmware Package	59
6.12.1	Add new example demonstrating uDMA scatter-gather mode with memory and UART (Reference 12828)	59
6.13	Bug Fixes in EK-LM3S9B90 Firmware Package	59
6.13.1	TFTP server now handles incoming ERROR packets correctly (Reference 12798)	59
6.14	New Features in EK-LM3S9B92 Firmware Package	59
6.14.1	Add new example demonstrating uDMA scatter-gather mode with memory and UART (Reference 12828)	59
6.15	Bug Fixes in EK-LM3S9B92 Firmware Package	59
6.15.1	TFTP server now handles incoming ERROR packets correctly (Reference 12798)	59
6.16	Bug Fixes in RDK-IDM Firmware Package	60
6.16.1	TFTP server now handles incoming ERROR packets correctly (Reference 12798)	60
6.17	Bug Fixes in RDK-IDM-SBC Firmware Package	60
6.17.1	TFTP server now handles incoming ERROR packets correctly (Reference 12798)	60
6.18	Bug Fixes in RDK-S2E Firmware Package	60
6.18.1	Power cycle required after using "Restore Factory Defaults" (Reference 12765)	60
6.18.2	Fixed the NetworkConfigChange code in lwiplib (Reference 12706)	60
6.18.3	TFTP server now handles incoming ERROR packets correctly (Reference 12798)	60
7	Release Notes for StellarisWare Revision 6594 (October 13, 2010)	63
7.1	Bug Fixes in Stellaris Boot Loader	63
7.1.1	CAN boot loader did not clear message objects (Reference 12249)	63
7.2	New Features in Stellaris Peripheral Driver Library	63
7.2.1	Added APIs to control power to the Ethernet PHY (Reference 11000)	63
7.2.2	Added APIs to control power to the USB PHY (Reference 12384)	64
7.2.3	Added Tempest C3 definitions to driverlib/rom.h (Reference 12663)	64
7.2.4	Added API function to configure EPI HB16 mode (Reference 12529)	64
7.3	Bug Fixes in Stellaris Graphics Library	64
7.3.1	Slider widget redraws incorrectly if minimum value is non-zero (Reference 12612)	64
7.4	Bug Fixes in Third Party Packages	64
7.4.1	Fixed an error in lwIP 1.3.2 tcp_slowtmr (Reference 12693)	64
7.5	New Features in Stellaris Utility Library	65
7.5.1	Added simple scheduler module (Reference 12616)	65
7.6	New Features in Stellaris Z-Stack Library	65
7.6.1	TI's Z-Stack 2.4.0-Beta2 (certified) for CC2520 added to StellarisWare (Reference 12719)	65
7.7	New Features in DK-LM3S9B96 Firmware Package	65
7.7.1	Windows drivers for USB examples now included (Reference 12647)	65

7.7.2	IEEE1588 PTPD example added to dk-lm3s9b96 release (Reference 12716)	65
7.8	Bug Fixes in DK-LM3S9B96 Firmware Package	66
7.8.1	Slider widget redraws incorrectly if minimum value is non-zero (Reference 12612)	66
7.8.2	usb_stick_update didn't recognize some USB sticks (Reference 9814)	66
7.9	New Features in EK-LM3S3748 Firmware Package	66
7.9.1	Windows drivers for USB examples now included (Reference 12647)	66
7.10	Bug Fixes in EK-LM3S3748 Firmware Package	66
7.10.1	usb_stick_update didn't recognize some USB sticks (Reference 9814)	66
7.11	Bug Fixes in EK-LM3S6965 Firmware Package	67
7.11.1	Added missing display enable call to enet_lwip (Reference 12593)	67
7.12	Bug Fixes in EK-LM3S8962 Firmware Package	67
7.12.1	Added missing display enable call to enet_lwip (Reference 12593)	67
7.13	New Features in EK-LM3S9B90 Firmware Package	67
7.13.1	Windows drivers for USB examples now included (Reference 12647)	67
7.14	Bug Fixes in EK-LM3S9B90 Firmware Package	67
7.14.1	usb_stick_update didn't recognize some USB sticks (Reference 9814)	67
7.15	New Features in EK-LM3S9B92 Firmware Package	68
7.15.1	Windows drivers for USB examples now included (Reference 12647)	68
7.16	Bug Fixes in EK-LM3S9B92 Firmware Package	68
7.16.1	usb_stick_update didn't recognize some USB sticks (Reference 9814)	68
7.17	New Features in RDK-BDC Firmware Package	68
7.17.1	Added new blink code for current faults (Reference 12271)	68
7.17.2	Added two new speed measurement sources (Reference 11340)	68
7.17.3	The motor controller now announces its presence (Reference 12636)	68
7.17.4	Added new voltage status command (Reference 12637)	69
7.17.5	Added voltage compensation control mode (Reference 12638)	69
7.18	New Features in RDK-BDC24 Firmware Package	69
7.18.1	Added new blink code for current faults (Reference 12271)	69
7.18.2	Added two new speed measurement sources (Reference 11340)	69
7.18.3	The motor controller now announces its presence (Reference 12636)	69
7.18.4	Added new voltage status command (Reference 12637)	69
7.18.5	Added voltage compensation control mode (Reference 12638)	70
7.19	Bug Fixes in RDK-IDM Firmware Package	70
7.19.1	Slider widget redraws incorrectly if minimum value is non-zero (Reference 12612)	70
7.20	Bug Fixes in RDK-IDM-L35 Firmware Package	70
7.20.1	Slider widget redraws incorrectly if minimum value is non-zero (Reference 12612)	70
7.21	New Features in RDK-IDM-SBC Firmware Package	70
7.21.1	Sound effects added to qs-blox example application (Reference 12703)	70
7.21.2	Wave audio driver added to release (Reference 12705)	70
7.22	Bug Fixes in RDK-IDM-SBC Firmware Package	71
7.22.1	Slider widget redraws incorrectly if minimum value is non-zero (Reference 12612)	71
7.22.2	usb_stick_update didn't recognize some USB sticks (Reference 9814)	71
7.23	Bug Fixes in RDK-S2E Firmware Package	71
7.23.1	Connection to S2E telnet server failed after config parameter change (Reference 12701)	71
8	Release Notes for StellarisWare Revision 6459 (September 7, 2010)	73
8.1	New Features in Stellaris Peripheral Driver Library	73
8.1.1	Added API functions to set and get the interrupt priority masking level. (Reference 12543)	73
8.2	Bug Fixes in Stellaris Peripheral Driver Library	73
8.2.1	StellarisWare was not correctly setting host/device mode. (Reference 12486)	73
8.3	New Features in Stellaris IQmath Library	74
8.3.1	Added IQmath to StellarisWare (Reference 12502)	74
8.4	New Features in Stellaris MIFARE Library	74

8.4.1	TRF7960R RFID support added to StellarisWare (Reference 12229)	74
8.5	New Features in Stellaris SimpliciTI Library	74
8.5.1	SimpliciTI 1.1.1 stack added to StellarisWare (Reference 12228)	74
8.6	New Features in Stellaris USB Library	74
8.6.1	Runtime DFU Device Class added to USB Library (Reference 12508)	74
8.7	Bug Fixes in Stellaris USB Library	75
8.7.1	StellarisWare was not correctly setting host/device mode. (Reference 12486)	75
8.7.2	USB serial device classes could hang if buffers filled to quickly (Reference 12461)	75
8.8	New Features in Stellaris Utility Library	75
8.8.1	Added Software UART module (Reference 12361)	75
8.9	New Features in DK-LM3S9B96-EM2 Firmware Package	75
8.9.1	Support for TI SimpliciTI low power wireless protocol added (Reference 12323)	75
8.10	New Features in DK-LM3S9B96 Firmware Package	76
8.10.1	Added IQmath demonstration (Reference 12493)	76
8.10.2	Runtime DFU Device Class added to USB Library (Reference 12508)	76
8.10.3	Support added for DK-LM3S9B96-EM2 expansion board (Reference 12322)	76
8.11	Bug Fixes in DK-LM3S9B96 Firmware Package	76
8.11.1	USB Composite Driver Callback Routing Fixed (Reference 12525)	76
8.11.2	“Luminary” references in USB boot loader removed (Reference 12537)	77
8.11.3	The usb_dev_caudiohid example calling wrong Keyboard initialization (Reference 12509)	77
8.12	New Features in EK-LM3S3748 Firmware Package	77
8.12.1	Runtime DFU Device Class added to USB Library (Reference 12508)	77
8.13	Bug Fixes in EK-LM3S3748 Firmware Package	77
8.13.1	USB Composite Driver Callback Routing Fixed (Reference 12525)	77
8.13.2	“Luminary” references in USB boot loader removed (Reference 12537)	78
8.14	New Features in EK-LM3S9B90 Firmware Package	78
8.14.1	Runtime DFU Device Class added to USB Library (Reference 12508)	78
8.15	Bug Fixes in EK-LM3S9B90 Firmware Package	78
8.15.1	USB Composite Driver Callback Routing Fixed (Reference 12525)	78
8.15.2	“Luminary” references in USB boot loader removed (Reference 12537)	78
8.16	New Features in EK-LM3S9B92 Firmware Package	79
8.16.1	Runtime DFU Device Class added to USB Library (Reference 12508)	79
8.17	Bug Fixes in EK-LM3S9B96 Firmware Package	79
8.17.1	USB Composite Driver Callback Routing Fixed (Reference 12525)	79
8.17.2	“Luminary” references in USB boot loader removed (Reference 12537)	79
8.18	Bug Fixes in Stellaris Firmware Development Package	79
8.18.1	FLASH_BOOTCFG had wrong address (Reference 12533)	79
9	Release Notes for StellarisWare Revision 6288 (August 3, 2010)	81
9.1	Bug Fixes in Stellaris Boot Loader	81
9.1.1	CAN boot loader did not work on Fury-class devices (Reference 12270)	81
9.2	Bug Fixes in Stellaris Peripheral Driver Library	81
9.2.1	CANBitRateSet produces invalid bit timings (Reference 12455)	81
9.3	New Features in Stellaris Graphics Library	82
9.3.1	Improve NumLeadingZeros macro in graphics library (for CCS) (Reference 12219)	82
9.4	Bug Fixes in Stellaris USB Library	82
9.4.1	Memory allocation issue with USB FIFO configuration data (Reference 12266)	82
9.5	New Features in Stellaris Utility Library	82
9.5.1	Added Software SSI module (Reference 12269)	82
9.5.2	Added Software I2C module (Reference 12360)	82
9.5.3	Added cosine macro (Reference 12248)	82
9.6	New Features in DK-LM3S9B96 Firmware Package	83
9.6.1	Touchscreen driver handling of unrecognized daughter boards fixed. (Reference 12359)	83

9.7	Bug Fixes in DK-LM3S9B96 Firmware Package	83
9.7.1	Echo mode in usb_bulk_example corrected (Reference 12335)	83
9.7.2	Fixed dbeeprom example to terminate strings correctly (Reference 12347)	83
9.7.3	USB DFU driver version numbering corrected (Reference 12427)	83
9.7.4	i2s_filter example can fail and generate loud noise (Reference 11694)	83
9.8	Bug Fixes in EK-LM3S2965 Firmware Package	84
9.8.1	can_fifo example was not clearing the FIFO flag properly (Reference 12316)	84
9.9	Bug Fixes in EK-LM3S3748 Firmware Package	84
9.9.1	Echo mode in usb_bulk_example corrected (Reference 12335)	84
9.9.2	USB DFU driver version numbering corrected (Reference 12427)	84
9.10	Bug Fixes in EK-LM3S8962 Firmware Package	84
9.10.1	can_fifo example was not clearing the FIFO flag properly (Reference 12316)	84
9.11	Bug Fixes in EK-LM3S9B90 Firmware Package	84
9.11.1	Echo mode in usb_bulk_example corrected (Reference 12335)	84
9.11.2	USB DFU driver version numbering corrected (Reference 12427)	85
9.12	Bug Fixes in EK-LM3S9B92 Firmware Package	85
9.12.1	Echo mode in usb_bulk_example corrected (Reference 12335)	85
9.12.2	USB DFU driver version numbering corrected (Reference 12427)	85
10	Release Notes for StellarisWare Revision 6075 (June 4, 2010)	87
10.1	New Features in Stellaris Boot Loader	87
10.1.1	Added support to cooperate with the in-Flash errata workaround (Reference 12088)	87
10.2	New Features in Stellaris Peripheral Driver Library	87
10.2.1	Function CPUprimask() added to cpu.c (Reference 12214)	87
10.3	Bug Fixes in Stellaris Peripheral Driver Library	88
10.3.1	USB_EP_HOST_IN and USB_EP_DEV_OUT definitions overlap with USB_EP_SPEED_FULL definition (Reference 12152)	88
10.3.2	USBDevEndpointStallClear() is not clearing data toggle for non-zero endpoints (Reference 12165)	88
10.3.3	Deprecated INT_ADC? from hw_ints.h (Reference 12203)	88
10.4	New Features in Stellaris Graphics Library	88
10.4.1	Added monospace font support to frasterize (Reference 10690)	88
10.5	New Features in Third Party Packages	89
10.5.1	Updated to lwIP 1.3.2 (Reference 12145)	89
10.6	Bug Fixes in Stellaris USB Library	89
10.6.1	USB Host MSC class not handling STALLED commands properly (Reference 12105)	89
10.6.2	USBDAudioTerm() and USBDMSCTerm() do not call USBDCDTerm() (Reference 11676)	89
10.6.3	USBHCDClearFeature() was not resetting data toggle (Reference 12166)	89
10.7	New Features in DK-LM3S9B96 Firmware Package	89
10.7.1	New Speex Encode/Decode example added (Reference 11069)	89
10.7.2	USB Drivers Now Support Windows 7 32-bit and 64-bit Versions (Reference 11555)	90
10.7.3	Add DMA support to the USB audio device examples (Reference 11677)	90
10.7.4	Windows tool Visual Studio projects updated to VS2008 (Reference 12138)	90
10.7.5	New dbeeprom example application added (Reference 11936)	90
10.8	Bug Fixes in DK-LM3S9B96 Firmware Package	90
10.8.1	Allow SafeRTOS demo to be moved from location 0 (Reference 12086)	90
10.8.2	usb_host_audio application does not display time information (Reference 11974)	91
10.8.3	usb_stick_update would not enumerate drives in all cases. (Reference 12241)	91
10.8.4	Fixed left/right channel swap on I2S DAC output (Reference 12245)	91
10.9	Bug Fixes in EK-LM3S1968 Firmware Package	91
10.9.1	RIT display driver used wrong SPI mode (Reference 12217)	91
10.9.2	Added MPU region to mpu_fault example for bit-banded SRAM (Reference 12235)	91
10.10	Bug Fixes in EK-LM3S2965 Firmware Package	92
10.10.1	RIT display driver used wrong SPI mode (Reference 12217)	92

10.10.2 Added MPU region to mpu_fault example for bit-banded SRAM (Reference 12235)	92
10.11 New Features in EK-LM3S3748 Firmware Package	92
10.11.1 USB Drivers Now Support Windows 7 32-bit and 64-bit Versions (Reference 11555)	92
10.11.2 Windows tool Visual Studio projects updated to VS2008 (Reference 12138)	92
10.12 Bug Fixes in EK-LM3S3748 Firmware Package	93
10.12.1 usb_dev_cserial application not properly echoing data (Reference 12049)	93
10.13 New Features in EK-LM3S6965 Firmware Package	93
10.13.1 fswrapper module added to ek-lm3s6965 release (Reference 12122)	93
10.14 Bug Fixes in EK-LM3S6965 Firmware Package	93
10.14.1 RIT display driver used wrong SPI mode (Reference 12217)	93
10.14.2 Added MPU region to mpu_fault example for bit-banded SRAM (Reference 12235)	93
10.15 New Features in EK-LM3S8962 Firmware Package	94
10.15.1 fswrapper module added to ek-lm3s8962 release (Reference 12126)	94
10.16 Bug Fixes in EK-LM3S8962 Firmware Package	94
10.16.1 RIT display driver used wrong SPI mode (Reference 12217)	94
10.16.2 Added MPU region to mpu_fault example for bit-banded SRAM (Reference 12235)	94
10.17 New Features in EK-LM3S9B90 Firmware Package	94
10.17.1 USB Drivers Now Support Windows 7 32-bit and 64-bit Versions (Reference 11555)	94
10.17.2 Windows tool Visual Studio projects updated to VS2008 (Reference 12138)	95
10.18 Bug Fixes in EK-LM3S9B90 Firmware Package	95
10.18.1 usb_stick_update would not enumerate drives in all cases. (Reference 12241)	95
10.19 New Features in EK-LM3S9B92 Firmware Package	95
10.19.1 USB Drivers Now Support Windows 7 32-bit and 64-bit Versions (Reference 11555)	95
10.19.2 Windows tool Visual Studio projects updated to VS2008 (Reference 12138)	95
10.20 Bug Fixes in EK-LM3S9B92 Firmware Package	95
10.20.1 usb_stick_update would not enumerate drives in all cases. (Reference 12241)	95
10.21 Bug Fixes in RDK-BDC Firmware Package	96
10.21.1 Fixed API Class table in documentation (Reference 12172)	96
10.22 Bug Fixes in RDK-BDC24 Firmware Package	96
10.22.1 Fixed API Class table in documentation (Reference 12172)	96
10.23 New Features in RDK-IDM-SBC Firmware Package	96
10.23.1 Windows tool Visual Studio projects updated to VS2008 (Reference 12138)	96
11 Release Notes for StellarisWare Revision 5961 (May 3, 2010)	97
11.1 New Features in Stellaris Boot Loader	97
11.1.1 Added support for unlocking forced update pins (Reference 11970)	97
11.1.2 Added optional MOSCFAIL handler to boot loader (Reference 12014)	97
11.2 Bug Fixes in Stellaris USB Library	97
11.2.1 USB Device CDC had incorrect Configuration Descriptor (Reference 11993)	97
11.2.2 The USB Host Pipe Read/Write functions improperly handle STALL (Reference 12024)	98
11.2.3 USBOTGModelInit() causes ASSERT in debug builds (Reference 12030)	98
11.3 Bug Fixes in DK-LM3S9B96 Firmware Package	98
11.3.1 Hang in qs-checkout if run with FS8 daughter containing non-filesystem image (Reference 11976)	98
11.3.2 Internal pull-ups removed from EPI pin configuration (Reference 12019)	98
11.3.3 FPGA daughter board initialization problem on power-on-reset (Reference 12034)	98
11.4 Bug Fixes in EK-LM3S3748 Firmware Package	99
11.4.1 USB host mass storage applications generate errors on slower devices (Reference 11689)	99
11.4.2 usb_stick_update application can timeout on retries (Reference 12025)	99
11.5 Bug Fixes in EK-LM3S9B90 Firmware Package	99
11.5.1 USB host mass storage applications generate errors on slower devices (Reference 11689)	99
11.5.2 usb_stick_update application can timeout on retries (Reference 12025)	99
11.6 Bug Fixes in EK-LM3S9B92 Firmware Package	100
11.6.1 USB host mass storage applications generate errors on slower devices (Reference 11689)	100

11.6.2	usb_stick_update application can timeout on retries (Reference 12025)	100
11.7	Bug Fixes in EK-LM3S9B96 Firmware Package	100
11.7.1	USB host mass storage applications generate errors on slower devices (Reference 11689)	100
11.7.2	usb_stick_update application can timeout on retries (Reference 12025)	100
11.8	New Features in RDK-BDC24 Firmware Package	100
11.8.1	Source Code for bdc-comm now available (Reference 12018)	100
11.9	Bug Fixes in RDK-IDM Firmware Package	101
11.9.1	Motor speed updates not displayed in bldc_ctrl example (Reference 11826)	101
11.10	Bug Fixes in RDK-IDM-SBC Firmware Package	101
11.10.1	USB host mass storage applications generate errors on slower devices (Reference 11689)	101
11.10.2	usb_stick_update application can timeout on retries (Reference 12025)	101
11.11	Bug Fixes in RDK-STEPPER Firmware Package	101
11.11.1	Fix rare stepper deceleration problem (Reference 11969)	101
11.12	New Features in Stellaris Firmware Development Package	102
11.12.1	Added new set of example applications that are not specific to any board (Reference 12013)	102
11.13	Bug Fixes in Stellaris Firmware Development Package	102
11.13.1	Corrected uVision 3 project files (Reference 11990)	102
12	Release Notes for StellarisWare Revision 5879 (April 14, 2010)	103
12.1	New Features in Stellaris USB Library	103
12.1.1	Added USB Composite Device support (Reference 11721)	103
12.2	Bug Fixes in Stellaris USB Library	103
12.2.1	USBHCDPipeRead() returns 0 bytes in some cases (Reference 11880)	103
12.3	Bug Fixes in DK-LM3S9B96 Firmware Package	104
12.3.1	Display initialization parameters updated (Reference 11884)	104
12.3.2	Shorten time to select link-local address in lwIP applications (Reference 11908)	104
12.3.3	USB CDC serial device examples incorrectly responding to Get Line Coding (Reference 11767)	104
12.4	Bug Fixes in EK-LM3S3748 Firmware Package	104
12.4.1	Missing files added to tools/lmscope (Reference 11869)	104
12.4.2	USB CDC serial device examples incorrectly responding to Get Line Coding (Reference 11767)	104
12.5	New Features in EK-LM3S6965 Firmware Package	105
12.5.1	boot_demo_eth example application added. (Reference 11910)	105
12.6	Bug Fixes in EK-LM3S6965 Firmware Package	105
12.6.1	Shorten time to select link-local address in lwIP applications (Reference 11908)	105
12.6.2	HTTP/SSI Performance Improvement (Reference 11935)	105
12.7	Bug Fixes in EK-LM3S8962 Firmware Package	105
12.7.1	Shorten time to select link-local address in lwIP applications (Reference 11908)	105
12.7.2	HTTP/SSI Performance Improvement (Reference 11935)	106
12.8	Bug Fixes in EK-LM3S9B90 Firmware Package	106
12.8.1	Shorten time to select link-local address in lwIP applications (Reference 11908)	106
12.8.2	USB CDC serial device examples incorrectly responding to Get Line Coding (Reference 11767)	106
12.8.3	HTTP/SSI Performance Improvement (Reference 11935)	106
12.9	Bug Fixes in EK-LM3S9B92 Firmware Package	106
12.9.1	Shorten time to select link-local address in lwIP applications (Reference 11908)	106
12.9.2	USB CDC serial device examples incorrectly responding to Get Line Coding (Reference 11767)	107
12.10	Bug Fixes in EK-LM3S9B96 Firmware Package	107
12.10.1	HTTP/SSI Performance Improvement (Reference 11935)	107
12.11	Bug Fixes in RDK-BLDC Firmware Package	107
12.11.1	Shorten time to select link-local address in lwIP applications (Reference 11908)	107
12.12	Bug Fixes in RDK-IDM Firmware Package	107
12.12.1	Shorten time to select link-local address in lwIP applications (Reference 11908)	107
12.12.2	HTTP/SSI Performance Improvement (Reference 11935)	108
12.13	Bug Fixes in RDK-IDM-L35 Firmware Package	108

12.13.1 Display initialization parameters updated (Reference 11884)	108
12.14 Bug Fixes in RDK-IDM-SBC Firmware Package	108
12.14.1 Fix LocatorAppTitleSet strings (Reference 11829)	108
12.14.2 Display initialization parameters updated (Reference 11884)	108
12.14.3 Shorten time to select link-local address in lwIP applications (Reference 11908)	108
12.14.4 HTTP/SSI Performance Improvement (Reference 11935)	109
12.15 Bug Fixes in RDK-S2E Firmware Package	109
12.15.1 Shorten time to select link-local address in lwIP applications (Reference 11908)	109
12.15.2 HTTP/SSI Performance Improvement (Reference 11935)	109
12.16 Bug Fixes in Stellaris Firmware Development Package	109
12.16.1 Clarify parameter block size requirements in FlashPBLInit() (Reference 11888)	109
13 Release Notes for StellarisWare Revision 5821 (March 29, 2010)	111
13.1 New Features in Stellaris Peripheral Driver Library	111
13.1.1 Added TimerPrescaleMatchSet and TimerPrescaleMatchGet (Reference 11711)	111
13.1.2 Added new part specific headers (Reference 11755)	111
13.1.3 Added ADCPhaseDelaySet and ADCPhaseDelayGet to ADC driver (Reference 11770)	111
13.1.4 Add ability to synchronize the ADC processor trigger (Reference 11769)	111
13.1.5 Added GPIOPinTypeEPI to GPIO driver (Reference 9972)	112
13.1.6 Added ROM call definitions for Tempest-class revision C1 (Reference 11783)	112
13.2 Bug Fixes in Stellaris Peripheral Driver Library	112
13.2.1 FlashIntGetStatus() renamed FlashIntStatus() (Reference 11698)	112
13.2.2 SysCtlADCSpeedSet now sets the speed of ADC1 (Reference 11768)	112
13.3 Bug Fixes in Stellaris Utility Library	112
13.3.1 Add missing timer callbacks to lwiplib (Reference 11696)	112
13.4 Bug Fixes in DK-LM3S9B96 Firmware Package	113
13.4.1 In usb_stick_demo, delay call to usb_stick_update until button is released (Reference 11692)	113
13.4.2 Example boot_eth_ext failed to write flash. (Reference 11798)	113
13.4.3 Web server performance improved in safertos_demo. (Reference 11685)	113
13.4.4 USB_VID_LUMINARY replaced with USB_VID_STELLARIS (Reference 11808)	113
13.5 Bug Fixes in EK-LM3S3748 Firmware Package	113
13.5.1 In usb_stick_demo, delay call to usb_stick_update until button is released (Reference 11692)	113
13.5.2 USB_VID_LUMINARY replaced with USB_VID_STELLARIS (Reference 11808)	114
13.6 Bug Fixes in EK-LM3S9B90 Firmware Package	114
13.6.1 In usb_stick_demo, delay call to usb_stick_update until button is released (Reference 11692)	114
13.6.2 Added explicit GPIOPinConfigure calls to examples (Reference 11733)	114
13.6.3 USB_VID_LUMINARY replaced with USB_VID_STELLARIS (Reference 11808)	114
13.7 Bug Fixes in EK-LM3S9B92 Firmware Package	115
13.7.1 In usb_stick_demo, delay call to usb_stick_update until button is released (Reference 11692)	115
13.7.2 Added explicit GPIOPinConfigure calls to examples (Reference 11733)	115
13.7.3 USB_VID_LUMINARY replaced with USB_VID_STELLARIS (Reference 11808)	115
13.8 Bug Fixes in RDK-BDC Firmware Package	115
13.8.1 Corrected speed sensing when driving in the negative direction (Reference 11752)	115
13.8.2 Prevent roll over in the PID integrator (Reference 11753)	115
13.8.3 Corrected current sensing when driving in the negative direction (Reference 11797)	116
13.9 Bug Fixes in RDK-BDC24 Firmware Package	116
13.9.1 Corrected speed sensing when driving in the negative direction (Reference 11752)	116
13.9.2 Prevent roll over in the PID integrator (Reference 11753)	116
13.9.3 Corrected current sensing when driving in the negative direction (Reference 11797)	116
13.10 Bug Fixes in RDK-IDM Firmware Package	116
13.10.1 bldc_ctrl example rebranded (Reference 11713)	116
13.11 Bug Fixes in Stellaris Firmware Development Package	117
13.11.1 Modified CCS linker command file to ensure proper location of vtable (Reference 11710)	117

14	Release Notes for StellarisWare Revision 5727 (March 2, 2010)	119
14.1	Bug Fixes in Stellaris Boot Loader	119
14.1.1	Ethernet boot loader fails to ACK last packet in some cases (Reference 11552)	119
14.2	New Features in Stellaris Peripheral Driver Library	119
14.2.1	New automatic and manual USB power control (Reference 11469)	119
14.2.2	Add ADC functions to support use of an external reference (Reference 11494)	120
14.3	Bug Fixes in Stellaris Peripheral Driver Library	120
14.3.1	uDMA function uDMAChannelSizeGet() was returning the wrong value for completed transfers (Reference 11632)	120
14.4	New Features in Third Party Packages	120
14.4.1	Upgraded to FLTK 1.1.10 (Reference 11551)	120
14.5	Bug Fixes in Third Party Packages	120
14.5.1	Explicit casts added to lwIP TCP_SEQ_LT/LTE/GT/GTE macros (Reference 11600)	120
14.6	New Features in Stellaris USB Library	121
14.6.1	Added the ability to use the USB VBUS filter (Reference 11339)	121
14.6.2	Added Isochronous Host controller support to USB Library (Reference 11528)	121
14.6.3	Added new function to allocate FIFO to an endpoint (Reference 11557)	121
14.7	Bug Fixes in Stellaris USB Library	121
14.7.1	USBlib overwrites power configuration in OTG mode (Reference 11338)	121
14.7.2	USB Control requests can hang on error (Reference 11326)	122
14.7.3	Host enumeration was incorrectly requesting a zero byte packet (Reference 11517)	122
14.8	New Features in Stellaris Utility Library	122
14.8.1	Added features to bdc-comm (Reference 11321)	122
14.9	Bug Fixes in Stellaris Utility Library	122
14.9.1	Correct leap day handling in ulocaltime (Reference 11049)	122
14.10	Bug Fixes in DK-LM3S9B96 Firmware Package	123
14.10.1	Rework of lwIP HTTPD debug message handling (Reference 11480)	123
14.10.2	Explicit casts added to lwIP TCP_SEQ_LT/LTE/GT/GTE macros (Reference 11600)	123
14.11	Bug Fixes in EK-LM3S3748 Firmware Package	123
14.11.1	Modify udma_demo example app to work around known problem with DMA channel (Reference 11640)	123
14.12	Bug Fixes in EK-LM3S6965 Firmware Package	123
14.12.1	Rework of lwIP HTTPD debug message handling (Reference 11480)	123
14.12.2	Explicit casts added to lwIP TCP_SEQ_LT/LTE/GT/GTE macros (Reference 11600)	123
14.13	Bug Fixes in EK-LM3S8962 Firmware Package	124
14.13.1	Rework of lwIP HTTPD debug message handling (Reference 11480)	124
14.13.2	Explicit casts added to lwIP TCP_SEQ_LT/LTE/GT/GTE macros (Reference 11600)	124
14.14	Bug Fixes in EK-LM3S9B90 Firmware Package	124
14.14.1	Remove udma_timer_ccp example from EK-LM3S9B90 board because the LM3S9B90 does not have PWM (Reference 11476)	124
14.14.2	Rework of lwIP HTTPD debug message handling (Reference 11480)	124
14.14.3	Explicit casts added to lwIP TCP_SEQ_LT/LTE/GT/GTE macros (Reference 11600)	125
14.15	Bug Fixes in EK-LM3S9B92 Firmware Package	125
14.15.1	Rework of lwIP HTTPD debug message handling (Reference 11480)	125
14.15.2	Changed timer configuration in udma_timer_ccp example (Reference 11591)	125
14.16	Bug Fixes in RDK-BDC Firmware Package	125
14.16.1	MDL-BDC sometimes misread the power-on state of the push button (Reference 11586)	125
14.17	Bug Fixes in RDK-IDM Firmware Package	125
14.17.1	Rework of lwIP HTTPD debug message handling (Reference 11480)	125
14.17.2	Explicit casts added to lwIP TCP_SEQ_LT/LTE/GT/GTE macros (Reference 11600)	126
14.18	Bug Fixes in RDK-IDM-SBC Firmware Package	126
14.18.1	Rework of lwIP HTTPD debug message handling (Reference 11480)	126

14.18.2	Removed non-functional link from idm-checkout web site (Reference 11658)	126
14.19	Bug Fixes in RDK-S2E Firmware Package	126
14.19.1	Rework of lwIP HTTPD debug message handling (Reference 11480)	126
14.19.2	Explicit casts added to lwIP TCP_SEQ_LT/LTE/GT/GTE macros (Reference 11600)	127
14.20	New Features in Stellaris Firmware Development Package	127
14.20.1	Added project files for Keil uVision 4 (Reference 11578)	127
14.21	Bug Fixes in Stellaris Firmware Development Package	127
14.21.1	Projects for Code Red's Red Suite were erroneously including a subdirectory for Code Composer Studio (Reference 11465)	127
14.21.2	Some applications linked to wrong address with Sourcery G++ (Reference 11624)	127
15	Release Notes for StellarisWare Revision 5604 (January 19, 2010)	129
15.1	New Features in Stellaris Peripheral Driver Library	129
15.1.1	REVISION_IS_C0 macro added to hw_types.h (Reference 11274)	129
15.2	Bug Fixes in Stellaris Host Tools	129
15.2.1	Improvements to bdc-comm (Reference 11260)	129
15.3	Bug Fixes in Stellaris USB Library	129
15.3.1	USB Host: Polling interval from devices was ignored. (Reference 11068)	129
15.4	New Features in EK-LM3S1968 Firmware Package	130
15.4.1	Changed logo in "graphics" example application (Reference 11220)	130
15.5	New Features in EK-LM3S2965 Firmware Package	130
15.5.1	Changed logo in "graphics" example application (Reference 11220)	130
15.6	New Features in EK-LM3S6965 Firmware Package	130
15.6.1	Changed logo in "graphics" example application (Reference 11220)	130
15.7	New Features in EK-LM3S8962 Firmware Package	130
15.7.1	Changed logo in "graphics" example application (Reference 11220)	130
15.8	New Features in RDK-BDC Firmware Package	131
15.8.1	Added a command to return the control mode. (Reference 11262)	131
15.9	New Features in RDK-BDC24 Firmware Package	131
15.9.1	Added a command to return the control mode. (Reference 11262)	131
16	Release Notes for StellarisWare Revision 5570 (January 8, 2010)	133
16.1	New Features in Stellaris Peripheral Driver Library	133
16.1.1	Added header files for new Stellaris parts (Reference 11183)	133
16.1.2	Add support for Code Composer Studio (Reference 10407)	133
16.2	Bug Fixes in Stellaris Graphics Library	134
16.2.1	Added explicit casts in imgbutton.h (Reference 11149)	134
16.3	New Features in Third Party Packages	134
16.3.1	Updated to lwIP 1.3.1 (Reference 10577)	134
16.3.2	Added headers for accessing SafeRTOS (Reference 11070)	134
16.3.3	Changed licensing terms on AES third party code (Reference 11176)	134
16.4	New Features in Stellaris Utility Library	134
16.4.1	Baud rate used by uartstdio may now be specified (Reference 11075)	134
16.5	New Features in DK-LM3S9B96 Firmware Package	135
16.5.1	Added SafeRTOS demo application (Reference 11008)	135
16.5.2	enet_uip example added to dk-lm3s9b96 release (Reference 10961)	135
16.6	Bug Fixes in DK-LM3S9B96 Firmware Package	135
16.6.1	Fixed flash programming error in usb_stick_update (Reference 11041)	135
16.6.2	Removed unneeded data alignment pragmas for IAR tools (Reference 10993)	135
16.6.3	Support for lower audio rates (Reference 11107)	135
16.6.4	Added explicit casts in imgbutton.h (Reference 11149)	136
16.6.5	Minor change in lwIP tcp.h header file (Reference 11218)	136
16.7	New Features in EK-LM3S3748 Firmware Package	136
16.7.1	LMScope now provides a helpful error if run without the driver installed (Reference 11099)	136

16.8 Bug Fixes in EK-LM3S3748 Firmware Package	136
16.8.1 Fixed flash programming error in usb_stick_update (Reference 11041)	136
16.8.2 Removed unneeded data alignment pragmas for IAR tools (Reference 10993)	136
16.8.3 Added explicit casts in imgbutton.h (Reference 11149)	137
16.9 Bug Fixes in EK-LM3S6965 Firmware Package	137
16.9.1 Minor change in lwIP tcp.h header file (Reference 11218)	137
16.10 Bug Fixes in EK-LM3S8962 Firmware Package	137
16.10.1 Minor change in lwIP tcp.h header file (Reference 11218)	137
16.11 New Features in EK-LM3S9B90 Firmware Package	137
16.11.1 Add new example using the uDMA controller with a periodic timer (Reference 11061)	137
16.11.2 Add new example using the uDMA controller with a timer edge capture mode (Reference 11143)	137
16.12 Bug Fixes in EK-LM3S9B90 Firmware Package	138
16.12.1 Fixed flash programming error in usb_stick_update (Reference 11041)	138
16.12.2 Removed unneeded data alignment pragmas for IAR tools (Reference 10993)	138
16.12.3 Minor change in lwIP tcp.h header file (Reference 11218)	138
16.13 New Features in EK-LM3S9B92 Firmware Package	138
16.13.1 Add new example using the uDMA controller with a periodic timer (Reference 11061)	138
16.13.2 Add new example using the uDMA controller with a timer edge capture mode (Reference 11143)	138
16.14 Bug Fixes in EK-LM3S9B92 Firmware Package	139
16.14.1 Fixed flash programming error in usb_stick_update (Reference 11041)	139
16.14.2 Removed unneeded data alignment pragmas for IAR tools (Reference 10993)	139
16.14.3 Minor change in lwIP tcp.h header file (Reference 11218)	139
16.15 Bug Fixes in RDK-ACIM Firmware Package	139
16.15.1 Fix temperature calculation for motor kits (Reference 11029)	139
16.16 New Features in RDK-BDC24 Firmware Package	139
16.16.1 Added RDK-BDC24 support (Reference 11170)	139
16.17 Bug Fixes in RDK-BLDC Firmware Package	140
16.17.1 Fix temperature calculation for motor kits (Reference 11029)	140
16.18 Bug Fixes in RDK-IDM Firmware Package	140
16.18.1 Added explicit casts in imgbutton.h (Reference 11149)	140
16.18.2 Minor change in lwIP tcp.h header file (Reference 11218)	140
16.19 Bug Fixes in RDK-IDM-L35 Firmware Package	140
16.19.1 Added explicit casts in imgbutton.h (Reference 11149)	140
16.20 Bug Fixes in RDK-IDM-SBC Firmware Package	140
16.20.1 Fixed flash programming error in usb_stick_update (Reference 11041)	140
16.20.2 Removed unneeded data alignment pragmas for IAR tools (Reference 10993)	141
16.20.3 Added explicit casts in imgbutton.h (Reference 11149)	141
16.20.4 Minor change in lwIP tcp.h header file (Reference 11218)	141
16.21 Bug Fixes in RDK-S2E Firmware Package	141
16.21.1 Minor change in lwIP tcp.h header file (Reference 11218)	141
16.22 Bug Fixes in RDK-STEPPER Firmware Package	141
16.22.1 Fix temperature calculation for motor kits (Reference 11029)	141
17 Release Notes for StellarisWare Revision 5450 (December 2, 2009)	143
17.1 New Features in Stellaris Boot Loader	143
17.1.1 Added Internal Pull up/down to boot loader. (Reference 10876)	143
17.2 New Features in Stellaris Peripheral Driver Library	143
17.2.1 Added IntPendSet() and IntPendClear() APIs (Reference 10694)	143
17.3 Bug Fixes in Stellaris Peripheral Driver Library	144
17.3.1 I2CMasterErr returned I2C_MASTER_ERR_NONE if arbitration was lost (Reference 10821)	144
17.3.2 USBFIFOFlush() fails to flush endpoints. (Reference 10853)	144
17.3.3 Use of non-MOTO formats in SSISConfigSetExpClk() can cause minor errors in the actual clock rate (Reference 10922)	144

17.3.4	Added support for PWM3 trigger to ADC (Reference 10943)	144
17.3.5	Corrected definition of NUM_INTERRUPTS (Reference 10908)	144
17.4	Bug Fixes in Stellaris Utility Library	144
17.4.1	Fixed trailing slash handling errors in fswrapper (Reference 10892)	144
17.5	New Features in DK-LM3S9B96 Firmware Package	145
17.5.1	qs-checkout application updated to support FPGA/Camera daughter board (Reference 10647)	145
17.6	Bug Fixes in DK-LM3S9B96 Firmware Package	145
17.6.1	JPEG decode example rebranding (Reference 10614)	145
17.6.2	Fixed trailing slash handling errors in fswrapper (Reference 10892)	145
17.6.3	Corrected error in IAR linker script for ext_demo_1 and ext_demo_2 (Reference 10978)	145
17.6.4	eflash tool added to dk-lm3s9b96 release (Reference 10979)	146
17.7	Bug Fixes in EK-LM3S6965 Rev A Firmware Package	146
17.7.1	Fix handling of invalid page in uip web server (Reference 10981)	146
17.8	Bug Fixes in EK-LM3S6965 Firmware Package	146
17.8.1	Fix handling of invalid page in uip web server (Reference 10981)	146
17.9	Bug Fixes in EK-LM3S8962 Firmware Package	146
17.9.1	Fix handling of invalid page in uip web server (Reference 10981)	146
17.10	Bug Fixes in EK-LM3S9B90 Firmware Package	146
17.10.1	Fix handling of invalid page in uip web server (Reference 10981)	146
17.11	Bug Fixes in EK-LM3S9B92 Firmware Package	147
17.11.1	Fix handling of invalid page in uip web server (Reference 10981)	147
17.12	Bug Fixes in RDK-BDC Firmware Package	147
17.12.1	Properly handle overflow in PID controller (Reference 8535)	147
17.13	New Features in RDK-IDM Firmware Package	147
17.13.1	Display and touchscreen driver updated to support the ILI9328 controller (Reference 10894)	147
17.14	Bug Fixes in RDK-IDM-SBC Firmware Package	147
17.14.1	qs-blox web site now updates correctly using IE7 (Reference 10613)	147
17.14.2	JPEG decode example rebranding (Reference 10614)	147
17.14.3	QS-Blox web site now updates in IE (Reference 10738)	148
17.14.4	Fixed trailing slash handling errors in fswrapper (Reference 10892)	148
17.15	Bug Fixes in RDK-S2E Firmware Package	148
17.15.1	Fix storage of baud rate in RFC2217 code (Reference 10839)	148
18	Release Notes for StellarisWare Revision 5228 (October 1, 2009)	149
18.1	Bug Fixes in Stellaris Boot Loader	149
18.1.1	Ensure vector table is not compressed in IAR boot loader builds (Reference 10345)	149
18.1.2	Use read-modify-write when configuring pins and peripherals in the boot loader (Reference 10348)	150
18.2	New Features in Stellaris Peripheral Driver Library	150
18.2.1	Add new GPIOPinTypeEthernetLED API (Reference 10090)	150
18.2.2	Added SSIBusy() function (Reference 9606)	150
18.2.3	EPIConfigNoModeSet renamed to EPIConfigGPMoDeSet (Reference 10247)	150
18.2.4	EPINonBlockingWriteCount renamed EPIWriteFIFOCountGet (Reference 10248)	150
18.2.5	EPI driver function additions (Reference 10064)	150
18.2.6	CANMessageSet() now provides flag to enable FIFO mode. (Reference 10431)	151
18.3	Bug Fixes in Stellaris Peripheral Driver Library	151
18.3.1	Remove uDMAIntStatus() and uDMAIntClear() APIs (Reference 10148)	151
18.3.2	I2C_MASTER_CMD_BURST_RECEIVE_ERROR_STOP definition corrected (Reference 10434)	151
18.3.3	CanBitRateSet() was incorrectly checking requested bit rate inputs. (Reference 10439)	151
18.3.4	Error in epi.h address size definitions corrected (Reference 10461)	151
18.4	Bug Fixes in Third Party Packages	152
18.4.1	JPEG decoder reworked to use new ExtRAMAlloc/Free functions. (Reference 10262)	152
18.5	New Features in Stellaris Host Tools	152
18.5.1	pnmtoc now supports grayscale "PGM" files (Reference 10402)	152

18.5.2	Windows USB example application rebranding (Reference 10500)	152
18.6	Bug Fixes in Stellaris USB Library	152
18.6.1	USB host applications using OTG mode will hang if connected as a device. (Reference 10142)	152
18.7	Bug Fixes in Stellaris Utility Library	152
18.7.1	Additional pointer checking added to fswrapper (Reference 10374)	152
18.8	New Features in DK-LM3S9B96 Firmware Package	153
18.8.1	Add new GPIOPinTypeEthernetLED API (Reference 10090)	153
18.8.2	Higher data rate audio files can now be played in qs-checkout (Reference 10151)	153
18.8.3	Support added for SRAM/Flash/LCD Daughter Board (Reference 10307)	153
18.8.4	EPIConfigNoModeSet renamed to EPIConfigGPMoDeSet (Reference 10247)	153
18.8.5	PinoutSet() now performs dynamic EPI configuration. (Reference 10042)	154
18.8.6	Embedded web site rework (Reference 10517)	154
18.8.7	New example applications ext_demo_1 and ext_demo_2 added (Reference 9968)	154
18.8.8	Display driver updated to support SRAM/Flash/LCD daughter board (Reference 9511)	154
18.8.9	Added an example boot loader targeting external flash (Reference 9513)	154
18.9	Bug Fixes in DK-LM3S9B96 Firmware Package	155
18.9.1	Error in epi.h address size definitions corrected (Reference 10461)	155
18.10	New Features in EK-LM3S811 Firmware Package	155
18.10.1	Added support for RIT display on new ek-lm3s811 boards (Reference 10106)	155
18.11	Bug Fixes in EK-LM3S811 Firmware Package	155
18.11.1	Quickstart application rebranded (Reference 10397)	155
18.12	New Features in EK-LM3S2965 Firmware Package	155
18.12.1	Add a CAN FIFO example. (Reference 10430)	155
18.13	New Features in EK-LM3S6965 Rev A Firmware Package	156
18.13.1	Add new GPIOPinTypeEthernetLED API (Reference 10090)	156
18.13.2	Embedded web site rework (Reference 10524)	156
18.14	Bug Fixes in EK-LM3S6965 Rev A Firmware Package	156
18.14.1	Embedded web site rebranding (Reference 10538)	156
18.15	New Features in EK-LM3S6965 Firmware Package	156
18.15.1	Add new GPIOPinTypeEthernetLED API (Reference 10090)	156
18.15.2	Embedded web site rework (Reference 10523)	156
18.16	New Features in EK-LM3S8962 Firmware Package	157
18.16.1	Add new GPIOPinTypeEthernetLED API (Reference 10090)	157
18.16.2	Add a CAN FIFO example. (Reference 10430)	157
18.16.3	Embedded web site rework (Reference 10523)	157
18.17	New Features in EK-LM3S9B90 Firmware Package	157
18.17.1	Add new GPIOPinTypeEthernetLED API (Reference 10090)	157
18.17.2	Add uDMA support to the enet_uip example application (Reference 10196)	157
18.17.3	EPIConfigNoModeSet renamed to EPIConfigGPMoDeSet (Reference 10247)	157
18.17.4	Embedded web site rework (Reference 10525)	158
18.18	New Features in EK-LM3S9B92 Firmware Package	158
18.18.1	Add new GPIOPinTypeEthernetLED API (Reference 10090)	158
18.18.2	Add uDMA support to the enet_uip example application (Reference 10196)	158
18.18.3	EPIConfigNoModeSet renamed to EPIConfigGPMoDeSet (Reference 10247)	158
18.18.4	Embedded web site rework (Reference 10525)	158
18.19	Bug Fixes in RDK-ACIM Firmware Package	159
18.19.1	Change motor kit GUI install and start menu locations (Reference 10547)	159
18.20	New Features in RDK-BLDC Firmware Package	159
18.20.1	Add new GPIOPinTypeEthernetLED API (Reference 10090)	159
18.21	Bug Fixes in RDK-BLDC Firmware Package	159
18.21.1	Change motor kit GUI install and start menu locations (Reference 10547)	159
18.22	New Features in RDK-IDM-SBC Firmware Package	159

18.22.1	Add new GPIOPinTypeEthernetLED API (Reference 10090)	159
18.22.2	Functions SDRAMAlloc and SDRAMFree have been renamed. (Reference 10268)	159
18.23	Bug Fixes in RDK-IDM-SBC Firmware Package	160
18.23.1	Documentation correction (Reference 10139)	160
18.24	New Features in RDK-S2E Firmware Package	160
18.24.1	Add new GPIOPinTypeEthernetLED API (Reference 10090)	160
18.24.2	Embedded web site rework (Reference 10528)	160
18.25	Bug Fixes in RDK-STEPPER Firmware Package	160
18.25.1	Fix Stack Overflow in RDK-Stepper Application (Reference 10459)	160
18.25.2	Change motor kit GUI install and start menu locations (Reference 10547)	161
19	Release Notes for StellarisWare Revision 4905 (July 30, 2009)	163
19.1	New Features in Stellaris Boot Loader	163
19.1.1	Improved boot loader performance for dk-lm3s9b96 (Reference 9842)	163
19.1.2	Boot loader now allows vector table to be initialized in SRAM (Reference 9993)	164
19.2	Bug Fixes in Stellaris Peripheral Driver Library	164
19.2.1	Missing configuration options added for EPIConfigHB8Set and EPIConfigNoModeSet (Reference 9778)	164
19.2.2	USBDevEndpointConfigSet() does not properly configure isochronous endpoints (Reference 9856)	164
19.3	Bug Fixes in Stellaris Graphics Library	164
19.3.1	Rendering of 1bpp and 4bpp compressed images (Reference 9642)	164
19.4	Bug Fixes in Third Party Packages	164
19.4.1	MIME type for icons is now correctly set (Reference 10021)	164
19.5	Bug Fixes in Stellaris Host Tools	165
19.5.1	MIME type for icons is now correctly set (Reference 10021)	165
19.6	New Features in Stellaris USB Library	165
19.6.1	Add support for USB audio class in device mode. (Reference 9894)	165
19.7	Bug Fixes in Stellaris USB Library	165
19.7.1	USB library enumeration code not properly clearing FIFO flags. (Reference 10044)	165
19.7.2	USB library not handling VBUS errors in OTG mode. (Reference 10100)	165
19.8	New Features in Stellaris Utility Library	166
19.8.1	New function ustrnicmp added to the ustdlib module (Reference 9862)	166
19.8.2	General purpose TFTP server module added (Reference 10053)	166
19.9	Bug Fixes in Stellaris Utility Library	166
19.9.1	Fix UDP-Only configuration of LWIP (Reference 9898)	166
19.10	New Features in DK-LM3S9B96 Firmware Package	166
19.10.1	Improved boot loader performance for dk-lm3s9b96 (Reference 9842)	166
19.10.2	qs-checkout example now uses general-purpose TFTP server (Reference 9976)	166
19.10.3	EPI configuration moved to PinoutSet() function (Reference 10012)	167
19.10.4	General purpose TFTP server module added (Reference 10053)	167
19.11	Bug Fixes in DK-LM3S9B96 Firmware Package	167
19.11.1	Missing configuration options added for EPIConfigHB8Set and EPIConfigNoModeSet (Reference 9778)	167
19.11.2	Sound driver improperly calls buffer callback function. (Reference 10010)	167
19.11.3	MIME type for icons is now correctly set (Reference 10021)	167
19.11.4	Fix compatibility problem with recent Keil compiler in the usb_stick_update example application (Reference 10038)	167
19.12	Bug Fixes in EK-LM3S3748 Firmware Package	168
19.12.1	Fix compatibility problem with recent Keil compiler in the usb_stick_update example application (Reference 10038)	168
19.13	New Features in EK-LM3S6965 Firmware Package	168
19.13.1	General purpose TFTP server module added (Reference 10053)	168
19.14	Bug Fixes in EK-LM3S6965 Firmware Package	168

19.14.1	MIME type for icons is now correctly set (Reference 10021)	168
19.15	New Features in EK-LM3S8962 Firmware Package	168
19.15.1	General purpose TFTP server module added (Reference 10053)	168
19.16	Bug Fixes in EK-LM3S8962 Firmware Package	168
19.16.1	MIME type for icons is now correctly set (Reference 10021)	168
19.17	New Features in EK-LM3S9B90 Firmware Package	169
19.17.1	General purpose TFTP server module added (Reference 10053)	169
19.18	Bug Fixes in EK-LM3S9B90 Firmware Package	169
19.18.1	Missing configuration options added for EPIConfigHB8Set and EPIConfigNoModeSet (Reference 9778)	169
19.18.2	MIME type for icons is now correctly set (Reference 10021)	169
19.18.3	Fix compatibility problem with recent Keil compiler in the usb_stick_update example application (Reference 10038)	169
19.19	New Features in EK-LM3S9B92 Firmware Package	169
19.19.1	General purpose TFTP server module added (Reference 10053)	169
19.20	Bug Fixes in EK-LM3S9B92 Firmware Package	170
19.20.1	MIME type for icons is now correctly set (Reference 10021)	170
19.20.2	Fix compatibility problem with recent Keil compiler in the usb_stick_update example application (Reference 10038)	170
19.21	New Features in RDK-IDM Firmware Package	170
19.21.1	General purpose TFTP server module added (Reference 10053)	170
19.22	Bug Fixes in RDK-IDM Firmware Package	170
19.22.1	MIME type for icons is now correctly set (Reference 10021)	170
19.23	New Features in RDK-IDM-SBC Firmware Package	170
19.23.1	General purpose TFTP server module added (Reference 10053)	170
19.23.2	Add USB Memory Stick Updater Application (Reference 10048)	171
19.24	Bug Fixes in RDK-IDM-SBC Firmware Package	171
19.24.1	Sound driver improperly calls buffer callback function. (Reference 10010)	171
19.24.2	MIME type for icons is now correctly set (Reference 10021)	171
19.25	New Features in RDK-S2E Firmware Package	171
19.25.1	General purpose TFTP server module added (Reference 10053)	171
19.26	Bug Fixes in RDK-S2E Firmware Package	171
19.26.1	MIME type for icons is now correctly set (Reference 10021)	171
20	Release Notes for StellarisWare Revision 4781 (June 30, 2009)	173
20.1	New Features in Stellaris Peripheral Driver Library	173
20.1.1	Add API for ADC Digital Comparators (Reference 9668)	173
20.1.2	Added support devices that support 32 USB endpoints. (Reference 9666)	173
20.2	Bug Fixes in Stellaris Peripheral Driver Library	174
20.2.1	SysCtlClockGet() provided incorrect results in some cases (Reference 9555)	174
20.2.2	USBDevEndpointConfig() deprecated in favor of USBDevEndpointConfigSet() (Reference 9297)	174
20.2.3	SysCtlPeripheralPresent() did not properly handle USB (Reference 9756)	174
20.3	Bug Fixes in Stellaris Graphics Library	174
20.3.1	WidgetRemove() now clears the widget's next pointer (Reference 9615)	174
20.3.2	GrStringSet() did not properly handle the ulSize parameter (Reference 9630)	174
20.4	New Features in DK-LM3S9B96 Firmware Package	175
20.4.1	Add USB Memory Stick Updater Application (Reference 9722)	175
20.5	New Features in EK-LM3S3748 Firmware Package	175
20.5.1	Add USB Memory Stick Updater Application (Reference 9722)	175
20.6	New Features in EK-LM3S9B90 Firmware Package	175
20.6.1	Add USB Memory Stick Updater Application (Reference 9722)	175
20.7	New Features in EK-LM3S9B92 Firmware Package	175
20.7.1	Add USB Memory Stick Updater Application (Reference 9722)	175

20.8 Bug Fixes in RDK-IDM Firmware Package	175
20.8.1 sd_card application was not properly configuring the Graphics Library (Reference 9793)	175
20.9 Bug Fixes in RDK-IDM-SBC Firmware Package	176
20.9.1 Corrected text misalignment in usb_host_mouse and usb_host_keyboard (Reference 9787)	176
20.10 Bug Fixes in Stellaris Firmware Development Package	176
20.10.1 Updated project files for Sourcery G++ for Stellaris (Reference 9667)	176
21 Release Notes for StellarisWare Revision 4694 (May 27, 2009)	177
21.1 New Features in Stellaris Graphics Library	177
21.1.1 Additions to the ImageButton widget (Reference 9484)	177
21.2 New Features in Stellaris USB Library	177
21.2.1 USB host event driver added to USB library (Reference 9534)	177
21.3 Bug Fixes in DK-LM3S9B96 Firmware Package	177
21.3.1 i2s_demo application report wrong elapsed time for 8bit wav files. (Reference 8973)	177
22 Release Notes for StellarisWare Revision 4674 (May 19, 2009)	179
22.1 Bug Fixes in Stellaris Boot Loader	179
22.1.1 Ethernet boot loader hangs in some cases (Reference 9240)	179
22.2 New Features in Stellaris Peripheral Driver Library	180
22.2.1 Added two new uDMA API functions to support the interrupt status register in Tempest (Reference 9179)	180
22.2.2 Add CAN Bit Rate API (Reference 9315)	180
22.2.3 Added I2S and EPI drivers to DriverLib (Reference 9419)	180
22.3 Bug Fixes in Stellaris Graphics Library	180
22.3.1 Corrected operation of ListBoxLock() and ListBoxUnlock() (Reference 9441)	180
22.3.2 Corrected operation of Lock and Unlock macros for Slider and JPGWidget (Reference 9471)	180
22.4 New Features in Third Party Packages	181
22.4.1 Added support for AES ROM tables in Tempest class parts (Reference 9089)	181
22.5 Bug Fixes in Third Party Packages	181
22.5.1 Closed lwIP HTTPD timing hole that could cause hangs on connection shutdown (Reference 9256)	181
22.5.2 lwIP HTTP server now sends correct headers for XML files (Reference 9358)	181
22.6 New Features in Stellaris Host Tools	181
22.6.1 New board locator tool for Ethernet-based applications (Reference 9094)	181
22.6.2 Windows USB Examples have moved to the tools directory (Reference 9388)	181
22.6.3 Update to Red Suite Project Import XML Files (Reference 9445)	182
22.7 Bug Fixes in Stellaris Host Tools	182
22.7.1 Makefile updated to prevent generation of invalid C code (Reference 8651)	182
22.7.2 makefile tool now adds correct headers to XML files (Reference 9361)	182
22.7.3 Library files for Windows USB DLLs have been added to the release (Reference 9386)	182
22.8 Bug Fixes in Stellaris USB Library	183
22.8.1 Fixed a USB host MSC bug causing a hang on multi-block reads (Reference 9411)	183
22.8.2 USBDCDInit() now disconnects before reconnecting (Reference 9442)	183
22.9 New Features in Stellaris Utility Library	183
22.9.1 Added function fs_map_path() to fswrapper module (Reference 9322)	183
22.10 Bug Fixes in Stellaris Utility Library	183
22.10.1 Change between static and DHCP IP sometimes fails (Reference 9438)	183
22.11 New Features in DK-LM3S9B96 Firmware Package	184
22.11.1 Added support for AES ROM tables in Tempest class parts (Reference 9089)	184
22.12 Bug Fixes in DK-LM3S9B96 Firmware Package	184
22.12.1 Library files for Windows USB DLLs have been added to the release (Reference 9386)	184
22.12.2 Corrected operation of Lock and Unlock macros for Slider and JPGWidget (Reference 9471)	184
22.12.3 Web server opens Luminary Micro site in the wrong frame (Reference 9488)	184
22.13 New Features in EK-LM3S3748 Firmware Package	185
22.13.1 Windows USB Examples have moved to the tools directory (Reference 9388)	185

22.14	Bug Fixes in EK-LM3S3748 Firmware Package	185
22.14.1	Library files for Windows USB DLLs have been added to the release (Reference 9386)	185
22.14.2	Stack overflow in usb_dev_serial example (Reference 9446)	185
22.14.3	Bitband example was failing to run on all tool chains. (Reference 9443)	185
22.15	Bug Fixes in EK-LM3S6965 Rev A Firmware Package	186
22.15.1	enet_ptpd web server occasionally returns too much data (Reference 9435)	186
22.15.2	Replace use of strstr with strstr (Reference 9447)	186
22.16	Bug Fixes in EK-LM3S6965 Firmware Package	186
22.16.1	enet_ptpd web server occasionally returns too much data (Reference 9435)	186
22.16.2	Replace use of strstr with strstr (Reference 9447)	186
22.17	Bug Fixes in EK-LM3S8962 Firmware Package	186
22.17.1	enet_ptpd web server occasionally returns too much data (Reference 9435)	186
22.17.2	Replace use of strstr with strstr (Reference 9447)	187
22.18	New Features in EK-LM3S9B90 Firmware Package	187
22.18.1	Added applications for new evaluation board (Reference 9348)	187
22.18.2	Added support for AES ROM tables in Tempest class parts (Reference 9089)	187
22.19	Bug Fixes in EK-LM3S9B90 Firmware Package	187
22.19.1	Library files for Windows USB DLLs have been added to the release (Reference 9386)	187
22.20	New Features in EK-LM3S9B92 Firmware Package	187
22.20.1	Added applications for new evaluation board (Reference 9348)	187
22.20.2	Added support for AES ROM tables in Tempest class parts (Reference 9089)	188
22.21	Bug Fixes in EK-LM3S9B92 Firmware Package	188
22.21.1	Library files for Windows USB DLLs have been added to the release (Reference 9386)	188
22.22	Bug Fixes in RDK-BLDC Firmware Package	188
22.22.1	Enhance Hall Sensor Speed Calculation (Reference 9476)	188
22.23	Bug Fixes in RDK-IDM-SBC Firmware Package	188
22.23.1	Corrected operation of Lock and Unlock macros for Slider and JPGWidget (Reference 9471)	188
22.23.2	Web server opens Luminary Micro site in the wrong frame (Reference 9488)	188
22.24	Bug Fixes in RDK-S2E Firmware Package	189
22.24.1	Change between static and DHCP IP sometimes fails (Reference 9438)	189
22.25	New Features in Stellaris Firmware Development Package	189
22.25.1	Add SourceryG++ for Stellaris project files (Reference 9469)	189
	IMPORTANT NOTICE	190

1 Release Notes for StellarisWare Revision 8049 (September 16, 2011)

2 Release Notes for StellarisWare Revision 8028 (September 9, 2011)

New Features for Stellaris Peripheral Driver Library	25
New Features for Stellaris Graphics Library	26
New Features for Third Party Packages	27
New Features for Stellaris Host Tools	27
New Features for Stellaris USB Library	28
Bug Fixes for Stellaris USB Library	29
New Features for Stellaris Utility Library	30
New Features for DK-LM3S9B96 Firmware Package	30
Bug Fixes for DK-LM3S9B96 Firmware Package	30
New Features for DK-LM3S9D96 Firmware Package	31
Bug Fixes for DK-LM3S9D96 Firmware Package	31
Bug Fixes for EK-LM3S3748 Firmware Package	31
Bug Fixes for EK-LM3S9B96 Firmware Package	32
New Features for EK-LM4F232 Firmware Package	32
New Features for RDK-IDM Firmware Package	32
New Features for RDK-IDM-L35 Firmware Package	33
New Features for RDK-IDM-SBC Firmware Package	33
New Features for Stellaris Firmware Development Package	33

2.1 New Features in Stellaris Peripheral Driver Library

2.1.1 Updated Hibernate driver for Cortex-M4F parts may affect older parts (Reference 13772)

The new Stellaris Cortex-M4F parts Hibernation peripheral requires wait for write-complete on all register writes. Older Stellaris parts require wait for write-complete on some Hibernation registers but not all. The driver for the Hibernate module was modified to provide wait for write-complete on all register writes. This is backwards compatible with all Stellaris parts, but means that for some older parts there will be a small delay added in some cases where there was no delay before.

2.1.2 Libraries renamed in adding support for Cortex M4F (Reference 13852)

This release adds support for the ek-lm4f232 kit and our new Cortex M4F-based parts. With the addition of the new core and, specifically, its hardware floating point unit, we have had to split our libraries into two versions, one for the Cortex M3 and another for the Cortex M4F. To prevent the possibility of confusion, libraries are now renamed with a "-cm3" or "-cm4f" suffix indicating the core they were built for. Similarly, project files and makefiles are set up to use these suffixes in the output directory names into which objects and libraries are written. For example, if using the Keil toolchain, whereas build products would previously be written into a "rvmdk" subdirectory, they will now be found in either "rvmdk-cm3" or "rvmdk-cm4f" depending upon the core for which the build

was targeted. Separate project and make files are provided for each target core.

Note that this change will require modification in existing application project and make files to link the correct version of the library from its new directory. This change has been made for all StellarisWare board examples.

2.2 New Features in Stellaris Graphics Library

2.2.1 Added support for international character sets (Reference 13789)

New APIs have been added to the Stellaris Graphics Library to allow support for text codepages, source text encoding using UTF-8 and rendering international characters. The ftrasterize tool has also been updated to support a new font format which allows encoding of multiple contiguous blocks of glyphs from the entire Unicode range. Further information on these new features can be found in the Stellaris Graphics Library User's Guide.

2.2.2 Updates to ftrasterize (Reference 13781)

The ftrasterize tool has been updated to support a new font format added to allow rendering of international character sets. The tool will also generate binary format fonts that can be used from a file system or non-random-access memory with an appropriate font wrapper module.

2.2.3 Additions to and reorganization of graphics library fonts (Reference 13774)

With the addition of international text support in the Stellaris Graphics Library, several new fonts have been added to the collection found under `third_party/fonts`. These include Chinese, Japanese and Korean fonts in addition to several new sizes of the existing Latin fonts. As part of this change, the directory has been rearranged to ensure that fonts covered under different licenses are grouped together. `third_party/fonts` now contains three subdirectories, `ofl`, `apl` and `other`, each containing a header file for the fonts contained there. If you previously used the `third_party/fonts/fontex.h` header, this is now found as `third_party/fonts/ofl/ofl_fonts.h` and the font source files have moved to the same location. Additionally, all fonts are also now provided in the new binary format that will allow them to be used from a file system or other non-random-access memory via an appropriate font wrapper module.

2.2.4 Libraries renamed in adding support for Cortex M4F (Reference 13852)

This release adds support for the ek-lm4f232 kit and our new Cortex M4F-based parts. With the addition of the new core and, specifically, its hardware floating point unit, we have had to split our libraries into two versions, one for the Cortex M3 and another for the Cortex M4F. To prevent the possibility of confusion, libraries are now renamed with a "-cm3" or "-cm4f" suffix indicating the core they were built for. Similarly, project files and makefiles are set up to use these suffixes in the

output directory names into which objects and libraries are written. For example, if using the Keil toolchain, whereas build products would previously be written into a “rvmdk” subdirectory, they will now be found in either “rvmdk-cm3” or “rvmdk-cm4f” depending upon the core for which the build was targeted. Separate project and make files are provided for each target core.

Note that this change will require modification in existing application project and make files to link the correct version of the library from its new directory. This change has been made for all StellarisWare board examples.

2.2.5 mkstringtable updated to handle UTF8 strings (Reference 13857)

The mkstringtable tool has been updated to allow the use of source strings encoded using UTF8 and other non-ASCII codepages. This allows string tables to be built which include accented characters and non-Latin alphabets. The previous version of the tool assumed that all source strings were encoded using 7-bit ASCII only. To enable encoding of non-ASCII strings, use the “-u” command line option when running the tool.

2.3 New Features in Third Party Packages

2.3.1 Additions to and reorganization of graphics library fonts (Reference 13774)

With the addition of international text support in the Stellaris Graphics Library, several new fonts have been added to the collection found under `third_party/fonts`. These include Chinese, Japanese and Korean fonts in addition to several new sizes of the existing Latin fonts. As part of this change, the directory has been rearranged to ensure that fonts covered under different licenses are grouped together. `third_party/fonts` now contains three subdirectories, `ofl`, `apl` and `other`, each containing a header file for the fonts contained there. If you previously used the `third_party/fonts/fontex.h` header, this is now found as `third_party/fonts/ofl/ofl_fonts.h` and the font source files have moved to the same location. Additionally, all fonts are also now provided in the new binary format that will allow them to be used from a file system or other non-random-access memory via an appropriate font wrapper module.

2.4 New Features in Stellaris Host Tools

2.4.1 Updates to ftrasterize (Reference 13781)

The ftrasterize tool has been updated to support a new font format added to allow rendering of international character sets. The tool will also generate binary format fonts that can be used from a file system or non-random-access memory with an appropriate font wrapper module.

2.4.2 Windows data logging application added (Reference 13826)

A new application, “logger”, has been added to the StellarisWare/tools directory. This is a PC front end for the “qs-logger” data logging application included in the ek-lm4f232 StellarisWare release. If the ek-lm4f232 is connected to a PC via the USB OTG connector and the qs-logger storage option is set to “Host PC”, then this application can be used to view captured data samples and log them to a file.

2.4.3 mkstringtable updated to handle UTF8 strings (Reference 13857)

The mkstringtable tool has been updated to allow the use of source strings encoded using UTF8 and other non-ASCII codepages. This allows string tables to be built which include accented characters and non-Latin alphabets. The previous version of the tool assumed that all source strings were encoded using 7-bit ASCII only. To enable encoding of non-ASCII strings, use the “-u” command line option when running the tool.

2.5 New Features in Stellaris USB Library

2.5.1 Add support for forcing USB mode from an application (Reference 13820)

The USB library previously fully controlled the operating mode of the USB controller based only on which Init function was called. This limited the application’s flexibility when setting the operating mode of the USB controller and possibly freeing up the USB0VBUS and USB0ID pins. The application can now call the USBStackModeSet() API with any of the following parameters: USB_MODE_DEVICE, USB_MODE_FORCE_DEVICE, USB_MODE_HOST, USB_MODE_FORCE_HOST and USB_MODE_OTG. The USB_MODE_DEVICE, USB_MODE_HOST and USB_MODE_OTG settings will all require the use of the USB0VBUS and USB0ID pins and allow the USB controller to handle changes in VBUS. The USB_MODE_FORCE_DEVICE and USB_MODE_FORCE_HOST settings will free up the USB0VBUS and USB0ID pins, however the forced modes will give up the USB libraries ability to detect changes in VBUS. In device mode, this will prevent the USB library from detecting when the device has been disconnected. In host mode, the forced setting will prevent the USB library from detecting a VBUS error condition.

2.5.2 Libraries renamed in adding support for Cortex M4F (Reference 13852)

This release adds support for the ek-lm4f232 kit and our new Cortex M4F-based parts. With the addition of the new core and, specifically, its hardware floating point unit, we have had to split our libraries into two versions, one for the Cortex M3 and another for the Cortex M4F. To prevent the possibility of confusion, libraries are now renamed with a “-cm3” or “-cm4f” suffix indicating the core they were built for. Similarly, project files and makefiles are set up to use these suffixes in the output directory names into which objects and libraries are written. For example, if using the Keil toolchain, whereas build products would previously be written into a “rvmdk” subdirectory, they will

now be found in either “rvmdk-cm3” or “rvmdk-cm4f” depending upon the core for which the build was targeted. Separate project and make files are provided for each target core.

Note that this change will require modification in existing application project and make files to link the correct version of the library from its new directory. This change has been made for all StellarisWare board examples.

2.6 Bug Fixes in Stellaris USB Library

2.6.1 USB Device classes fail USB certification Chapter 9 test (Reference 13720)

The USB library was not properly stalling all unsupported chapter 9 requests. This was causing some device classes to fail the USB certification tests for BOS Chapter 9 test. Any device classes that do not have a GetDescriptor handler were affected by this issue.

2.6.2 USB Device Library was not properly handling FIFO configuration (Reference 13768)

The USB library was not properly handling USB FIFO and DMA configuration in all cases. The most common failure was a device that had multiple interfaces with different FIFO configurations for each interface. In this case, the USB library would only use the initial interface’s FIFO configuration. This caused USB device classes that had a different FIFO configuration based on the interface in use to not properly configure endpoints.

2.6.3 USB Host Audio class improperly configured DMA (Reference 13841)

The USB library host audio class was not properly selecting DMA for its data endpoints. This was causing the USB library to not properly configure the USB controller to use DMA in all cases when configuring endpoints for the USB host audio device class.

2.6.4 USBHCDPowerConfigSet() was not correctly setting power fault action (Reference 13664)

The function USBHCDPowerConfigSet() was not setting the automatic power fault action correctly when the USBHCD_FAULT_VBUS_DIS setting was specified in the ulConfig parameter. This resulted in no automatic power fault action when an external device indicated a power fault condition on the USB0PFLT pin. When the USBHCD_FAULT_VBUS_DIS feature is requested, the USBHCDPowerConfigSet() now correctly enables automatically deactivating the power pin USB0EPEN when the specified level (USBHCD_FAULT_LOW or USBHCD_FAULT_HIGH) is present on the USB0PFLT pin.

2.7 New Features in Stellaris Utility Library

2.7.1 New functions added to ustdlib (Reference 13890)

Previous versions of the ustdlib module included a call to the C runtime function `strncmp` which, with at least some toolchains, caused the C runtime library to be pulled into the linked image. Since ustdlib was intended to provide access to commonly-used functions without the need to link the C runtime, this was somewhat unhelpful so new functions `ustrcmp` and `ustrncmp`, mirroring the standard `strcmp` and `strncmp` functions, have been added and the previous call to `strncmp` removed.

2.8 New Features in DK-LM3S9B96 Firmware Package

2.8.1 FontView example application added (Reference 13807)

A new example application has been added to allow the contents of a Stellaris graphics library font file to be displayed. This program illustrates the newly-added international character set support and will show all the glyphs encoded in a binary font stored as `FONT.BIN` in the root directory of the SDCard FAT file system or, if this file doesn't exist, the contents of a sample font built into the executable.

2.9 Bug Fixes in DK-LM3S9B96 Firmware Package

2.9.1 Broken link in safertos_demo web site fixed (Reference 13637)

An incorrectly named link in the `safertos_demo` example's internal web site has been fixed. The previous version failed to show the block diagram image due to an error in the image link.

2.9.2 The `usb_dev_msc` application was using a slow SSI clock (Reference 13742)

The `USBDMSCStorageOpen()` function was calling the `disk_ioctl()` function to turn on the power to the SD Card interface when it had already been initialized. This had the unintended consequence of resetting the clocking to the SSI peripheral back to a 400-kHz clock and not the 12.5-MHz that should be used. The call to the `disk_ioctl()` function has been removed and the access speed to the SD interface is now running at 12.5 MHz for this application.

2.10 New Features in DK-LM3S9D96 Firmware Package

2.10.1 FontView example application added (Reference 13807)

A new example application has been added to allow the contents of a Stellaris graphics library font file to be displayed. This program illustrates the newly-added international character set support and will show all the glyphs encoded in a binary font stored as FONT.BIN in the root directory of the SDCard FAT file system or, if this file doesn't exist, the contents of a sample font built into the executable.

2.11 Bug Fixes in DK-LM3S9D96 Firmware Package

2.11.1 Broken link in safertos_demo web site fixed (Reference 13637)

An incorrectly named link in the safertos_demo example's internal web site has been fixed. The previous version failed to show the block diagram image due to an error in the image link.

2.11.2 The usb_dev_msc application was using a slow SSI clock (Reference 13742)

The USBDMSCStorageOpen() function was calling the disk_ioctl() function to turn on the power to the SD Card interface when it had already been initialized. This had the unintended consequence of resetting the clocking to the SSI peripheral back to a 400-kHz clock and not the 12.5-MHz that should be used. The call to the disk_ioctl() function has been removed and the access speed to the SD interface is now running at 12.5 MHz for this application.

2.12 Bug Fixes in EK-LM3S3748 Firmware Package

2.12.1 The usb_dev_msc application was using a slow SSI clock (Reference 13742)

The USBDMSCStorageOpen() function was calling the disk_ioctl() function to turn on the power to the SD Card interface when it had already been initialized. This had the unintended consequence of resetting the clocking to the SSI peripheral back to a 400-kHz clock and not the 12.5-MHz that should be used. The call to the disk_ioctl() function has been removed and the access speed to the SD interface is now running at 12.5 MHz for this application.

2.13 Bug Fixes in EK-LM3S9B96 Firmware Package

2.13.1 usb_dev_audio example was incorrectly adjusting sample rate (Reference 13896)

The usb_dev_audio example was incorrectly checking the condition when increasing the sample rate of the I2S interface. This occurred when input buffer was filling faster than the output was being drained. This caused periodic noise in the output audio when the circular buffer pointers crossed each other. The check for the distance between the buffer pointers has been fixed to properly adjust the sample rate in all cases.

2.14 New Features in EK-LM4F232 Firmware Package

2.14.1 Windows data logging application added (Reference 13826)

A new application, “logger”, has been added to the StellarisWare/tools directory. This is a PC front end for the “qs-logger” data logging application included in the ek-lm4f232 StellarisWare release. If the ek-lm4f232 is connected to a PC via the USB OTG connector and the qs-logger storage option is set to “Host PC”, then this application can be used to view captured data samples and log them to a file.

2.14.2 Added support for EK-LM4F232 and Cortex M4F (Reference 13867)

Support has been added to StellarisWare for the new Cortex M4F-based ek-lm4f232 evaluation kits.

2.15 New Features in RDK-IDM Firmware Package

2.15.1 FontView example application added (Reference 13807)

A new example application has been added to allow the contents of a Stellaris graphics library font file to be displayed. This program illustrates the newly-added international character set support and will show all the glyphs encoded in a binary font stored as FONT.BIN in the root directory of the SDCard FAT file system or, if this file doesn't exist, the contents of a sample font built into the executable.

2.16 New Features in RDK-IDM-L35 Firmware Package

2.16.1 FontView example application added (Reference 13807)

A new example application has been added to allow the contents of a Stellaris graphics library font file to be displayed. This program illustrates the newly-added international character set support and will show all the glyphs encoded in a binary font stored as FONT.BIN in the root directory of the SDCard FAT file system or, if this file doesn't exist, the contents of a sample font built into the executable.

2.17 New Features in RDK-IDM-SBC Firmware Package

2.17.1 FontView example application added (Reference 13807)

A new example application has been added to allow the contents of a Stellaris graphics library font file to be displayed. This program illustrates the newly-added international character set support and will show all the glyphs encoded in a binary font stored as FONT.BIN in the root directory of the SDCard FAT file system or, if this file doesn't exist, the contents of a sample font built into the executable.

2.18 New Features in Stellaris Firmware Development Package

2.18.1 Deprecation of macro named SYSCTL_PERIPH_PWM (Reference 13816)

Use of the macro SYSCTL_PERIPH_PWM is deprecated and has been replaced with SYSCTL_PERIPH_PWM0. All of the StellarisWare example applications that used the old macro were updated to use the new macro.

3 Release Notes for StellarisWare Revision 7611 (July 2, 2011)

New Features for Stellaris Bluetopia Bluetooth Library	35
Bug Fixes for Stellaris Boot Loader	36
New Features for Stellaris Peripheral Driver Library	36
Bug Fixes for Stellaris Peripheral Driver Library	36
New Features for Stellaris Graphics Library	36
New Features for Stellaris Host Tools	37
Bug Fixes for Stellaris Host Tools	37
New Features for Stellaris USB Library	37
Bug Fixes for Stellaris USB Library	38
New Features for Stellaris Utility Library	39
Bug Fixes for DK-LM3S9B96 Firmware Package	39
New Features for DK-LM3S9D96 Firmware Package	40
Bug Fixes for DK-LM3S9D96 Firmware Package	40
Bug Fixes for EK-EVALBOT Firmware Package	40
Bug Fixes for EK-LM3S1968 Firmware Package	41
Bug Fixes for EK-LM3S2965 Firmware Package	41
Bug Fixes for EK-LM3S3748 Firmware Package	41
Bug Fixes for EK-LM3S6965 Firmware Package	41
Bug Fixes for EK-LM3S8962 Firmware Package	42
New Features for EK-LM3S9D90 Firmware Package	42
New Features for EK-LM3S9D92 Firmware Package	42
Bug Fixes for RDK-ACIM Firmware Package	43
Bug Fixes for RDK-BDC Firmware Package	43
Bug Fixes for RDK-BDC24 Firmware Package	43
Bug Fixes for RDK-BLDC Firmware Package	43
Bug Fixes for RDK-IDM Firmware Package	44
Bug Fixes for RDK-IDM-L35 Firmware Package	44

3.1 New Features in Stellaris Bluetopia Bluetooth Library

3.1.1 Added Bluetopia Bluetooth stack and examples (Reference 13295)

The Bluetopia Bluetooth stack was added to support the TI Bluetooth module. Two examples were added, one for streaming audio, and the other for serial port protocol. The Bluetooth stack and examples are available as a separate supplemental installer. Once installed the stack can be found in the directory named Bluetopia and the examples in a new board directory named dk- lm3s9b96-em2-cc2560-bluetopia. Refer to the Bluetopia directory for more information and documentation for the Bluetooth stack.

3.2 Bug Fixes in Stellaris Boot Loader

3.2.1 USB DFU device does not pass USB 2.0 Command verifier (Reference 13432)

The USB DFU bootloader fails some of the Chapter 9 tests that are run as part of the USB 2.0 Command Verifier utility. These failures were a result of improper handling of reset and how the get descriptor command was handling stalling of unsupported commands. The USB DFU bootloader now passes all Chapter 9 tests in the USB 2.0 Command Verifier.

3.3 New Features in Stellaris Peripheral Driver Library

3.3.1 Added header files for new devices (Reference 13552)

Part-specific header files have been added for newly announced parts.

3.4 Bug Fixes in Stellaris Peripheral Driver Library

3.4.1 The USBHostEndpointConfig() was setting endpoint 0 speed incorrectly (Reference 13511)

The USBHostEndpointConfig() function had an issue when setting the speed setting on endpoint 0 in host mode that caused it to fail to properly set the speed when communicating with devices. This has been fixed and USBHostEndpointConfig() now properly accesses the speed setting.

3.4.2 Fix order of interrupt disable in USBIntUnregister() and CANIntUnregister() functions (Reference 13313)

The functions USBIntUnregister() and CANIntUnregister() were unregistering the interrupt before disabling it, leaving a small window of time when an interrupt could occur after the handler was unregistered. This has been fixed by reordering the operations to disable the interrupt first.

3.5 New Features in Stellaris Graphics Library

3.5.1 Ftrasterize updated to allow better support for some ISO8859 variants (Reference 13112)

New command line options have been added to ftrasterize to allow easier generation of some ISO8859 variant fonts from Unicode fonts. The new options allow a block of characters from a given

codepoint in Unicode space to be moved downwards to a new codepoint position in the output font. This allows, for example, the generation of a Stellaris graphics library ISO8859-5 (Cyrillic) font where the Cyrillic characters begin at codepoint 0xA0 from a Unicode font where they start at codepoint 0x400. The generated font will have characters 0-0x9F taken from Unicode codepoints 0-0x9F but output characters from 0xA0-0xFF will be encoded from Unicode codepoints 0x400-0x45F.

3.6 New Features in Stellaris Host Tools

3.6.1 Ftrasterize updated to allow better support for some ISO8859 variants (Reference 13112)

New command line options have been added to ftrasterize to allow easier generation of some ISO8859 variant fonts from Unicode fonts. The new options allow a block of characters from a given codepoint in Unicode space to be moved downwards to a new codepoint position in the output font. This allows, for example, the generation of a Stellaris graphics library ISO8859-5 (Cyrillic) font where the Cyrillic characters begin at codepoint 0xA0 from a Unicode font where they start at codepoint 0x400. The generated font will have characters 0-0x9F taken from Unicode codepoints 0-0x9F but output characters from 0xA0-0xFF will be encoded from Unicode codepoints 0x400-0x45F.

3.7 Bug Fixes in Stellaris Host Tools

3.7.1 LMDFU.DLL state initialisation corrected (Reference 13418)

The lmdfu.dll dynamic link library used in the Windows driver to support boot_usb and Device Firmware Upgrade function could previously have reported errors on opening the device due to incorrect placement of several lines of code which initialized various variables. This resulted in uninitialized variables being read in some cases and incorrect errors being reported. These variables are now initialized prior to being used.

3.8 New Features in Stellaris USB Library

3.8.1 USB library now supports rebuilding with ROM calls (Reference 13515)

The USB library is normally built without calling ROM functions which increases the size of the USB library. With this release the USB library can be rebuilt so that it will call the ROM functions by specifying one of the TARGET_IS_ definitions. The size savings will be diminished on microcontrollers that do not have USB functions in ROM.

3.9 Bug Fixes in Stellaris USB Library

3.9.1 USB endpoint status was not cleared when switching modes (Reference 13290)

When the USB library is used in OTG mode, the USB library was not clearing out any pending end point status when the USB mode was changed to host mode. This could cause the endpoint to falsely report errors or other status that is not valid in the current operating mode. The USB library now clears all end point status when entering host mode.

3.9.2 USB MSC device mode not properly closing USB device mode (Reference 13259)

The call to USBDMSCTerm() was not calling the the media Close() function even when a valid mass storage device instance was allocated. The USBDMSCTerm() function has been changed to properly check for a valid instance of the mass storage device class and close it out by calling the media's Close() function.

3.9.3 USBOTGModelnit function was not clearing USB mode (Reference 13496)

The USBOTGModelnit() function was not resetting the USB mode which could cause issues with OTG cable detection because the mode was being forced to host or device mode. A call to the USBOTGMode() function was added to insure that USB mode was not being forced to host or device mode.

3.9.4 USB device mode not properly clearing Data toggle in some cases (Reference 13448)

The USB library was not always clearing the data toggle when the library called the USBSetInterface()function. When the USB library was called to set the interface, it was improperly checking that the interface had changed and was skipping the call to clear the data toggle on the end point. In some cases this could cause the endpoint to have the wrong data toggle state and disrupt USB communications on the given endpoint.

3.9.5 USB CDC device class 64 byte packet handling corrected (Reference 13567)

The USB CDC device class previously failed to send a zero length packet in cases where the previous packet sent was 64 bytes long and no more data remains to be sent. As a result, if applications sent data 64 bytes at a time, delivery to the host application would be delayed since the host driver was expecting more data to complete the transfer. The driver now correctly sends the zero byte packet allowing data to be delivered immediately.

3.10 New Features in Stellaris Utility Library

3.10.1 swupdate.c can be configured not to use ROM boot loader (Reference 13270)

Previous versions of swupdate.c, the module used to notify Ethernet applications that a firmware update is being requested and to transfer control to the Ethernet boot loader, always called the ROM-based Ethernet boot loader if it was available. When an application is making use of a customized Ethernet boot loader in flash, however, this is undesirable so a #define has been added to allow this behavior to be overridden and have swupdate transfer control to a flash-based boot loader even if a ROM-based one is available. To activate this behavior, ensure that USE_FLASH_BOOT_LOADER is defined when you compile swupdate.c.

3.10.2 ustrncpy and ustrlen functions added to ustdlib (Reference 13422)

New function ustrncpy and ustrlen mimicing the C runtime functions strncpy and strlen, have been added to the ustdlib module and usvsnprint and ustrsr have been modified to use these functions rather than the C runtime versions. This allows ustdlib to be completely independent of the C runtime library.

3.11 Bug Fixes in DK-LM3S9B96 Firmware Package

3.11.1 SimpliciTI addresses corrected to ensure uniqueness (Reference 13505)

Despite the fact that the code commenting indicated that SimpliciTI low power RF device addresses were being set using the least significant 4 bytes of the Ethernet MAC address, the code was, in fact, using the most significant 4 bytes. As a result, attempts to communicate between multiple Stellaris boards via the SimpliciTI protocol would frequently fail since the boards had the same device addresses. This has now been corrected and the correct information is being used to generate the device addresses, thus allowing multiple Stellaris boards to communicate correctly.

3.11.2 Fix value of dummy CRC in FatFs SD card driver that was causing a problem with some SD cards (Reference 13300)

A value of 0 was being used for dummy CRC for some SD card transactions, when it should be 0xFF. This only affected some SD cards. The driver was changed to use 0xFF for the dummy CRC value.

3.11.3 Additional SimpliciTI binaries added (Reference 13630)

A second end device binary for the “AP as Data Hub” SimpliciTI low power RF example application has been added for interoperating SmartRF04, SmartRF05 and EXP461x boards. Previously, only a single end device binary was provided for these boards making it impossible to test two end devices without installing the appropriate MSP430 or 8051 toolchains and rebuilding the SimpliciTI examples. This addition offers a bit more testing flexibility and convenience when using these boards to interoperate with the Stellaris SimpliciTI example applications.

3.12 New Features in DK-LM3S9D96 Firmware Package

3.12.1 New firmware development package (Reference 13566)

Add a new firmware development package in support of this new board.

3.13 Bug Fixes in DK-LM3S9D96 Firmware Package

3.13.1 Additional SimpliciTI binaries added (Reference 13630)

A second end device binary for the “AP as Data Hub” SimpliciTI low power RF example application has been added for interoperating SmartRF04, SmartRF05 and EXP461x boards. Previously, only a single end device binary was provided for these boards making it impossible to test two end devices without installing the appropriate MSP430 or 8051 toolchains and rebuilding the SimpliciTI examples. This addition offers a bit more testing flexibility and convenience when using these boards to interoperate with the Stellaris SimpliciTI example applications.

3.14 Bug Fixes in EK-EVALBOT Firmware Package

3.14.1 SimpliciTI addresses corrected to ensure uniqueness (Reference 13505)

Despite the fact that the code commenting indicated that SimpliciTI low power RF device addresses were being set using the least significant 4 bytes of the Ethernet MAC address, the code was, in fact, using the most significant 4 bytes. As a result, attempts to communicate between multiple Stellaris boards via the SimpliciTI protocol would frequently fail since the boards had the same device addresses. This has now been corrected and the correct information is being used to generate the device addresses, thus allowing multiple Stellaris boards to communicate correctly.

3.15 Bug Fixes in EK-LM3S1968 Firmware Package

3.15.1 Display driver disabled chip select too soon (Reference 12987)

The RIT128x96x4Disable() function did not wait for the final SSI transaction to occur prior to disabling the chip select, resulting in the final few bytes of the transaction being lost. In some applications, this would manifest as the right portion of a string or image being cut off.

3.16 Bug Fixes in EK-LM3S2965 Firmware Package

3.16.1 Display driver disabled chip select too soon (Reference 12987)

The RIT128x96x4Disable() function did not wait for the final SSI transaction to occur prior to disabling the chip select, resulting in the final few bytes of the transaction being lost. In some applications, this would manifest as the right portion of a string or image being cut off.

3.17 Bug Fixes in EK-LM3S3748 Firmware Package

3.17.1 Fix value of dummy CRC in FatFs SD card driver that was causing a problem with some SD cards (Reference 13300)

A value of 0 was being used for dummy CRC for some SD card transactions, when it should be 0xFF. This only affected some SD cards. The driver was changed to use 0xFF for the dummy CRC value.

3.17.2 usb_boot_demo2 system clock was too slow (Reference 13625)

In previous releases, LMFlash downloads to the ek-lm3s3748 were observed to fail when using the USB boot loader when usb_boot_demo2 was running on the board. This problem was traced to the fact that the system clock rate set by the usb_boot_demo2 example was below the minimum rate of 20MHz required when using USB. The example has now been updated to run with a 50MHz system clock ensuring that the USB boot loader will operate correctly after usb_boot_demo2 has been run.

3.18 Bug Fixes in EK-LM3S6965 Firmware Package

3.18.1 Display driver disabled chip select too soon (Reference 12987)

The RIT128x96x4Disable() function did not wait for the final SSI transaction to occur prior to disabling the chip select, resulting in the final few bytes of the transaction being lost. In some applica-

tions, this would manifest as the right portion of a string or image being cut off.

3.18.2 Fix value of dummy CRC in FatFs SD card driver that was causing a problem with some SD cards (Reference 13300)

A value of 0 was being used for dummy CRC for some SD card transactions, when it should be 0xFF. This only affected some SD cards. The driver was changed to use 0xFF for the dummy CRC value.

3.19 Bug Fixes in EK-LM3S8962 Firmware Package

3.19.1 Display driver disabled chip select too soon (Reference 12987)

The RIT128x96x4Disable() function did not wait for the final SSI transaction to occur prior to disabling the chip select, resulting in the final few bytes of the transaction being lost. In some applications, this would manifest as the right portion of a string or image being cut off.

3.19.2 Fix value of dummy CRC in FatFs SD card driver that was causing a problem with some SD cards (Reference 13300)

A value of 0 was being used for dummy CRC for some SD card transactions, when it should be 0xFF. This only affected some SD cards. The driver was changed to use 0xFF for the dummy CRC value.

3.20 New Features in EK-LM3S9D90 Firmware Package

3.20.1 New firmware development package (Reference 13566)

Add a new firmware development package in support of this new board.

3.21 New Features in EK-LM3S9D92 Firmware Package

3.21.1 New firmware development package (Reference 13566)

Add a new firmware development package in support of this new board.

3.22 Bug Fixes in RDK-ACIM Firmware Package

3.22.1 Recode motor kit math functions to avoid problems with CCS/TI compiler optimizer (Reference 12968)

For the motor kits, some math functions are coded using inline assembly language. For these functions, if the TI compiler optimization is completely turned off, the compiler emits code that can result in a stack imbalance for those functions. The affected functions were recoded to avoid this problem.

3.23 Bug Fixes in RDK-BDC Firmware Package

3.23.1 Recode motor kit math functions to avoid problems with CCS/TI compiler optimizer (Reference 12968)

For the motor kits, some math functions are coded using inline assembly language. For these functions, if the TI compiler optimization is completely turned off, the compiler emits code that can result in a stack imbalance for those functions. The affected functions were recoded to avoid this problem.

3.24 Bug Fixes in RDK-BDC24 Firmware Package

3.24.1 Recode motor kit math functions to avoid problems with CCS/TI compiler optimizer (Reference 12968)

For the motor kits, some math functions are coded using inline assembly language. For these functions, if the TI compiler optimization is completely turned off, the compiler emits code that can result in a stack imbalance for those functions. The affected functions were recoded to avoid this problem.

3.25 Bug Fixes in RDK-BLDC Firmware Package

3.25.1 Recode motor kit math functions to avoid problems with CCS/TI compiler optimizer (Reference 12968)

For the motor kits, some math functions are coded using inline assembly language. For these functions, if the TI compiler optimization is completely turned off, the compiler emits code that can result in a stack imbalance for those functions. The affected functions were recoded to avoid this problem.

3.26 Bug Fixes in RDK-IDM Firmware Package

3.26.1 Fix value of dummy CRC in FatFs SD card driver that was causing a problem with some SD cards (Reference 13300)

A value of 0 was being used for dummy CRC for some SD card transactions, when it should be 0xFF. This only affected some SD cards. The driver was changed to use 0xFF for the dummy CRC value.

3.27 Bug Fixes in RDK-IDM-L35 Firmware Package

3.27.1 Fix value of dummy CRC in FatFs SD card driver that was causing a problem with some SD cards (Reference 13300)

A value of 0 was being used for dummy CRC for some SD card transactions, when it should be 0xFF. This only affected some SD cards. The driver was changed to use 0xFF for the dummy CRC value.

4 Release Notes for StellarisWare Revision 7243 (March 19, 2011)

New Features for Stellaris Peripheral Driver Library	45
Bug Fixes for Stellaris Peripheral Driver Library	45
Bug Fixes for Stellaris USB Library	46
New Features for Stellaris Utility Library	47
Bug Fixes for Stellaris Utility Library	47
New Features for DK-LM3S9B96 Firmware Package	47
New Features for EK-EVALBOT Firmware Package	48

4.1 New Features in Stellaris Peripheral Driver Library

4.1.1 Enhanced TimerConfigure to allow match interrupts (Reference 13107)

The defines that are passed to TimerConfigure for periodic and one-shot modes have been changed to allow the enabling of match interrupts in those modes for parts that support the generation of match interrupts. Since this is a change to the defines and not the code, this change works with the ROM version of TimerConfigure as well. The match interrupt, if supported, must still be enabled via TimerIntEnable in order to cause a processor interrupt.

4.1.2 USBOTGMode API added to allow mode to be switched back to OTG (Reference 13191)

DriverLib was missing an API to allow an application to return to OTG mode if the USBHostMode() or USBDeviceMode() have been called. The USBHostMode() and USBDeviceMode() APIs force the mode the USB controller and disable OTG signaling. The new USBOTGMode() API will allow an application to return to normal OTG operation.

4.2 Bug Fixes in Stellaris Peripheral Driver Library

4.2.1 ADCProcessorTrigger now configures global sync correctly (Reference 13194)

The ADCProcessorTrigger API has been modified so that synchronous processor triggers will work as documented.

4.2.2 Incorrect operation of TimerControlEvent fixed (Reference 13219)

In previous releases, the TimerControlEvent API would inadvertently clear the event type for TIMER_B back to TIMER_EVENT_POS_EDGE if the function was called to set the TIMER_A event type and vice versa. Operation was correct only if TIMER_BOTH was used in the ulTimer parameter. The code has now been corrected to ensure that setting the event type for one timer does not have side effects on the other.

4.2.3 Changed order of operations in GPIOPinTypeGPIOOutput (Reference 12607)

The order of operations in GPIOPinTypeGPIOOutput and GPIOPinTypeGPIOOutputOD have been reversed. Now, the pad is configured prior to making the pin be an output. By doing so, the output will default to the current pin state (in other words, unchanged), as opposed to always being low with the previous implementation.

4.3 Bug Fixes in Stellaris USB Library

4.3.1 USB Library Device endpoint 0 receive state incorrect (Reference 12997)

The device mode of the USB library was improperly transitioning from the receive state directly to the idle state without passing through the status phase. This could cause enumeration issues or other problems on devices that are using the control endpoint for communications during regular operation.

4.3.2 USB library improperly handles a device error (Reference 13094)

When a device enters an error state during normal operation, the USB host library was not properly exiting the error state. The USB library now handles the error state by forcing the the device to disconnect and then attempting to enumerate the device again.

4.3.3 USB audio device was checking wIndex value incorrectly (Reference 12992)

The USB audio device class was incorrectly checking the ulIndex parameter on all requests and not just on interface requests. The code has been changed to only check against the interface number if the request was an interface request.

4.3.4 USB Audio Device current volume should be a signed value (Reference 13235)

The USB audio device class was using an unsigned value to store the current volume setting received from the host. The USB audio device class now stores the value as a signed value.

4.3.5 USB Audio Device was checking the incorrect parameter on interface changes (Reference 12991)

The USB audio device class was incorrectly checking the interface number and not the alternate setting to determine when to enter the active state. This could have caused audio class devices to not enter the active state in some cases.

4.4 New Features in Stellaris Utility Library

4.4.1 Added random number function to ustdlib.c (Reference 13258)

Two new functions were added to the utility module ustdlib.c. The two new functions `usrand()` and `urand()` provide an easy way to generate pseudo-random numbers.

4.5 Bug Fixes in Stellaris Utility Library

4.5.1 Incorrect macro definitions in checkpoint.h (Reference 13227)

The previous version of `checkpoint.h` used the `INCLUDE_CHECKPOINTS` label incorrectly and resulted in compilation errors if code included the header and also made calls to checkpoint API functions. This problem is now fixed and code which includes checkpoint calls can cause those calls to be compiled out by ensuring that `INCLUDE_CHECKPOINTS` is not defined during the build.

4.6 New Features in DK-LM3S9B96 Firmware Package

4.6.1 Example applications now use DriverLib in ROM (Reference 13262)

Many of the example applications for `dk-lm3s9b96` were previously set up to link flash-based copies of DriverLib APIs even though those functions are available in the LM3S9B96 ROM. The examples have now been updated to call the ROM-resident versions of these functions instead.

4.7 New Features in EK-EVALBOT Firmware Package

4.7.1 Add new evaluation board, ek-evalbot (Reference 13250)

A new evaluation board, the ek-evalbot, is included in this release of StellarisWare.

5 Release Notes for StellarisWare Revision 6852 (January 11, 2011)

Bug Fixes for Stellaris Boot Loader	49
Bug Fixes for Stellaris Peripheral Driver Library	49
New Features for Stellaris Graphics Library	50
Bug Fixes for Stellaris Graphics Library	50
Bug Fixes for Stellaris USB Library	51
New Features for Stellaris Utility Library	51
Bug Fixes for DK-LM3S9B96 Firmware Package	51
Bug Fixes for EK-LM3S3748 Firmware Package	51
Bug Fixes for EK-LM3S6965 Firmware Package	52
Bug Fixes for EK-LM3S8962 Firmware Package	52
Bug Fixes for RDK-BDC Firmware Package	52
Bug Fixes for RDK-BDC24 Firmware Package	53
Bug Fixes for RDK-IDM Firmware Package	53
Bug Fixes for RDK-IDM-SBC Firmware Package	53

5.1 Bug Fixes in Stellaris Boot Loader

5.1.1 CAN boot loader had incorrect timing values for a 16MHz crystal (Reference 12982)

The CAN bootloader had two incorrect timing settings when using a 16MHz crystal. The settings for 1Mbit and 500Kbit were incorrect and were setting the bit rate to half of the expected value.

5.2 Bug Fixes in Stellaris Peripheral Driver Library

5.2.1 ASSERT Macro incorrect in USBHostPwrConfig() (Reference 12795)

The ASSERT() macro in USBHostPwrConfig() was incorrectly asserting when USB_HOST_PWREN_FILTER was set. This would cause DEBUG builds to incorrectly assert when USB_HOST_PWREN_FILTER was used.

5.2.2 Recode some library functions to avoid problems with CCS/TI compiler optimizer (Reference 12962)

For some library functions that are coded using inline assembly, if the TI compiler optimization is completely turned off, the compiler emits code that can result in a stack imbalance for those functions. The affected functions were recoded to avoid this problem. The affected functions are SysCtlDelay() and CPUbasepriSet() in driverlib, and WidgetMutexGet() in grlib.

5.3 New Features in Stellaris Graphics Library

5.3.1 SliderVerticalSet macro added to GrLib (Reference 12915)

A new macro, SliderVerticalSet, has been added to the slider widget offered by the Stellaris Graphics Library. This macro is intended to allow the vertical or horizontal style to be set when creating a slider widget dynamically.

5.3.2 SliderBackgroundFillOn and SliderBackgroundFillOff macros added to GrLib (Reference 12926)

New macros, SliderBackgroundFillOn and SliderBackgroundFillOff, have been added to the slider widget offered by the Stellaris Graphics Library. These macros allow the background fill style for the widget to be enabled and disabled dynamically.

5.3.3 Font support extended to allow up to 256 characters to be encoded (Reference 12947)

The graphics library font support has been updated to allow encoding of any contiguous set of characters in the 0 to 255 range required to support ISO8859 variants. This encoding uses a new tFontEx structure to describe the font but this may be used interchangeably with the previous tFont type merely by casting the pointer. Sample fonts containing encodings of characters in the range 32 to 255 including western European accented characters can be found under C:/StellarisWare/third_party/fonts. The ftrasterize tool has been updated with new command line options to allow selection of the character subset to encode.

5.4 Bug Fixes in Stellaris Graphics Library

5.4.1 Recode some library functions to avoid problems with CCS/TI compiler optimizer (Reference 12962)

For some library functions that are coded using inline assembly, if the TI compiler optimization is completely turned off, the compiler emits code that can result in a stack imbalance for those functions. The affected functions were recoded to avoid this problem. The affected functions are SysCtlDelay() and CPUbasepriSet() in driverlib, and WidgetMutexGet() in grlib.

5.5 Bug Fixes in Stellaris USB Library

5.5.1 USB Library HID definitions incorrect (Reference 12591)

The definitions for `USB_HID_APPLICATION` and `USB_HID_PHYSICAL` used by the USB library were swapped and would not report collections correctly.

5.6 New Features in Stellaris Utility Library

5.6.1 Added CRC-8-CCITT and CRC-16 functions (Reference 12925)

Functions have been added to compute the CRC-8-CCITT and CRC-16 of a buffer of data.

5.7 Bug Fixes in DK-LM3S9B96 Firmware Package

5.7.1 SDCard Stop Transmission Command Fix (Reference 12973)

On very rare occasions, `disk_read` calls in the FatFS module would fail unexpectedly when reading from an SDCard. This was traced to a timing and data-dependent bug in the SDCard driver's handling of the CMD12 (stop transmission) command. In some cases, this command would misinterpret a data byte as a response code and return early, before the card was idle and this, in turn, could cause a following sector read command to fail. The function handling CMD12 has now been reworked to prevent this from occurring.

5.7.2 Bad links in `enet_io` web site fixed (Reference 12972)

Some of the hyperlinks displayed by the web site served from the `enet_io` example application were incorrect in previous releases. These have been updated and now target the correct pages.

5.8 Bug Fixes in EK-LM3S3748 Firmware Package

5.8.1 SDCard Stop Transmission Command Fix (Reference 12973)

On very rare occasions, `disk_read` calls in the FatFS module would fail unexpectedly when reading from an SDCard. This was traced to a timing and data-dependent bug in the SDCard driver's handling of the CMD12 (stop transmission) command. In some cases, this command would misinterpret a data byte as a response code and return early, before the card was idle and this, in turn, could cause a following sector read command to fail. The function handling CMD12 has now been reworked to prevent this from occurring.

5.9 Bug Fixes in EK-LM3S6965 Firmware Package

5.9.1 SDCard Stop Transmission Command Fix (Reference 12973)

On very rare occasions, disk_read calls in the FatFS module would fail unexpectedly when reading from an SDCard. This was traced to a timing and data-dependent bug in the SDCard driver's handling of the CMD12 (stop transmission) command. In some cases, this command would misinterpret a data byte as a response code and return early, before the card was idle and this, in turn, could cause a following sector read command to fail. The function handling CMD12 has now been reworked to prevent this from occurring.

5.9.2 Bad links in enet_io web site fixed (Reference 12972)

Some of the hyperlinks displayed by the web site served from the enet_io example application were incorrect in previous releases. These have been updated and now target the correct pages.

5.10 Bug Fixes in EK-LM3S8962 Firmware Package

5.10.1 SDCard Stop Transmission Command Fix (Reference 12973)

On very rare occasions, disk_read calls in the FatFS module would fail unexpectedly when reading from an SDCard. This was traced to a timing and data-dependent bug in the SDCard driver's handling of the CMD12 (stop transmission) command. In some cases, this command would misinterpret a data byte as a response code and return early, before the card was idle and this, in turn, could cause a following sector read command to fail. The function handling CMD12 has now been reworked to prevent this from occurring.

5.10.2 Bad links in enet_io web site fixed (Reference 12972)

Some of the hyperlinks displayed by the web site served from the enet_io example application were incorrect in previous releases. These have been updated and now target the correct pages.

5.11 Bug Fixes in RDK-BDC Firmware Package

5.11.1 Performance improvements in the CAN interface (Reference 12904)

Performance improvements were made in the handling of the CAN interface, greatly reducing the latency between receiving a CAN message and responding with an ACK. The reduced latency allows the message rate to increase.

5.11.2 CAN boot loader had incorrect timing values for a 16MHz crystal (Reference 12982)

The CAN bootloader had two incorrect timing settings when using a 16MHz crystal. The settings for 1Mbit and 500Kbit were incorrect and were setting the bit rate to half of the expected value.

5.12 Bug Fixes in RDK-BDC24 Firmware Package

5.12.1 Performance improvements in the CAN interface (Reference 12905)

Performance improvements were made in the handling of the CAN interface, greatly reducing the latency between receiving a CAN message and responding with an ACK, and reducing the latency when bridging between the CAN bus and the UART. These reduced latencies allows the message rate to increase.

5.12.2 CAN boot loader had incorrect timing values for a 16MHz crystal (Reference 12982)

The CAN bootloader had two incorrect timing settings when using a 16MHz crystal. The settings for 1Mbit and 500Kbit were incorrect and were setting the bit rate to half of the expected value.

5.13 Bug Fixes in RDK-IDM Firmware Package

5.13.1 SDCard Stop Transmission Command Fix (Reference 12973)

On very rare occasions, `disk_read` calls in the FatFS module would fail unexpectedly when reading from an SDCard. This was traced to a timing and data-dependent bug in the SDCard driver's handling of the CMD12 (stop transmission) command. In some cases, this command would misinterpret a data byte as a response code and return early, before the card was idle and this, in turn, could cause a following sector read command to fail. The function handling CMD12 has now been reworked to prevent this from occurring.

5.14 Bug Fixes in RDK-IDM-SBC Firmware Package

5.14.1 SDCard Stop Transmission Command Fix (Reference 12973)

On very rare occasions, `disk_read` calls in the FatFS module would fail unexpectedly when reading from an SDCard. This was traced to a timing and data-dependent bug in the SDCard driver's handling of the CMD12 (stop transmission) command. In some cases, this command would misinterpret a data byte as a response code and return early, before the card was idle and this, in turn,

could cause a following sector read command to fail. The function handling CMD12 has now been reworked to prevent this from occurring.

6 Release Notes for StellarisWare Revision 6734 (November 29, 2010)

Bug Fixes for Stellaris Boot Loader	55
New Features for Stellaris Peripheral Driver Library	56
Bug Fixes for Stellaris Peripheral Driver Library	56
Bug Fixes for Third Party Packages	57
Bug Fixes for Stellaris Host Tools	57
Bug Fixes for Stellaris USB Library	57
Bug Fixes for Stellaris Utility Library	57
New Features for DK-LM3S9B96 Firmware Package	58
Bug Fixes for DK-LM3S9B96 Firmware Package	58
Bug Fixes for EK-LM3S6965 Firmware Package	58
Bug Fixes for EK-LM3S8962 Firmware Package	58
New Features for EK-LM3S9B90 Firmware Package	59
Bug Fixes for EK-LM3S9B90 Firmware Package	59
New Features for EK-LM3S9B92 Firmware Package	59
Bug Fixes for EK-LM3S9B92 Firmware Package	59
Bug Fixes for RDK-IDM Firmware Package	60
Bug Fixes for RDK-IDM-SBC Firmware Package	60
Bug Fixes for RDK-S2E Firmware Package	60

6.1 Bug Fixes in Stellaris Boot Loader

6.1.1 CAN and Ethernet boot loader did not set SYSDIV properly (Reference 12826)

When configuring the clocking, the CAN and Ethernet versions of the boot loader failed to clear the SYSDIV field in the SysCtl RCC register prior to setting it to the desired value. This has been corrected.

6.1.2 USB DFU bootloader and dfuprog do not allow updating bootloader (Reference 12834)

The USB DFU bootloader and the dfuprog tool did not allow updating the bootloader at address 0x00000000. The bootloader was rejecting address 0x00000000 for programming even when ENABLE_BL_UPDATE was defined in bl_config.h. The dfuprog was also incorrectly defaulting to the applications start address when a start address was specified as 0x00000000.

6.2 New Features in Stellaris Peripheral Driver Library

6.2.1 Added new uDMA function to read base address of alternate control structure (Reference 12782)

A new function name `uDMAControlAlternateBaseGet()` was added to the uDMA driver. This function provides the base address of the part of the control structure table that holds the alternate control structures.

6.2.2 Addition of scatter-gather features to uDMA driver (Reference 9460)

In order to make it easier to use the uDMA scatter-gather mode, a helper macro and a new function were added to the uDMA driver. The helper macro is named `uDMATaskStructEntry` and is used to populate scatter-gather tasks in a task table. The new function is named `uDMAChannelScatterGatherSet()` and is used to configure a channel to perform a scatter-gather transfer. This function provides a simplified way to perform such configuration; previously two functions were required.

6.2.3 Added new part-specific header files (Reference 12832)

Part-specific header files (`inc/lm3sNNNN.h`) have been added for the LM3S1166, LM3S1621, LM3S1636, LM3S1969, LM3S1B21, LM3S1R26, LM3S2919, LM3S9781, and LM3S9B81.

6.3 Bug Fixes in Stellaris Peripheral Driver Library

6.3.1 uDMA driver was not correctly calculating buffer addresses when the item size was different from the increment size (Reference 10793)

The uDMA driver function `uDMAChannelTransferSet()` was not correctly setting up the source and destination buffer pointers if the item size and source/destination increment sizes were not all the same. This has been fixed and the driver now correctly handles cases where the item size and increment sizes are different. In addition, the source and destination increment sizes can be different. However the increment size must be greater than or equal to the item size.

6.3.2 Fixed error in calculation of destination buffer pointer for scatter-gather transfers (Reference 12467)

The uDMA driver function `uDMAChannelTransferSet()` did not correctly calculate the destination pointer for scatter-gather transfer modes. This has been fixed. However, please note also the addition of new API function `uDMAChannelScatterGatherSet()` which provides a simpler way to configure a scatter-gather transfer.

6.4 Bug Fixes in Third Party Packages

6.4.1 Fix LWIP Diagnostic Macros in Porting Layer (Reference 12778)

The definitions for `LWIP_PLATFORM_DIAG` and `LWIP_PLATFORM_ASSERT` have been redefined to provide a reasonable default definition, and to properly allow the user to override them in the `lwipopts.h` project-specific file.

6.5 Bug Fixes in Stellaris Host Tools

6.5.1 USB DFU bootloader and dfuprog do not allow updating bootloader (Reference 12834)

The USB DFU bootloader and the `dfuprog` tool did not allow updating the bootloader at address `0x00000000`. The bootloader was rejecting address `0x00000000` for programming even when `ENABLE_BL_UPDATE` was defined in `bl_config.h`. The `dfuprog` was also incorrectly defaulting to the applications start address when a start address was specified as `0x00000000`.

6.6 Bug Fixes in Stellaris USB Library

6.6.1 USBHCDPipeFree() function can corrupt memory (Reference 12803)

The `USBHCDPipeFree()` function can corrupt memory when endpoints that do not use DMA are used. The `USBHCDPipeFree()` function was using an invalid value as an index and will write beyond the end of the buffer allocated if endpoints that do not use DMA are used. This affected any applications that used the USB library with the built in HID drivers and any custom classes that used endpoints without DMA.

6.7 Bug Fixes in Stellaris Utility Library

6.7.1 Fixed the NetworkConfigChange code in lwiplib (Reference 12706)

When changing network address configuration between static/auto/dhcp, the `netif_set_up` API in lwIP should be called at the end to ensure that network interface is brought back up properly and can be used. This call was missing and has been added to the function.

6.8 New Features in DK-LM3S9B96 Firmware Package

6.8.1 Quickstart application now allows TFTP to SDCard (Reference 12788)

The TFTP support in the qs-checkout application for dk-lm3s9b96 has been updated to allow files on an installed SDCard to be read and written. TFTP PUT requests can be used to write files into any existing directory on the SDCard and GET requests can read any file currently on the card. To target the SDCard, add "sdcard/" in front of the path and filename you want to access.

6.9 Bug Fixes in DK-LM3S9B96 Firmware Package

6.9.1 TFTP server now handles incoming ERROR packets correctly (Reference 12798)

Previous versions of the TFTP server (utils/tftp.c) ignored any incoming ERROR packets from the client. This caused resource leaks and, in some cases, CPU exceptions. The server now correctly handles these packets, closing the connection and freeing any associated resources if they are received.

6.10 Bug Fixes in EK-LM3S6965 Firmware Package

6.10.1 TFTP server now handles incoming ERROR packets correctly (Reference 12798)

Previous versions of the TFTP server (utils/tftp.c) ignored any incoming ERROR packets from the client. This caused resource leaks and, in some cases, CPU exceptions. The server now correctly handles these packets, closing the connection and freeing any associated resources if they are received.

6.11 Bug Fixes in EK-LM3S8962 Firmware Package

6.11.1 TFTP server now handles incoming ERROR packets correctly (Reference 12798)

Previous versions of the TFTP server (utils/tftp.c) ignored any incoming ERROR packets from the client. This caused resource leaks and, in some cases, CPU exceptions. The server now correctly handles these packets, closing the connection and freeing any associated resources if they are received.

6.12 New Features in EK-LM3S9B90 Firmware Package

6.12.1 Add new example demonstrating uDMA scatter-gather mode with memory and UART (Reference 12828)

A new example was added that uses the uDMA scatter-gather feature to move data to and from different blocks of memory and the UART.

6.13 Bug Fixes in EK-LM3S9B90 Firmware Package

6.13.1 TFTP server now handles incoming ERROR packets correctly (Reference 12798)

Previous versions of the TFTP server (`utils/tftp.c`) ignored any incoming ERROR packets from the client. This caused resource leaks and, in some cases, CPU exceptions. The server now correctly handles these packets, closing the connection and freeing any associated resources if they are received.

6.14 New Features in EK-LM3S9B92 Firmware Package

6.14.1 Add new example demonstrating uDMA scatter-gather mode with memory and UART (Reference 12828)

A new example was added that uses the uDMA scatter-gather feature to move data to and from different blocks of memory and the UART.

6.15 Bug Fixes in EK-LM3S9B92 Firmware Package

6.15.1 TFTP server now handles incoming ERROR packets correctly (Reference 12798)

Previous versions of the TFTP server (`utils/tftp.c`) ignored any incoming ERROR packets from the client. This caused resource leaks and, in some cases, CPU exceptions. The server now correctly handles these packets, closing the connection and freeing any associated resources if they are received.

6.16 Bug Fixes in RDK-IDM Firmware Package

6.16.1 TFTP server now handles incoming ERROR packets correctly (Reference 12798)

Previous versions of the TFTP server (`utils/tftp.c`) ignored any incoming ERROR packets from the client. This caused resource leaks and, in some cases, CPU exceptions. The server now correctly handles these packets, closing the connection and freeing any associated resources if they are received.

6.17 Bug Fixes in RDK-IDM-SBC Firmware Package

6.17.1 TFTP server now handles incoming ERROR packets correctly (Reference 12798)

Previous versions of the TFTP server (`utils/tftp.c`) ignored any incoming ERROR packets from the client. This caused resource leaks and, in some cases, CPU exceptions. The server now correctly handles these packets, closing the connection and freeing any associated resources if they are received.

6.18 Bug Fixes in RDK-S2E Firmware Package

6.18.1 Power cycle required after using “Restore Factory Defaults” (Reference 12765)

A bug in previous releases of the `ser2enet` application caused the `rdk-s2e` to require a power cycle after using the “Restore Factory Defaults” option in the configuration web site. This has now been corrected and default settings take effect correctly after being set.

6.18.2 Fixed the NetworkConfigChange code in `lwiplib` (Reference 12706)

When changing network address configuration between `static/auto/dhcp`, the `netif_set_up` API in `lwIP` should be called at the end to ensure that network interface is brought back up properly and can be used. This call was missing and has been added to the function.

6.18.3 TFTP server now handles incoming ERROR packets correctly (Reference 12798)

Previous versions of the TFTP server (`utils/tftp.c`) ignored any incoming ERROR packets from the client. This caused resource leaks and, in some cases, CPU exceptions. The server now correctly

handles these packets, closing the connection and freeing any associated resources if they are received.

7 Release Notes for StellarisWare Revision 6594 (October 13, 2010)

Bug Fixes for Stellaris Boot Loader	63
New Features for Stellaris Peripheral Driver Library	63
Bug Fixes for Stellaris Graphics Library	64
Bug Fixes for Third Party Packages	64
New Features for Stellaris Utility Library	65
New Features for Stellaris Z-Stack Library	65
New Features for DK-LM3S9B96 Firmware Package	65
Bug Fixes for DK-LM3S9B96 Firmware Package	66
New Features for EK-LM3S3748 Firmware Package	66
Bug Fixes for EK-LM3S3748 Firmware Package	66
Bug Fixes for EK-LM3S6965 Firmware Package	67
Bug Fixes for EK-LM3S8962 Firmware Package	67
New Features for EK-LM3S9B90 Firmware Package	67
Bug Fixes for EK-LM3S9B90 Firmware Package	67
New Features for EK-LM3S9B92 Firmware Package	68
Bug Fixes for EK-LM3S9B92 Firmware Package	68
New Features for RDK-BDC Firmware Package	68
New Features for RDK-BDC24 Firmware Package	69
Bug Fixes for RDK-IDM Firmware Package	70
Bug Fixes for RDK-IDM-L35 Firmware Package	70
New Features for RDK-IDM-SBC Firmware Package	70
Bug Fixes for RDK-IDM-SBC Firmware Package	71
Bug Fixes for RDK-S2E Firmware Package	71

7.1 Bug Fixes in Stellaris Boot Loader

7.1.1 CAN boot loader did not clear message objects (Reference 12249)

If the CAN boot loader was called by the application, it would not disable all the message objects, leaving the application's message objects active and in some cases preventing the CAN boot loader from operating. It will now disable all message objects prior to configuring the two that it uses.

7.2 New Features in Stellaris Peripheral Driver Library

7.2.1 Added APIs to control power to the Ethernet PHY (Reference 11000)

The EthernetPHYPowerOff() and EthernetPHYPowerOn() APIs have been added, which allow the Ethernet PHY to be taken into and out of its lowest power mode.

7.2.2 Added APIs to control power to the USB PHY (Reference 12384)

The USBPHYPowerOff() and USBPHYPowerOn() APIs have been added, which allow the USB PHY to be taken into and out of its lowest power mode.

7.2.3 Added Tempest C3 definitions to driverlib/rom.h (Reference 12663)

The ROM API definitions for revision C3 of the Tempest-class devices have been added to driverlib/rom.h and driverlib/rom_map.h.

7.2.4 Added API function to configure EPI HB16 mode (Reference 12529)

A new API, EPIConfigHB16Set, has been added to the Peripheral Driver Library to allow the EPI to be configured in Host-bus16 mode on devices which support this feature. The EPIModeSet function has also been updated to allow selection of this mode by setting the ulMode parameter to EPI_MODE_HB16.

7.3 Bug Fixes in Stellaris Graphics Library

7.3.1 Slider widget redraws incorrectly if minimum value is non-zero (Reference 12612)

If a value other than 0 was set for the minimum value that a slider widget can represent, the widget would not redraw correctly. This was due to an error in a calculation which failed to correct for the left side offset required when lMin was non-zero.

7.4 Bug Fixes in Third Party Packages

7.4.1 Fixed an error in lwIP 1.3.2 tcp_slowtmr (Reference 12693)

An error in the lwIP 1.3.2 tcp_slowtmr function could cause corruption of the active PCB list if an application performed any action inside the tcp_err handler function which caused a PCB to be allocated. This problem was found while debugging a failure in the rdk-s2e ser2enet application where connections were sometimes not re-initiated after a telnet server went down. This code change will be shared with the lwIP community for inclusion in a future release of the stack.

7.5 New Features in Stellaris Utility Library

7.5.1 Added simple scheduler module (Reference 12616)

A simple scheduler module has been added which provides a way to have a set of application-defined functions called at a regular time interval.

7.6 New Features in Stellaris Z-Stack Library

7.6.1 TI's Z-Stack 2.4.0-Beta2 (certified) for CC2520 added to StellarisWare (Reference 12719)

TI's ZigBee wireless stack, Z-Stack 2.4.0-Beta2 (certified), has been added to StellarisWare for the DK-LM3S9B96 with EM2 expansion board and a CC2520EM radio module. Pre-built libraries and interface source code can be found in the ZStack directory. This is a special port of Z-Stack, with minor changes made to make it compatible with StellarisWare and to allow building with multiple toolchains.

7.7 New Features in DK-LM3S9B96 Firmware Package

7.7.1 Windows drivers for USB examples now included (Reference 12647)

Windows drivers for the various USB example devices are now included in the main StellarisWare release for each of the USB-enabled kits. The drivers can be found in C:/StellarisWare/windows_drivers assuming StellarisWare was installed in the default directory. Previously, these drivers had to be downloaded separately.

7.7.2 IEEE1588 PTPD example added to dk-lm3s9b96 release (Reference 12716)

A new example application, enet_ptpd, has been added to the StellarisWare release for dk-lm3s9b96. This example illustrates use of the IEEE1588 Precision Time Protocol to synchronise the system time with a remote PTP server via Ethernet.

7.8 Bug Fixes in DK-LM3S9B96 Firmware Package

7.8.1 Slider widget redraws incorrectly if minimum value is non-zero (Reference 12612)

If a value other than 0 was set for the minimum value that a slider widget can represent, the widget would not redraw correctly. This was due to an error in a calculation which failed to correct for the left side offset required when IMin was non-zero.

7.8.2 usb_stick_update didn't recognize some USB sticks (Reference 9814)

Some USB sticks do not have a master boot record, which contains the partition table; instead, they simply have a filesystem that spans the entire available space. usb_stick_update has been fixed so that it will properly recognize and read USB sticks that do not have a master boot record.

7.9 New Features in EK-LM3S3748 Firmware Package

7.9.1 Windows drivers for USB examples now included (Reference 12647)

Windows drivers for the various USB example devices are now included in the main StellarisWare release for each of the USB-enabled kits. The drivers can be found in C:/StellarisWare/windows_drivers assuming StellarisWare was installed in the default directory. Previously, these drivers had to be downloaded separately.

7.10 Bug Fixes in EK-LM3S3748 Firmware Package

7.10.1 usb_stick_update didn't recognize some USB sticks (Reference 9814)

Some USB sticks do not have a master boot record, which contains the partition table; instead, they simply have a filesystem that spans the entire available space. usb_stick_update has been fixed so that it will properly recognize and read USB sticks that do not have a master boot record.

7.11 Bug Fixes in EK-LM3S6965 Firmware Package

7.11.1 Added missing display enable call to enet_lwip (Reference 12593)

In the error case where the MAC address is not programmed into the user registers, a message was written to the display without having re-enabled the display. This display is now re-enabled so that the message will get written.

7.12 Bug Fixes in EK-LM3S8962 Firmware Package

7.12.1 Added missing display enable call to enet_lwip (Reference 12593)

In the error case where the MAC address is not programmed into the user registers, a message was written to the display without having re-enabled the display. This display is now re-enabled so that the message will get written.

7.13 New Features in EK-LM3S9B90 Firmware Package

7.13.1 Windows drivers for USB examples now included (Reference 12647)

Windows drivers for the various USB example devices are now included in the main StellarisWare release for each of the USB-enabled kits. The drivers can be found in C:/StellarisWare/windows_drivers assuming StellarisWare was installed in the default directory. Previously, these drivers had to be downloaded separately.

7.14 Bug Fixes in EK-LM3S9B90 Firmware Package

7.14.1 usb_stick_update didn't recognize some USB sticks (Reference 9814)

Some USB sticks do not have a master boot record, which contains the partition table; instead, they simply have a filesystem that spans the entire available space. usb_stick_update has been fixed so that it will properly recognize and read USB sticks that do not have a master boot record.

7.15 New Features in EK-LM3S9B92 Firmware Package

7.15.1 Windows drivers for USB examples now included (Reference 12647)

Windows drivers for the various USB example devices are now included in the main StellarisWare release for each of the USB-enabled kits. The drivers can be found in C:/StellarisWare/windows_drivers assuming StellarisWare was installed in the default directory. Previously, these drivers had to be downloaded separately.

7.16 Bug Fixes in EK-LM3S9B92 Firmware Package

7.16.1 usb_stick_update didn't recognize some USB sticks (Reference 9814)

Some USB sticks do not have a master boot record, which contains the partition table; instead, they simply have a filesystem that spans the entire available space. usb_stick_update has been fixed so that it will properly recognize and read USB sticks that do not have a master boot record.

7.17 New Features in RDK-BDC Firmware Package

7.17.1 Added new blink code for current faults (Reference 12271)

A new blink code (red/yellow) has been added to distinguish current faults (the majority of fault conditions) from all other faults.

7.17.2 Added two new speed measurement sources (Reference 11340)

Two new speed measurement sources are now available; an inverting encoder and a quadrature encoder. The inverting encoder behaves the same as the existing encoder setting, but requires that the output direction be the opposite of the setpoint direction (for cases where a positive speed should result in negative output voltage). The quadrature encoder is for two-channel encoders (which therefore provide a direction) and has no restriction on the allowable output voltage.

7.17.3 The motor controller now announces its presence (Reference 12636)

When the motor controller is powered on, it will now send out a message to indicate that it is present. This will typically be used to detect if/when a motor controller is restarted because of an intermittent power failure.

7.17.4 Added new voltage status command (Reference 12637)

A new voltage status command has been added that returns the output voltage in volts (as opposed to the existing voltage status command which returns the voltage as a percentage of the input voltage).

7.17.5 Added voltage compensation control mode (Reference 12638)

A voltage compensation control mode has been added to the brushed DC motor controller application. In this mode, the output duty cycle is dynamically adjusted to compensate for changes in the input voltage, resulting in a constant output voltage.

7.18 New Features in RDK-BDC24 Firmware Package

7.18.1 Added new blink code for current faults (Reference 12271)

A new blink code (red/yellow) has been added to distinguish current faults (the majority of fault conditions) from all other faults.

7.18.2 Added two new speed measurement sources (Reference 11340)

Two new speed measurement sources are now available; an inverting encoder and a quadrature encoder. The inverting encoder behaves the same as the existing encoder setting, but requires that the output direction be the opposite of the setpoint direction (for cases where a positive speed should result in negative output voltage). The quadrature encoder is for two-channel encoders (which therefore provide a direction) and has no restriction on the allowable output voltage.

7.18.3 The motor controller now announces its presence (Reference 12636)

When the motor controller is powered on, it will now send out a message to indicate that it is present. This will typically be used to detect if/when a motor controller is restarted because of an intermittent power failure.

7.18.4 Added new voltage status command (Reference 12637)

A new voltage status command has been added that returns the output voltage in volts (as opposed to the existing voltage status command which returns the voltage as a percentage of the input voltage).

7.18.5 Added voltage compensation control mode (Reference 12638)

A voltage compensation control mode has been added to the brushed DC motor controller application. In this mode, the output duty cycle is dynamically adjusted to compensate for changes in the input voltage, resulting in a constant output voltage.

7.19 Bug Fixes in RDK-IDM Firmware Package

7.19.1 Slider widget redraws incorrectly if minimum value is non-zero (Reference 12612)

If a value other than 0 was set for the minimum value that a slider widget can represent, the widget would not redraw correctly. This was due to an error in a calculation which failed to correct for the left side offset required when IMin was non-zero.

7.20 Bug Fixes in RDK-IDM-L35 Firmware Package

7.20.1 Slider widget redraws incorrectly if minimum value is non-zero (Reference 12612)

If a value other than 0 was set for the minimum value that a slider widget can represent, the widget would not redraw correctly. This was due to an error in a calculation which failed to correct for the left side offset required when IMin was non-zero.

7.21 New Features in RDK-IDM-SBC Firmware Package

7.21.1 Sound effects added to qs-blox example application (Reference 12703)

The qs-blox example application has been updated to play sound clips during the game. This feature makes use of the new wave audio driver also added to the rdk-idm-sbc release.

7.21.2 Wave audio driver added to release (Reference 12705)

A new driver allowing simple playback of uncompressed PCM mono or stereo wave audio data has been added to the rdk-idm-sbc release. This driver can be found in the files wav.c and wav.h in the boards/rdk-dm-sbc/drivers directory.

7.22 Bug Fixes in RDK-IDM-SBC Firmware Package

7.22.1 Slider widget redraws incorrectly if minimum value is non-zero (Reference 12612)

If a value other than 0 was set for the minimum value that a slider widget can represent, the widget would not redraw correctly. This was due to an error in a calculation which failed to correct for the left side offset required when IMin was non-zero.

7.22.2 `usb_stick_update` didn't recognize some USB sticks (Reference 9814)

Some USB sticks do not have a master boot record, which contains the partition table; instead, they simply have a filesystem that spans the entire available space. `usb_stick_update` has been fixed so that it will properly recognize and read USB sticks that do not have a master boot record.

7.23 Bug Fixes in RDK-S2E Firmware Package

7.23.1 Connection to S2E telnet server failed after config parameter change (Reference 12701)

After any telnet-related S2E parameter was changed using the board's web interface, new telnet connections to the S2E server were not possible until a further parameter change was made. This has now been fixed and a new telnet connection attempt made after a parameter change will succeed.

8 Release Notes for StellarisWare Revision 6459 (September 7, 2010)

New Features for Stellaris Peripheral Driver Library	73
Bug Fixes for Stellaris Peripheral Driver Library	73
New Features for Stellaris IQmath Library	74
New Features for Stellaris MIFARE Library	74
New Features for Stellaris SimplicITI Library	74
New Features for Stellaris USB Library	74
Bug Fixes for Stellaris USB Library	75
New Features for Stellaris Utility Library	75
New Features for DK-LM3S9B96-EM2 Firmware Package	75
New Features for DK-LM3S9B96 Firmware Package	76
Bug Fixes for DK-LM3S9B96 Firmware Package	76
New Features for EK-LM3S3748 Firmware Package	77
Bug Fixes for EK-LM3S3748 Firmware Package	77
New Features for EK-LM3S9B90 Firmware Package	78
Bug Fixes for EK-LM3S9B90 Firmware Package	78
New Features for EK-LM3S9B92 Firmware Package	79
Bug Fixes for EK-LM3S9B96 Firmware Package	79
Bug Fixes for Stellaris Firmware Development Package	79

8.1 New Features in Stellaris Peripheral Driver Library

8.1.1 Added API functions to set and get the interrupt priority masking level. (Reference 12543)

Added two new interrupt API functions, `IntPriorityMaskSet()` and `IntPriorityMaskGet()`. These allow an application to manipulate the interrupt priority mask level, using the Cortex-M3 `BASEPRI` register.

8.2 Bug Fixes in Stellaris Peripheral Driver Library

8.2.1 StellarisWare was not correctly setting host/device mode. (Reference 12486)

On devices that support forcing the USB OTG controller into host or device mode, the `DriverLib` and `USB` library functions were not properly setting the USB mode. The `DriverLib` call `USBDevMode()` and `USBHostMode()` will now correctly set the mode for OTG USB controllers that support forcing the USB mode. These `DriverLib` functions are also now used in the `USB` library so that the USB controller can be forced into the requested mode when either `USBDCDInit()` or `USBHCDInit()` are called.

8.3 New Features in Stellaris IQmath Library

8.3.1 Added IQmath to StellarisWare (Reference 12502)

The IQmath fixed-point arithmetic library has been ported to Stellaris and is now included as part of StellarisWare.

8.4 New Features in Stellaris MIFARE Library

8.4.1 TRF7960R RFID support added to StellarisWare (Reference 12229)

This release adds support for accessing MIFARE(TM) cards to the StellarisWare releases for the dk-lm3s9b96. This support requires the EM2 expansion board and the TRF7960R module and a separate supplemental installer for the 13.56 MHz RFID software development package (for more information, go here: <http://www.ti.com/stellariswireless>). Once installed, the example application that demonstrates this functionality is located in the boards/dk-lm3s9b96/rfid_mifare directory.

8.5 New Features in Stellaris SimpliciTI Library

8.5.1 SimpliciTI 1.1.1 stack added to StellarisWare (Reference 12228)

The SimpliciTI 1.1.1 low power RF communication stack has been added to the StellarisWare releases for dk-lm3s9b96 with EM2 expansion board. Source code can be found in C:/StellarisWare/SimpliciTI-1.1.1 assuming the code is installed in the default location. This version of the code contains minor modifications compared to the standard SimpliciTI 1.1.1 distribution. These allow the stack to build on all StellarisWare-supported toolchains and facilitate the use of a wrapper file (simplicilib.c) to add the stack to a project.

8.6 New Features in Stellaris USB Library

8.6.1 Runtime DFU Device Class added to USB Library (Reference 12508)

A device class supporting runtime Device Firmware Upgrade operation has been added to the Stellaris USB library. This class may be used in conjunction with the existing composite device class and the USB boot loader to add a full DFU interface to a USB device. This interface informs host-based tools that the device is capable of firmware upgrade over USB and offers a standard mechanism for switching the device into DFU mode in preparation for firmware upload or download.

8.7 Bug Fixes in Stellaris USB Library

8.7.1 StellarisWare was not correctly setting host/device mode. (Reference 12486)

On devices that support forcing the USB OTG controller into host or device mode, the DriverLib and USB library functions were not properly setting the USB mode. The DriverLib call USBDevMode() and USBHostMode() will now correctly set the mode for OTG USB controllers that support forcing the USB mode. These DriverLib functions are also now used in the USB library so that the USB controller can be forced into the requested mode when either USBDCDInit() or USBHCDInit() are called.

8.7.2 USB serial device classes could hang if buffers filled too quickly (Reference 12461)

The USB library CDC serial class had an issue that could cause the USB software buffers to fill and never empty. This would most likely occur if the application was using smaller USB buffers or sending large amounts of data that filled the USB software buffer in the USB CDC serial device. This issue has been fixed and now the USB CDC serial device will properly hold of the host until the USB device has made room in the USB software buffers for more data.

8.8 New Features in Stellaris Utility Library

8.8.1 Added Software UART module (Reference 12361)

Added a software UART module (SoftUART) that allows an arbitrary pair of GPIO pins to be used as a UART. Supports transmit and receive, 5-8 data bits, configurable parity (even, odd, one, zero, or none), one or two stop bits, application-configurable GPIO usage, and application-configurable FIFO size.

8.9 New Features in DK-LM3S9B96-EM2 Firmware Package

8.9.1 Support for TI SimpliciTI low power wireless protocol added (Reference 12323)

Support for TI's SimpliciTI low power wireless protocol has been added to StellarisWare. SimpliciTI provides a simple application programming interface allowing low power sub-GHz and 2.4GHz radio communication between devices and access points. The protocol is supported on dk-lm3s9b96 with EM2 expansion board and one of the following radio transceiver expansion modules - CC1101:433EM, CC1101:868EM, CC2500EM or CC2520EM.

8.10 New Features in DK-LM3S9B96 Firmware Package

8.10.1 Added IQmath demonstration (Reference 12493)

A program that demonstrates the use of IQmath has been added to the DK-LM3S9B96 board directory.

8.10.2 Runtime DFU Device Class added to USB Library (Reference 12508)

A device class supporting runtime Device Firmware Upgrade operation has been added to the Stellaris USB library. This class may be used in conjunction with the existing composite device class and the USB boot loader to add a full DFU interface to a USB device. This interface informs host-based tools that the device is capable of firmware upgrade over USB and offers a standard mechanism for switching the device into DFU mode in preparation for firmware upload or download.

8.10.3 Support added for DK-LM3S9B96-EM2 expansion board (Reference 12322)

Support has been added for the DK-LM3S9B96-EM2 expansion board. The PinoutSet() function has been updated to recognize the board and leave EPI unconfigured, the display driver (kitronix320x240x16_ssd2119_8bit.c) and touchscreen driver (touch.c) have been modified to ensure that they operate correctly with the new expansion board ID, and the dbeeprom example application has been reworked to support reading and writing the correct identification structure for the new expansion board.

8.11 Bug Fixes in DK-LM3S9B96 Firmware Package

8.11.1 USB Composite Driver Callback Routing Fixed (Reference 12525)

Previous versions of the USB Composite Device Class Driver (usblib/device/usbdcomp.c) passed all requests destined for interfaces or endpoints to each of the lower level class drivers in turn. This caused problems when more than one of those drivers supported either a GetDescriptor or RequestHandler callback since, even if one driver did attempt to return data, the other driver would likely stall endpoint 0 and block the transaction. The driver now correctly routes these requests to only the since device class they are intended for. In making this fix, the composite device class structure tUSBDCompositeDevice was changed to include a new field, pulDeviceWorkspace, that applications must populate with a pointer to an array of unsigned long values, one per device instance in the composite device. This workspace is used to construct the lookup table necessary to correctly route callbacks.

8.11.2 “Luminary” references in USB boot loader removed (Reference 12537)

Cosmetic changes were made to the USB boot loader source to replace references to “Luminary” with “Stellaris.”

8.11.3 The usb_dev_caudiohid example calling wrong Keyboard initialization (Reference 12509)

The usb_dev_caudiohid function was calling the USBDHIDKeyboardInit() function which is used with non-composite devices when it should have been calling the USBDHIDKeyboardCompositeInit() function.

8.12 New Features in EK-LM3S3748 Firmware Package

8.12.1 Runtime DFU Device Class added to USB Library (Reference 12508)

A device class supporting runtime Device Firmware Upgrade operation has been added to the Stellaris USB library. This class may be used in conjunction with the existing composite device class and the USB boot loader to add a full DFU interface to a USB device. This interface informs host-based tools that the device is capable of firmware upgrade over USB and offers a standard mechanism for switching the device into DFU mode in preparation for firmware upload or download.

8.13 Bug Fixes in EK-LM3S3748 Firmware Package

8.13.1 USB Composite Driver Callback Routing Fixed (Reference 12525)

Previous versions of the USB Composite Device Class Driver (usblib/device/usbdcomp.c) passed all requests destined for interfaces or endpoints to each of the lower level class drivers in turn. This caused problems when more than one of those drivers supported either a GetDescriptor or RequestHandler callback since, even if one driver did attempt to return data, the other driver would likely stall endpoint 0 and block the transaction. The driver now correctly routes these requests to only the device class they are intended for. In making this fix, the composite device class structure tUSBDCompositeDevice was changed to include a new field, pulDeviceWorkspace, that applications must populate with a pointer to an array of unsigned long values, one per device instance in the composite device. This workspace is used to construct the lookup table necessary to correctly route callbacks.

8.13.2 “Luminary” references in USB boot loader removed (Reference 12537)

Cosmetic changes were made to the USB boot loader source to replace references to “Luminary” with “Stellaris.”

8.14 New Features in EK-LM3S9B90 Firmware Package

8.14.1 Runtime DFU Device Class added to USB Library (Reference 12508)

A device class supporting runtime Device Firmware Upgrade operation has been added to the Stellaris USB library. This class may be used in conjunction with the existing composite device class and the USB boot loader to add a full DFU interface to a USB device. This interface informs host-based tools that the device is capable of firmware upgrade over USB and offers a standard mechanism for switching the device into DFU mode in preparation for firmware upload or download.

8.15 Bug Fixes in EK-LM3S9B90 Firmware Package

8.15.1 USB Composite Driver Callback Routing Fixed (Reference 12525)

Previous versions of the USB Composite Device Class Driver (`usblib/device/usbdcomp.c`) passed all requests destined for interfaces or endpoints to each of the lower level class drivers in turn. This caused problems when more than one of those drivers supported either a `GetDescriptor` or `RequestHandler` callback since, even if one driver did attempt to return data, the other driver would likely stall endpoint 0 and block the transaction. The driver now correctly routes these requests to only the since device class they are intended for. In making this fix, the composite device class structure `tUSBDCompositeDevice` was changed to include a new field, `pulDeviceWorkspace`, that applications must populate with a pointer to an array of unsigned long values, one per device instance in the composite device. This workspace is used to construct the lookup table necessary to correctly route callbacks.

8.15.2 “Luminary” references in USB boot loader removed (Reference 12537)

Cosmetic changes were made to the USB boot loader source to replace references to “Luminary” with “Stellaris.”

8.16 New Features in EK-LM3S9B92 Firmware Package

8.16.1 Runtime DFU Device Class added to USB Library (Reference 12508)

A device class supporting runtime Device Firmware Upgrade operation has been added to the Stellaris USB library. This class may be used in conjunction with the existing composite device class and the USB boot loader to add a full DFU interface to a USB device. This interface informs host-based tools that the device is capable of firmware upgrade over USB and offers a standard mechanism for switching the device into DFU mode in preparation for firmware upload or download.

8.17 Bug Fixes in EK-LM3S9B96 Firmware Package

8.17.1 USB Composite Driver Callback Routing Fixed (Reference 12525)

Previous versions of the USB Composite Device Class Driver (`usblib/device/usbdcomp.c`) passed all requests destined for interfaces or endpoints to each of the lower level class drivers in turn. This caused problems when more than one of those drivers supported either a `GetDescriptor` or `RequestHandler` callback since, even if one driver did attempt to return data, the other driver would likely stall endpoint 0 and block the transaction. The driver now correctly routes these requests to only the since device class they are intended for. In making this fix, the composite device class structure `tUSBDCompositeDevice` was changed to include a new field, `puDeviceWorkspace`, that applications must populate with a pointer to an array of unsigned long values, one per device instance in the composite device. This workspace is used to construct the lookup table necessary to correctly route callbacks.

8.17.2 “Luminary” references in USB boot loader removed (Reference 12537)

Cosmetic changes were made to the USB boot loader source to replace references to “Luminary” with “Stellaris.”

8.18 Bug Fixes in Stellaris Firmware Development Package

8.18.1 FLASH_BOOTCFG had wrong address (Reference 12533)

The `FLASH_BOOTCFG` register in `hw_flash.h` had the wrong address; this has been corrected.

9 Release Notes for StellarisWare Revision 6288 (August 3, 2010)

Bug Fixes for Stellaris Boot Loader	81
Bug Fixes for Stellaris Peripheral Driver Library	81
New Features for Stellaris Graphics Library	82
Bug Fixes for Stellaris USB Library	82
New Features for Stellaris Utility Library	82
New Features for DK-LM3S9B96 Firmware Package	83
Bug Fixes for DK-LM3S9B96 Firmware Package	83
Bug Fixes for EK-LM3S2965 Firmware Package	84
Bug Fixes for EK-LM3S3748 Firmware Package	84
Bug Fixes for EK-LM3S8962 Firmware Package	84
Bug Fixes for EK-LM3S9B90 Firmware Package	84
Bug Fixes for EK-LM3S9B92 Firmware Package	85

9.1 Bug Fixes in Stellaris Boot Loader

9.1.1 CAN boot loader did not work on Fury-class devices (Reference 12270)

The CAN boot loader did not account for the differences in the CAN interfaces on Fury-class devices (the need to run from the PLL, the fixed 8 MHz input clock to the CAN module, the paced writes, and the delayed reads). There is a new configuration option, `CAN_REQUIRES_PLL`, that makes the appropriate adjustments to allow the CAN boot loader to operation properly on Fury-class devices.

9.2 Bug Fixes in Stellaris Peripheral Driver Library

9.2.1 CANBitRateSet produces invalid bit timings (Reference 12455)

The `CANBitRateSet` API would produce invalid CAN bit timings for certain input clock and CAN baud rate combinations. This has been corrected.

9.3 New Features in Stellaris Graphics Library

9.3.1 Improve NumLeadingZeros macro in graphics library (for CCS) (Reference 12219)

The graphics library string module has a macro named NumLeadingZeros. The implementation of the macro was improved for the CCS toolchain. There is no change for other toolchains.

9.4 Bug Fixes in Stellaris USB Library

9.4.1 Memory allocation issue with USB FIFO configuration data (Reference 12266)

The default size of the memory allocated to the USB FIFO configuration memory could only hold information on three IN or three OUT endpoints. If more than three of either type of endpoint was used, the USB library would overflow this memory allocation and begin reading and writing to memory beyond the space allocated to the USB FIFO configuration. This under allocation causes issues with any USB device that uses more than three IN or three OUT endpoints and is most likely to occur when creating a custom composite device where the total number of IN or OUT endpoints is greater than three. To fix this, the default allocation was increased to 16 entries which is the maximum number of endpoints on any USB controller.

9.5 New Features in Stellaris Utility Library

9.5.1 Added Software SSI module (Reference 12269)

Added a software SSI module (SoftSSI) that allows an arbitrary set of GPIO pins to be used as a SPI master. Supports SPI modes 0-3, 4-16 data bits, application-configurable GPIO usage, and application-configurable FIFO size.

9.5.2 Added Software I2C module (Reference 12360)

Added a software I2C module (SoftI2C) that allows an arbitrary pair of GPIO pins to be used as an I2C master. Supports I2C master transmit and receive, and application-configurable GPIO usage.

9.5.3 Added cosine macro (Reference 12248)

Added a cosine macro to sine.h that simply calls the sine function with the angle incremented by 90 degrees.

9.6 New Features in DK-LM3S9B96 Firmware Package

9.6.1 Touchscreen driver handling of unrecognized daughter boards fixed. (Reference 12359)

In previous releases, the touchscreen driver did not correctly default to “normal” behavior when it encountered an unrecognized daughter board ID. The code has been reworked to ensure that an unknown daughter board ID is handled in the same way as the SDRAM daughter board or cases where no daughter board is present. The assumption is that any unknown daughter board will not have rewired the touchscreen interface (since this would require other changes in the touchscreen driver).

9.7 Bug Fixes in DK-LM3S9B96 Firmware Package

9.7.1 Echo mode in usb_bulk_example corrected (Reference 12335)

A recent buffer size change in the Windows “usb_bulk_example” application had the inadvertent side effect of preventing echo mode (“-e” command line switch) from working correctly. This has now been corrected and echo mode operates as expected.

9.7.2 Fixed dbeeprom example to terminate strings correctly (Reference 12347)

The dbeeprom example application that is used to read and write the content of the ID EEPROM on daughterboards failed to terminate the board description string correctly. This has now been fixed. Also added support for writing the required ID information for the new EM2 daughterboard.

9.7.3 USB DFU driver version numbering corrected (Reference 12427)

The version numbering of the USB DFU driver DLL, lmdfu.dll was incorrect in the previous release and this caused problems for some people attempting to update the driver. This has now been fixed and the DLL version number correctly tracks the release number.

9.7.4 i2s_filter example can fail and generate loud noise (Reference 11694)

The i2s_filter example can generate loud noise rather than streaming the audio from the line input to the audio outputs when using a debugger. The sound driver (drivers/sound.c) is separately enabling the I2S transmit and receive interfaces which can cause the interfaces to become out of sync when using a debugger. If a receive channel is being used, the new sound driver will enable both transmit and receive at the same by calling the I2STxRxEnable() function instead of the individual I2STxEnable() and I2SRxEnable() functions.

9.8 Bug Fixes in EK-LM3S2965 Firmware Package

9.8.1 can_fifo example was not clearing the FIFO flag properly (Reference 12316)

The can_fifo example was not clearing the MSG_OBJ_FIFO bit in the last message object that was used in the list of CAN message objects that made up the FIFO. The can_fifo example now insures that the MSG_OBJ_FIFO bit is clear for the last message object in the CAN FIFO.

9.9 Bug Fixes in EK-LM3S3748 Firmware Package

9.9.1 Echo mode in usb_bulk_example corrected (Reference 12335)

A recent buffer size change in the Windows “usb_bulk_example” application had the inadvertent side effect of preventing echo mode (“-e” command line switch) from working correctly. This has now been corrected and echo mode operates as expected.

9.9.2 USB DFU driver version numbering corrected (Reference 12427)

The version numbering of the USB DFU driver DLL, lmdfu.dll was incorrect in the previous release and this caused problems for some people attempting to update the driver. This has now been fixed and the DLL version number correctly tracks the release number.

9.10 Bug Fixes in EK-LM3S8962 Firmware Package

9.10.1 can_fifo example was not clearing the FIFO flag properly (Reference 12316)

The can_fifo example was not clearing the MSG_OBJ_FIFO bit in the last message object that was used in the list of CAN message objects that made up the FIFO. The can_fifo example now insures that the MSG_OBJ_FIFO bit is clear for the last message object in the CAN FIFO.

9.11 Bug Fixes in EK-LM3S9B90 Firmware Package

9.11.1 Echo mode in usb_bulk_example corrected (Reference 12335)

A recent buffer size change in the Windows “usb_bulk_example” application had the inadvertent side effect of preventing echo mode (“-e” command line switch) from working correctly. This has now been corrected and echo mode operates as expected.

9.11.2 USB DFU driver version numbering corrected (Reference 12427)

The version numbering of the USB DFU driver DLL, `Imdfu.dll` was incorrect in the previous release and this caused problems for some people attempting to update the driver. This has now been fixed and the DLL version number correctly tracks the release number.

9.12 Bug Fixes in EK-LM3S9B92 Firmware Package

9.12.1 Echo mode in `usb_bulk_example` corrected (Reference 12335)

A recent buffer size change in the Windows “`usb_bulk_example`” application had the inadvertent side effect of preventing echo mode (“`-e`” command line switch) from working correctly. This has now been corrected and echo mode operates as expected.

9.12.2 USB DFU driver version numbering corrected (Reference 12427)

The version numbering of the USB DFU driver DLL, `Imdfu.dll` was incorrect in the previous release and this caused problems for some people attempting to update the driver. This has now been fixed and the DLL version number correctly tracks the release number.

10 Release Notes for StellarisWare Revision 6075 (June 4, 2010)

New Features for Stellaris Boot Loader	87
New Features for Stellaris Peripheral Driver Library	87
Bug Fixes for Stellaris Peripheral Driver Library	88
New Features for Stellaris Graphics Library	88
New Features for Third Party Packages	89
Bug Fixes for Stellaris USB Library	89
New Features for DK-LM3S9B96 Firmware Package	89
Bug Fixes for DK-LM3S9B96 Firmware Package	90
Bug Fixes for EK-LM3S1968 Firmware Package	91
Bug Fixes for EK-LM3S2965 Firmware Package	92
New Features for EK-LM3S3748 Firmware Package	92
Bug Fixes for EK-LM3S3748 Firmware Package	93
New Features for EK-LM3S6965 Firmware Package	93
Bug Fixes for EK-LM3S6965 Firmware Package	93
New Features for EK-LM3S8962 Firmware Package	94
Bug Fixes for EK-LM3S8962 Firmware Package	94
New Features for EK-LM3S9B90 Firmware Package	94
Bug Fixes for EK-LM3S9B90 Firmware Package	95
New Features for EK-LM3S9B92 Firmware Package	95
Bug Fixes for EK-LM3S9B92 Firmware Package	95
Bug Fixes for RDK-BDC Firmware Package	96
Bug Fixes for RDK-BDC24 Firmware Package	96
New Features for RDK-IDM-SBC Firmware Package	96

10.1 New Features in Stellaris Boot Loader

10.1.1 Added support to cooperate with the in-Flash errata workaround (Reference 12088)

Certain revisions of some Stellaris microcontrollers come with a non-erasable errata workaround pre-programmed into Flash. Support has been added to the boot loader to allow it to be configured to work in these parts when located at 0x1000, the first portion of Flash that is available for customer use. This support is enabled via the `WORKAROUND_COOP` define in `bl_config.h`.

10.2 New Features in Stellaris Peripheral Driver Library

10.2.1 Function `CPUprimask()` added to `cpu.c` (Reference 12214)

A new function, `CPUprimask()`, has been added to the low level API offered by `cpu.c`. This function returns the current contents of the `PRIMASK` register and can be used to determine whether inter-

rpts are enabled or disabled at the CPU level. A non-zero return code indicates that interrupts are currently disabled.

10.3 Bug Fixes in Stellaris Peripheral Driver Library

10.3.1 USB_EP_HOST_IN and USB_EP_DEV_OUT definitions overlap with USB_EP_SPEED_FULL definition (Reference 12152)

The USB_EP_HOST_IN and USB_EP_DEV_OUT values had the same bit field position in the bit flags as the USB_EP_SPEED_FULL flag causing an overlap that resulted in errors when these flags were used. The functions affected were the USBFIFOFlush(), USBEndpointDMAEnable(), and USBEndpointDMADisable(). The USB_EP_HOST_IN and USB_EP_DEV_OUT are now simply the bitwise NOT of the USB_EP_HOST_OUT and USB_EP_DEV_IN to remove this collision and all uses of these bits have been changed to match this definition.

10.3.2 USBDevEndpointStallClear() is not clearing data toggle for non-zero endpoints (Reference 12165)

When the USBDevEndpointStallClear() function is called for non-zero endpoints and the ulFlags parameter is USB_EP_DEV_OUT, the function sets the wrong bit and does not clear the data toggle. This error causes the USB controller to ignore valid DATA0 packets after the USBDevEndpointStallClear() is called. This has been fixed and now the USBDevEndpointStallClear() function properly clears the data toggle when called.

10.3.3 Deprecated INT_ADC? from hw_ints.h (Reference 12203)

The defines for INT_ADC? (the four sample sequence interrupts for ADC0) have been deprecated in favor of INT_ADC0SS?. This makes them consistent with the sample sequence interrupt defines for ADC1, which are INT_ADC1SS?.

10.4 New Features in Stellaris Graphics Library

10.4.1 Added monospace font support to ftrasterize (Reference 10690)

Support has been added to ftrasterize to render a font with uniform spacing (in other words, a monospaced font). Additionally, renderings of the Computer Modern monospaced font in sizes 12 through 48 have been added to the default font collection for the Stellaris Graphics Library.

10.5 New Features in Third Party Packages

10.5.1 Updated to lwIP 1.3.2 (Reference 12145)

lwIP 1.3.2 has been incorporated into StellarisWare and all example applications that use lwIP have been updated to use the new version.

10.6 Bug Fixes in Stellaris USB Library

10.6.1 USB Host MSC class not handling STALLed commands properly (Reference 12105)

When a device issued a STALL on a SCSI command, the USB library improperly returned without requesting status from the device. This affected mostly larger USB MSC devices that would STALL commands before they were ready to respond to commands. This caused the USB host controller and the device to become out of sync and fail to communicate properly after the STALL condition. The USB host MSC class now properly requests status after any STALL on a SCSI command.

10.6.2 USBDAudioTerm() and USBDMSCTerm() do not call USBDCDTerm() (Reference 11676)

USBDAudioTerm() and USBDMSCTerm() were not calling USBDCDTerm() and were leaving the device class active after returning. USBDAudioTerm() and USBDMSCTerm() now call USBDCDTerm() before returning to disable USB device mode.

10.6.3 USBHCDClearFeature() was not resetting data toggle (Reference 12166)

When the USB library issued a Clear Feature request to clear the halt condition on an endpoint, it failed to also clear the data toggle on the endpoint. This caused the host controller to become out of sync with the device. The USBHCDClearFeature() function now properly clears the data toggle when issuing a Clear Feature Endpoint Halt request.

10.7 New Features in DK-LM3S9B96 Firmware Package

10.7.1 New Speex Encode/Decode example added (Reference 11069)

A new example was added that performs real-time Speex encode and decode with an incoming audio signal on the line input.

10.7.2 USB Drivers Now Support Windows 7 32-bit and 64-bit Versions (Reference 11555)

The SW-USB-windrivers-xxxx.zip USB driver package has been updated to support both 32-bit and 64-bit versions of Windows 7. The package includes 64-bit versions of URLs Imusb.dll and lmdfu.dll allowing 64-bit applications to access these interfaces. The Device Firmware Upgrade driver has also been rewritten to use the Microsoft-supplied WINUSB interface rather than libusb-win32 which is not currently fully supported on Windows 7.

10.7.3 Add DMA support to the USB audio device examples (Reference 11677)

In previous releases, the USB device audio examples did not use uDMA for transfers. The stand-alone usb_dev_audio and usb_dev_caudiohid examples now both use uDMA for transfers.

10.7.4 Windows tool Visual Studio projects updated to VS2008 (Reference 12138)

The project files included in the tools directory for the various VisualStudio applications and DLLs have been updated to support VisualStudio2008. They were previously for VisualStudio2005.

10.7.5 New dbeeprom example application added (Reference 11936)

A new example application, dbeeprom, has been added to the dk-lm3s9b96 StellarisWare release. This allows the contents of the ID EEPROM on option daughterboards to be read and written and is intended to allow recovery from cases where a user application accidentally corrupts or erases the content of this device. The application provides a command-line interface via UART0 and is capable of writing the ID block for both the SRAM/Flash/LCD and FPGA/Camera/LCD daughterboards.

10.8 Bug Fixes in DK-LM3S9B96 Firmware Package

10.8.1 Allow SafeRTOS demo to be moved from location 0 (Reference 12086)

The vector table address in the xPORT_INIT_PARAMETERS structure that is passed to SafeRTOS was hard coded to 0, which prevented the SafeRTOS scheduler from starting if the vector table was not actually located at 0 (for example, when using a boot loader). That address is now filled in at run time from the NVIC vector table base address register, therefore reflecting the actual vector table in use. This does not affect the operation of the demo as it is provided, but does make it possible to change the base address of the demo (in the linker script) and have it continue to work correctly.

10.8.2 usb_host_audio application does not display time information (Reference 11974)

The usb_host_audio application did not properly compute the duration in minutes and seconds for wav files that were selected. The application also failed to update the elapsed time as a file was played. Both of these issues were fixed.

10.8.3 usb_stick_update would not enumerate drives in all cases. (Reference 12241)

The usb_stick_update only enumerated USB MSC devices if they were present when the application started. The usb_stick_update now properly enumerates devices by forcing the OTG controller to indicate a host connection which allows USB MSC devices to properly enumerate.

10.8.4 Fixed left/right channel swap on I2S DAC output (Reference 12245)

The left and right channels were swapped on the I2S DAC outputs being sent to both the headphone and line out jacks on the board. The DAC now swaps the two channels so that they appear correctly on the headphone and line out jacks.

10.9 Bug Fixes in EK-LM3S1968 Firmware Package

10.9.1 RIT display driver used wrong SPI mode (Reference 12217)

The display driver for the RIT 128x96 panel on the evaluation board used the wrong SPI mode. This caused the Stellaris SPI port to transition the data line on the same clock edge that the display controller read the data line. While this managed to work, the correct SPI mode is now used. Additionally, some improvements were made in the handling of the SPI interface, resulting in better performance of the display driver.

10.9.2 Added MPU region to mpu_fault example for bit-banded SRAM (Reference 12235)

A new MPU region has been added to the mpu_fault example to allow read/write access to bit-banded SRAM. This is required by the updated display driver, which uses the bit-banded SRAM region for storing flags.

10.10 Bug Fixes in EK-LM3S2965 Firmware Package

10.10.1 RIT display driver used wrong SPI mode (Reference 12217)

The display driver for the RIT 128x96 panel on the evaluation board used the wrong SPI mode. This caused the Stellaris SPI port to transition the data line on the same clock edge that the display controller read the data line. While this managed to work, the correct SPI mode is now used. Additionally, some improvements were made in the handling of the SPI interface, resulting in better performance of the display driver.

10.10.2 Added MPU region to mpu_fault example for bit-banded SRAM (Reference 12235)

A new MPU region has been added to the mpu_fault example to allow read/write access to bit-banded SRAM. This is required by the updated display driver, which uses the bit-banded SRAM region for storing flags.

10.11 New Features in EK-LM3S3748 Firmware Package

10.11.1 USB Drivers Now Support Windows 7 32-bit and 64-bit Versions (Reference 11555)

The SW-USB-windrivers-xxxx.zip USB driver package has been updated to support both 32-bit and 64-bit versions of Windows 7. The package includes 64-bit versions of URLs Imusb.dll and lmdfu.dll allowing 64-bit applications to access these interfaces. The Device Firmware Upgrade driver has also been rewritten to use the Microsoft-supplied WINUSB interface rather than libusb-win32 which is not currently fully supported on Windows 7.

10.11.2 Windows tool Visual Studio projects updated to VS2008 (Reference 12138)

The project files included in the tools directory for the various VisualStudio applications and DLLs have been updated to support VisualStudio2008. They were previously for VisualStudio2005.

10.12 Bug Fixes in EK-LM3S3748 Firmware Package

10.12.1 usb_dev_cserial application not properly echoing data (Reference 12049)

The usb_dev_cserial application did not properly handle echo commands to both serial ports. This caused strings longer than 16 bytes or strings with too many spaces to truncate. Both types of strings are now properly echoed on both serial ports.

10.13 New Features in EK-LM3S6965 Firmware Package

10.13.1 fswrapper module added to ek-lm3s6965 release (Reference 12122)

The file system wrapper module, fswrapper, has been added to the utils directory for the ek-lm3s6965 StellarisWare release. This module allows multiple FAT logical disks and/or internal file system images to be viewed as a single namespace with each appearing under its own top level directory name.

10.14 Bug Fixes in EK-LM3S6965 Firmware Package

10.14.1 RIT display driver used wrong SPI mode (Reference 12217)

The display driver for the RIT 128x96 panel on the evaluation board used the wrong SPI mode. This caused the Stellaris SPI port to transition the data line on the same clock edge that the display controller read the data line. While this managed to work, the correct SPI mode is now used. Additionally, some improvements were made in the handling of the SPI interface, resulting in better performance of the display driver.

10.14.2 Added MPU region to mpu_fault example for bit-banded SRAM (Reference 12235)

A new MPU region has been added to the mpu_fault example to allow read/write access to bit-banded SRAM. This is required by the updated display driver, which uses the bit-banded SRAM region for storing flags.

10.15 New Features in EK-LM3S8962 Firmware Package

10.15.1 fswrapper module added to ek-lm3s8962 release (Reference 12126)

The file system wrapper module, fswrapper, has been added to the utils directory for the ek-lm3s8962 StellarisWare release. This module allows multiple FAT logical disks and/or internal file system images to be viewed as a single namespace with each appearing under its own top level directory name.

10.16 Bug Fixes in EK-LM3S8962 Firmware Package

10.16.1 RIT display driver used wrong SPI mode (Reference 12217)

The display driver for the RIT 128x96 panel on the evaluation board used the wrong SPI mode. This caused the Stellaris SPI port to transition the data line on the same clock edge that the display controller read the data line. While this managed to work, the correct SPI mode is now used. Additionally, some improvements were made in the handling of the SPI interface, resulting in better performance of the display driver.

10.16.2 Added MPU region to mpu_fault example for bit-banded SRAM (Reference 12235)

A new MPU region has been added to the mpu_fault example to allow read/write access to bit-banded SRAM. This is required by the updated display driver, which uses the bit-banded SRAM region for storing flags.

10.17 New Features in EK-LM3S9B90 Firmware Package

10.17.1 USB Drivers Now Support Windows 7 32-bit and 64-bit Versions (Reference 11555)

The SW-USB-windrivers-xxxx.zip USB driver package has been updated to support both 32-bit and 64-bit versions of Windows 7. The package includes 64-bit versions of URLs Imusb.dll and lmdfu.dll allowing 64-bit applications to access these interfaces. The Device Firmware Upgrade driver has also been rewritten to use the Microsoft-supplied WINUSB interface rather than libusb-win32 which is not currently fully supported on Windows 7.

10.17.2 Windows tool Visual Studio projects updated to VS2008 (Reference 12138)

The project files included in the tools directory for the various VisualStudio applications and DLLs have been updated to support VisualStudio2008. They were previously for VisualStudio2005.

10.18 Bug Fixes in EK-LM3S9B90 Firmware Package

10.18.1 usb_stick_update would not enumerate drives in all cases. (Reference 12241)

The usb_stick_update only enumerated USB MSC devices if they were present when the application started. The usb_stick_update now properly enumerates devices by forcing the OTG controller to indicate a host connection which allows USB MSC devices to properly enumerate.

10.19 New Features in EK-LM3S9B92 Firmware Package

10.19.1 USB Drivers Now Support Windows 7 32-bit and 64-bit Versions (Reference 11555)

The SW-USB-windrivers-xxxx.zip USB driver package has been updated to support both 32-bit and 64-bit versions of Windows 7. The package includes 64-bit versions of URLs Imusb.dll and lmdfu.dll allowing 64-bit applications to access these interfaces. The Device Firmware Upgrade driver has also been rewritten to use the Microsoft-supplied WINUSB interface rather than libusb-win32 which is not currently fully supported on Windows 7.

10.19.2 Windows tool Visual Studio projects updated to VS2008 (Reference 12138)

The project files included in the tools directory for the various VisualStudio applications and DLLs have been updated to support VisualStudio2008. They were previously for VisualStudio2005.

10.20 Bug Fixes in EK-LM3S9B92 Firmware Package

10.20.1 usb_stick_update would not enumerate drives in all cases. (Reference 12241)

The usb_stick_update only enumerated USB MSC devices if they were present when the application started. The usb_stick_update now properly enumerates devices by forcing the OTG controller

to indicate a host connection which allows USB MSC devices to properly enumerate.

10.21 Bug Fixes in RDK-BDC Firmware Package

10.21.1 Fixed API Class table in documentation (Reference 12172)

The API Class table in the documentation did not take into account the fact that 2 and 6 are presently reserved values. This was corrected, and the table now properly documents the values for the API Class field of the protocol.

10.22 Bug Fixes in RDK-BDC24 Firmware Package

10.22.1 Fixed API Class table in documentation (Reference 12172)

The API Class table in the documentation did not take into account the fact that 2 and 6 are presently reserved values. This was corrected, and the table now properly documents the values for the API Class field of the protocol.

10.23 New Features in RDK-IDM-SBC Firmware Package

10.23.1 Windows tool Visual Studio projects updated to VS2008 (Reference 12138)

The project files included in the tools directory for the various VisualStudio applications and DLLs have been updated to support VisualStudio2008. They were previously for VisualStudio2005.

11 Release Notes for StellarisWare Revision 5961 (May 3, 2010)

New Features for Stellaris Boot Loader	97
Bug Fixes for Stellaris USB Library	97
Bug Fixes for DK-LM3S9B96 Firmware Package	98
Bug Fixes for EK-LM3S3748 Firmware Package	99
Bug Fixes for EK-LM3S9B90 Firmware Package	99
Bug Fixes for EK-LM3S9B92 Firmware Package	100
Bug Fixes for EK-LM3S9B96 Firmware Package	100
New Features for RDK-BDC24 Firmware Package	100
Bug Fixes for RDK-IDM Firmware Package	101
Bug Fixes for RDK-IDM-SBC Firmware Package	101
Bug Fixes for RDK-STEPPER Firmware Package	101
New Features for Stellaris Firmware Development Package	102
Bug Fixes for Stellaris Firmware Development Package	102

11.1 New Features in Stellaris Boot Loader

11.1.1 Added support for unlocking forced update pins (Reference 11970)

The boot loader now has the ability to unlock pins that require it (such as PB7/NMI), allowing those pins to be used as forced update pins.

11.1.2 Added optional MOSCFAIL handler to boot loader (Reference 12014)

An optional MOSCFAIL handler has been added to the boot loader to allow proper operation of the MOSC failure detection capability of certain Stellaris microcontrollers. This is enabled via `ENABLE_MOSCFAIL_HANDLER` in `bl_config.h`. See the corresponding Stellaris microcontroller data sheet to determine if the device you are using supports MOSC failure detection.

11.2 Bug Fixes in Stellaris USB Library

11.2.1 USB Device CDC had incorrect Configuration Descriptor (Reference 11993)

The USB CDC Serial device class had an incorrect configuration descriptor that was causing some operating systems to not recognize the device. The CDC serial device now properly has two interfaces, one for control and one for data.

11.2.2 The USB Host Pipe Read/Write functions improperly handle STALL (Reference 12024)

The USBHCDPipeWrite() and USBHCDPipeRead() functions both failed to handle stall conditions on endpoints other than zero. This caused the USB library to falsely enter the status phase when it should have terminated the stalled transaction.

11.2.3 USBOTGModelInit() causes ASSERT in debug builds (Reference 12030)

The USBOTGModelInit() function called the USBHostPwrConfig() DriverLib API with bits set that did not have meaning in the USBHostPwrConfig() API which caused it to ASSERT and halt in debug builds. The USBHostPwrConfig() has been replaced with a call to a new API USBHCDPowerConfigSet() which correctly sets the power configuration.

11.3 Bug Fixes in DK-LM3S9B96 Firmware Package

11.3.1 Hang in qs-checkout if run with FS8 daughter containing non-file system image (Reference 11976)

The qs-checkout example application could hang if run on a board equipped with the Flash/SRAM/LCD daughter board where the daughter board flash contained data other than a valid file system image. The application now correctly checks for a valid file system image header before trying to access the data.

11.3.2 Internal pull-ups removed from EPI pin configuration (Reference 12019)

The configuration used for each Extended Peripheral Interface pin in set_pinout.c has been changed to remove the internal weak pull-ups since these are not required.

11.3.3 FPGA daughter board initialization problem on power-on-reset (Reference 12034)

In the previous code release, the FPGA/Camera/LCD daughter board would often not initialize correctly after a power-on-reset, requiring the user to press the "Reset" button to restart the application. This problem is due to the fact that the FPGA is configured to pull unconfigured pins up rather than down. The ready signal on PJ6/EPI30 was a low to high transition on one of those pins so this was masked by the fact that the pin was already high. To work around the problem, the initialization code no longer polls PJ6 looking for a rising edge but, instead, delays 600mS after resetting the FPGA and before accessing any of its registers.

11.4 Bug Fixes in EK-LM3S3748 Firmware Package

11.4.1 USB host mass storage applications generate errors on slower devices (Reference 11689)

The applications that use the USB host mass storage class can generate errors if they attempt to access the USB device before it is ready. These applications now ensure that the USB mass storage device is ready before attempting access by the application.

11.4.2 `usb_stick_update` application can timeout on retries (Reference 12025)

The `usb_stick_update` application was only attempting to initialize the USB mass storage device 5 time before giving up. On some larger devices the start up time was much larger than this so the retry count was increased to infinite. The loop is now infinite because the application was previously returning and executing a different infinite loop.

11.5 Bug Fixes in EK-LM3S9B90 Firmware Package

11.5.1 USB host mass storage applications generate errors on slower devices (Reference 11689)

The applications that use the USB host mass storage class can generate errors if they attempt to access the USB device before it is ready. These applications now ensure that the USB mass storage device is ready before attempting access by the application.

11.5.2 `usb_stick_update` application can timeout on retries (Reference 12025)

The `usb_stick_update` application was only attempting to initialize the USB mass storage device 5 time before giving up. On some larger devices the start up time was much larger than this so the retry count was increased to infinite. The loop is now infinite because the application was previously returning and executing a different infinite loop.

11.6 Bug Fixes in EK-LM3S9B92 Firmware Package

11.6.1 USB host mass storage applications generate errors on slower devices (Reference 11689)

The applications that use the USB host mass storage class can generate errors if they attempt to access the USB device before it is ready. These applications now ensure that the USB mass storage device is ready before attempting access by the application.

11.6.2 `usb_stick_update` application can timeout on retries (Reference 12025)

The `usb_stick_update` application was only attempting to initialize the USB mass storage device 5 time before giving up. On some larger devices the start up time was much larger than this so the retry count was increased to infinite. The loop is now infinite because the application was previously returning and executing a different infinite loop.

11.7 Bug Fixes in EK-LM3S9B96 Firmware Package

11.7.1 USB host mass storage applications generate errors on slower devices (Reference 11689)

The applications that use the USB host mass storage class can generate errors if they attempt to access the USB device before it is ready. These applications now ensure that the USB mass storage device is ready before attempting access by the application.

11.7.2 `usb_stick_update` application can timeout on retries (Reference 12025)

The `usb_stick_update` application was only attempting to initialize the USB mass storage device 5 time before giving up. On some larger devices the start up time was much larger than this so the retry count was increased to infinite. The loop is now infinite because the application was previously returning and executing a different infinite loop.

11.8 New Features in RDK-BDC24 Firmware Package

11.8.1 Source Code for `bdc-comm` now available (Reference 12018)

With this release the source code for `bdc-comm` is now available in the release package. The source code is located in the `tools/bdc-comm` directory and includes a Makefile to build the project.

11.9 Bug Fixes in RDK-IDM Firmware Package

11.9.1 Motor speed updates not displayed in bldc_ctrl example (Reference 11826)

The bldc_ctrl example for RDK-IDM previously failed to send a command to the motor to request automatic rotor speed updates. This resulted in the current speed not being displayed even though the motor was running. This has now been corrected.

11.10 Bug Fixes in RDK-IDM-SBC Firmware Package

11.10.1 USB host mass storage applications generate errors on slower devices (Reference 11689)

The applications that use the USB host mass storage class can generate errors if they attempt to access the USB device before it is ready. These applications now ensure that the USB mass storage device is ready before attempting access by the application.

11.10.2 usb_stick_update application can timeout on retries (Reference 12025)

The usb_stick_update application was only attempting to initialize the USB mass storage device 5 times before giving up. On some larger devices the start up time was much larger than this so the retry count was increased to infinite. The loop is now infinite because the application was previously returning and executing a different infinite loop.

11.11 Bug Fixes in RDK-STEPPER Firmware Package

11.11.1 Fix rare stepper deceleration problem (Reference 11969)

Under a very specific combination of settings, the stepper may not decelerate correctly. This has been fixed.

11.12 New Features in Stellaris Firmware Development Package

11.12.1 Added new set of example applications that are not specific to any board (Reference 12013)

New examples have been added and can be found in the “examples” directory. These examples are not specific to any board and are meant to demonstrate one specific feature or mode of a peripheral. There is also a new document summarizing these examples in the “docs” directory.

11.13 Bug Fixes in Stellaris Firmware Development Package

11.13.1 Corrected uVision 3 project files (Reference 11990)

The Keil uVision 3 project files failed to list the part number, memory size, flash programming algorithm, and so on. These have been corrected.

12 Release Notes for StellarisWare Revision 5879 (April 14, 2010)

New Features for Stellaris USB Library	103
Bug Fixes for Stellaris USB Library	103
Bug Fixes for DK-LM3S9B96 Firmware Package	104
Bug Fixes for EK-LM3S3748 Firmware Package	104
New Features for EK-LM3S6965 Firmware Package	105
Bug Fixes for EK-LM3S6965 Firmware Package	105
Bug Fixes for EK-LM3S8962 Firmware Package	105
Bug Fixes for EK-LM3S9B90 Firmware Package	106
Bug Fixes for EK-LM3S9B92 Firmware Package	106
Bug Fixes for EK-LM3S9B96 Firmware Package	107
Bug Fixes for RDK-BLDC Firmware Package	107
Bug Fixes for RDK-IDM Firmware Package	107
Bug Fixes for RDK-IDM-L35 Firmware Package	108
Bug Fixes for RDK-IDM-SBC Firmware Package	108
Bug Fixes for RDK-S2E Firmware Package	109
Bug Fixes for Stellaris Firmware Development Package	109

12.1 New Features in Stellaris USB Library

12.1.1 Added USB Composite Device support (Reference 11721)

This version of the Stellaris USB library adds support for using multiple USB device classes in a single composite device. The USB library documentation includes more details covering how to use this new feature.

12.2 Bug Fixes in Stellaris USB Library

12.2.1 USBHCDPipeRead() returns 0 bytes in some cases (Reference 11880)

In cases where USBHCDPipeRead() is attempting to read packets of less than 64 bytes, the function will return that it has read 0 bytes. The USBHCDPipeRead() function will now properly set the number of bytes read instead of always returning zero bytes for packets that are less than 64 bytes.

12.3 Bug Fixes in DK-LM3S9B96 Firmware Package

12.3.1 Display initialization parameters updated (Reference 11884)

The initialization parameters for the Kitronix 3.5" display on the IDM-SBC, IDM-L35 and DK-LM3S9B96 boards have been updated to reflect recommendations received from the display manufacturer.

12.3.2 Shorten time to select link-local address in lwIP applications (Reference 11908)

In lwIP 1.3.1, the time delay between DHCP discover messages was changed from a linear delay to an exponential delay (to conform with the relevant standards). This results in a longer amount of time (around 4 minutes) before a link-local address is chosen instead of a DHCP-assigned address since this occurs after a set number of DHCP discover messages. Therefore, the lwipopts.h for each lwIP application now sets LWIP_DHCP_AUTOIP_COOP_TRIES to 5 (instead of its default 9) so that the link local address is chosen after around 40 seconds.

12.3.3 USB CDC serial device examples incorrectly responding to Get Line Coding (Reference 11767)

When sending a response to the Get Line Coding request, the GetLineCoding() function was returning data directly to endpoint 0 instead of allowing the USB library to send the data. This could generate multiple IN data packets to the host and cause the library to get out of sync.

12.4 Bug Fixes in EK-LM3S3748 Firmware Package

12.4.1 Missing files added to tools/lmscope (Reference 11869)

Four source files required to build the lmscope Windows example application were inadvertently omitted in previous StellarisWare releases. These files, lmusbwrap.cpp, lmusbwrap.h, TI_Symbol.bmp and TILogo.bmp, have now been added to the release.

12.4.2 USB CDC serial device examples incorrectly responding to Get Line Coding (Reference 11767)

When sending a response to the Get Line Coding request, the GetLineCoding() function was returning data directly to endpoint 0 instead of allowing the USB library to send the data. This could generate multiple IN data packets to the host and cause the library to get out of sync.

12.5 New Features in EK-LM3S6965 Firmware Package

12.5.1 boot_demo_eth example application added. (Reference 11910)

The boot_demo_eth example application, illustrating the use of the swupdate module, has been added to ek-lm3s9b96 and ek-lm3s6965 releases of StellarisWare. The swupdate module is used in conjunction with the Ethernet boot loader to signal to the application when a firmware update request is received from LMFlash.

12.6 Bug Fixes in EK-LM3S6965 Firmware Package

12.6.1 Shorten time to select link-local address in lwIP applications (Reference 11908)

In lwIP 1.3.1, the time delay between DHCP discover messages was changed from a linear delay to an exponential delay (to conform with the relevant standards). This results in a longer amount of time (around 4 minutes) before a link-local address is chosen instead of a DHCP-assigned address since this occurs after a set number of DHCP discover messages. Therefore, the lwipopts.h for each lwIP application now sets LWIP_DHCP_AUTOIP_COOP_TRIES to 5 (instead of its default 9) so that the link local address is chosen after around 40 seconds.

12.6.2 HTTP/SSI Performance Improvement (Reference 11935)

A misplaced “return” instruction inside the SSI handling state machine of the lwIP HTTP server caused each SSI insert to be returned to the client in a single TCP packet, reducing performance. Removing this allows the server to buffer up as many SSI inserts as can be handled in the available TCP send buffer before sending them as a single packet, thus improving performance when serving pages containing many SSI tags.

12.7 Bug Fixes in EK-LM3S8962 Firmware Package

12.7.1 Shorten time to select link-local address in lwIP applications (Reference 11908)

In lwIP 1.3.1, the time delay between DHCP discover messages was changed from a linear delay to an exponential delay (to conform with the relevant standards). This results in a longer amount of time (around 4 minutes) before a link-local address is chosen instead of a DHCP-assigned address since this occurs after a set number of DHCP discover messages. Therefore, the lwipopts.h for each lwIP application now sets LWIP_DHCP_AUTOIP_COOP_TRIES to 5 (instead of its default 9) so that the link local address is chosen after around 40 seconds.

12.7.2 HTTP/SSI Performance Improvement (Reference 11935)

A misplaced “return” instruction inside the SSI handling state machine of the lwIP HTTP server caused each SSI insert to be returned to the client in a single TCP packet, reducing performance. Removing this allows the server to buffer up as many SSI inserts as can be handled in the available TCP send buffer before sending them as a single packet, thus improving performance when serving pages containing many SSI tags.

12.8 Bug Fixes in EK-LM3S9B90 Firmware Package

12.8.1 Shorten time to select link-local address in lwIP applications (Reference 11908)

In lwIP 1.3.1, the time delay between DHCP discover messages was changed from a linear delay to an exponential delay (to conform with the relevant standards). This results in a longer amount of time (around 4 minutes) before a link-local address is chosen instead of a DHCP-assigned address since this occurs after a set number of DHCP discover messages. Therefore, the lwipopts.h for each lwIP application now sets LWIP_DHCP_AUTOIP_COOP_TRIES to 5 (instead of its default 9) so that the link local address is chosen after around 40 seconds.

12.8.2 USB CDC serial device examples incorrectly responding to Get Line Coding (Reference 11767)

When sending a response to the Get Line Coding request, the GetLineCoding() function was returning data directly to endpoint 0 instead of allowing the USB library to send the data. This could generate multiple IN data packets to the host and cause the library to get out of sync.

12.8.3 HTTP/SSI Performance Improvement (Reference 11935)

A misplaced “return” instruction inside the SSI handling state machine of the lwIP HTTP server caused each SSI insert to be returned to the client in a single TCP packet, reducing performance. Removing this allows the server to buffer up as many SSI inserts as can be handled in the available TCP send buffer before sending them as a single packet, thus improving performance when serving pages containing many SSI tags.

12.9 Bug Fixes in EK-LM3S9B92 Firmware Package

12.9.1 Shorten time to select link-local address in lwIP applications (Reference 11908)

In lwIP 1.3.1, the time delay between DHCP discover messages was changed from a linear delay to an exponential delay (to conform with the relevant standards). This results in a longer amount of

time (around 4 minutes) before a link-local address is chosen instead of a DHCP-assigned address since this occurs after a set number of DHCP discover messages. Therefore, the lwipopts.h for each lwIP application now sets LWIP_DHCP_AUTOIP_COOP_TRIES to 5 (instead of its default 9) so that the link local address is chosen after around 40 seconds.

12.9.2 USB CDC serial device examples incorrectly responding to Get Line Coding (Reference 11767)

When sending a response to the Get Line Coding request, the GetLineCoding() function was returning data directly to endpoint 0 instead of allowing the USB library to send the data. This could generate multiple IN data packets to the host and cause the library to get out of sync.

12.10 Bug Fixes in EK-LM3S9B96 Firmware Package

12.10.1 HTTP/SSI Performance Improvement (Reference 11935)

A misplaced “return” instruction inside the SSI handling state machine of the lwIP HTTP server caused each SSI insert to be returned to the client in a single TCP packet, reducing performance. Removing this allows the server to buffer up as many SSI inserts as can be handled in the available TCP send buffer before sending them as a single packet, thus improving performance when serving pages containing many SSI tags.

12.11 Bug Fixes in RDK-BLDC Firmware Package

12.11.1 Shorten time to select link-local address in lwIP applications (Reference 11908)

In lwIP 1.3.1, the time delay between DHCP discover messages was changed from a linear delay to an exponential delay (to conform with the relevant standards). This results in a longer amount of time (around 4 minutes) before a link-local address is chosen instead of a DHCP-assigned address since this occurs after a set number of DHCP discover messages. Therefore, the lwipopts.h for each lwIP application now sets LWIP_DHCP_AUTOIP_COOP_TRIES to 5 (instead of its default 9) so that the link local address is chosen after around 40 seconds.

12.12 Bug Fixes in RDK-IDM Firmware Package

12.12.1 Shorten time to select link-local address in lwIP applications (Reference 11908)

In lwIP 1.3.1, the time delay between DHCP discover messages was changed from a linear delay to an exponential delay (to conform with the relevant standards). This results in a longer amount of

time (around 4 minutes) before a link-local address is chosen instead of a DHCP-assigned address since this occurs after a set number of DHCP discover messages. Therefore, the lwipopts.h for each lwIP application now sets LWIP_DHCP_AUTOIP_COOP_TRIES to 5 (instead of its default 9) so that the link local address is chosen after around 40 seconds.

12.12.2 HTTP/SSI Performance Improvement (Reference 11935)

A misplaced “return” instruction inside the SSI handling state machine of the lwIP HTTP server caused each SSI insert to be returned to the client in a single TCP packet, reducing performance. Removing this allows the server to buffer up as many SSI inserts as can be handled in the available TCP send buffer before sending them as a single packet, thus improving performance when serving pages containing many SSI tags.

12.13 Bug Fixes in RDK-IDM-L35 Firmware Package

12.13.1 Display initialization parameters updated (Reference 11884)

The initialization parameters for the Kitronix 3.5" display on the IDM-SBC, IDM-L35 and DK-LM3S9B96 boards have been updated to reflect recommendations received from the display manufacturer.

12.14 Bug Fixes in RDK-IDM-SBC Firmware Package

12.14.1 Fix LocatorAppTitleSet strings (Reference 11829)

The application string for a couple of the RDK-IDM-SBC applications had a cut-and-paste error. These strings were fixed to reflect the correct application name.

12.14.2 Display initialization parameters updated (Reference 11884)

The initialization parameters for the Kitronix 3.5" display on the IDM-SBC, IDM-L35 and DK-LM3S9B96 boards have been updated to reflect recommendations received from the display manufacturer.

12.14.3 Shorten time to select link-local address in lwIP applications (Reference 11908)

In lwIP 1.3.1, the time delay between DHCP discover messages was changed from a linear delay to an exponential delay (to conform with the relevant standards). This results in a longer amount of time (around 4 minutes) before a link-local address is chosen instead of a DHCP-assigned address since this occurs after a set number of DHCP discover messages. Therefore, the lwipopts.h for

each lwIP application now sets LWIP_DHCP_AUTOIP_COOP_TRIES to 5 (instead of its default 9) so that the link local address is chosen after around 40 seconds.

12.14.4 HTTP/SSI Performance Improvement (Reference 11935)

A misplaced “return” instruction inside the SSI handling state machine of the lwIP HTTP server caused each SSI insert to be returned to the client in a single TCP packet, reducing performance. Removing this allows the server to buffer up as many SSI inserts as can be handled in the available TCP send buffer before sending them as a single packet, thus improving performance when serving pages containing many SSI tags.

12.15 Bug Fixes in RDK-S2E Firmware Package

12.15.1 Shorten time to select link-local address in lwIP applications (Reference 11908)

In lwIP 1.3.1, the time delay between DHCP discover messages was changed from a linear delay to an exponential delay (to conform with the relevant standards). This results in a longer amount of time (around 4 minutes) before a link-local address is chosen instead of a DHCP-assigned address since this occurs after a set number of DHCP discover messages. Therefore, the lwipopts.h for each lwIP application now sets LWIP_DHCP_AUTOIP_COOP_TRIES to 5 (instead of its default 9) so that the link local address is chosen after around 40 seconds.

12.15.2 HTTP/SSI Performance Improvement (Reference 11935)

A misplaced “return” instruction inside the SSI handling state machine of the lwIP HTTP server caused each SSI insert to be returned to the client in a single TCP packet, reducing performance. Removing this allows the server to buffer up as many SSI inserts as can be handled in the available TCP send buffer before sending them as a single packet, thus improving performance when serving pages containing many SSI tags.

12.16 Bug Fixes in Stellaris Firmware Development Package

12.16.1 Clarify parameter block size requirements in FlashPBlInit() (Reference 11888)

The flash parameter block size requirements were clarified to indicate that parameter flash storage size divided by the parameter block size (in other words, the number of parameter block instances that can be stored in flash) must be less than or equal to 128.

13 Release Notes for StellarisWare Revision 5821 (March 29, 2010)

New Features for Stellaris Peripheral Driver Library	111
Bug Fixes for Stellaris Peripheral Driver Library	112
Bug Fixes for Stellaris Utility Library	112
Bug Fixes for DK-LM3S9B96 Firmware Package	113
Bug Fixes for EK-LM3S3748 Firmware Package	113
Bug Fixes for EK-LM3S9B90 Firmware Package	114
Bug Fixes for EK-LM3S9B92 Firmware Package	115
Bug Fixes for RDK-BDC Firmware Package	115
Bug Fixes for RDK-BDC24 Firmware Package	116
Bug Fixes for RDK-IDM Firmware Package	116
Bug Fixes for Stellaris Firmware Development Package	117

13.1 New Features in Stellaris Peripheral Driver Library

13.1.1 Added TimerPrescaleMatchSet and TimerPrescaleMatchGet (Reference 11711)

The TimerPrescaleMatchSet and TimerPrescaleMatchGet APIs were added to the timer driver to allow the prescale match functionality that is available in newer parts to be accessed.

13.1.2 Added new part specific headers (Reference 11755)

This release added new part specific headers for LM3S3634, LM3S1P51, LM3S1R21, and LM3S1651.

13.1.3 Added ADCPhaseDelaySet and ADCPhaseDelayGet to ADC driver (Reference 11770)

The ADCPhaseDelaySet and ADCPhaseDelayGet APIs were added to allow the phase delay between multiple ADC modules to be controlled. With phase delay and more than one ADC module sampling the same input, each can sample at different times, effectively doubling the sampling frequency of the analog input.

13.1.4 Add ability to synchronize the ADC processor trigger (Reference 11769)

The ADCProcessorTrigger API was extended to allow a processor trigger to be sent to multiple ADC modules in a synchronous manner. Each module is individually triggered, which each being

told to wait to handle the trigger until a synchronization signal.

13.1.5 Added GPIOPinTypeEPI to GPIO driver (Reference 9972)

The GPIOPinTypeEPI API has been added to the GPIO driver. It provides a typical configuration of a pin for use by the EPI module.

13.1.6 Added ROM call definitions for Tempest-class revision C1 (Reference 11783)

Definitions were added to driverlib/rom.h and driverlib/rom_map.h to allow functions in ROM to be called on revision C1 of the Tempest-class parts.

13.2 Bug Fixes in Stellaris Peripheral Driver Library

13.2.1 FlashIntGetStatus() renamed FlashIntStatus() (Reference 11698)

To conform to the naming convention used in all other DriverLib peripheral APIs, the function FlashIntGetStatus() has been renamed FlashIntStatus(). A definition has been added to flash.h to ensure that code using the previous function name will still build but please note that the previous function name is deprecated and may be removed at some point in the future. Two new defines, FLASH_INT_PROGRAM and FLASH_INT_ERASE, have also been added to flash.h for use by the various interrupt-related functions and the documentation for these functions updated to show the correct valid parameter values.

13.2.2 SysCtlADCSpeedSet now sets the speed of ADC1 (Reference 11768)

Previous, SysCtlADCSpeedSet would set the sample rate of ADC0 to the requested speed and unconditionally set ADC1 to 125 ksps. Now, it will set both ADCs to the requested speed.

13.3 Bug Fixes in Stellaris Utility Library

13.3.1 Add missing timer callbacks to lwiplib (Reference 11696)

Support for timer callbacks for IGMP, IP Reassembly, and DNS were missing from the lwiplib.c timer service routine. Add support for these timer callbacks to the timer service routine for the case where no RTOS is being supported. If an RTOS is being used, these routines are already supported properly in the TCP thread.

13.4 Bug Fixes in DK-LM3S9B96 Firmware Package

13.4.1 In `usb_stick_demo`, delay call to `usb_stick_update` until button is released (Reference 11692)

Previously, `usb_stick_demo` would call `usb_stick_update` as soon as the push button is pressed. It is possible for the update to occur prior to the button being released, in which case the update will occur again since `usb_stick_update` uses the pressed state of the button as a signal to update instead of calling the application. Now, `usb_stick_update` is not called until the button is pressed and then released, removing this possibility.

13.4.2 Example `boot_eth_ext` failed to write flash. (Reference 11798)

Due to a recent change which prevented the Ethernet boot loader from writing past the end of internal flash, the external flash boot loader example in release 5727 was unable to write to the EPI address space at `0x60000000`. This has been corrected and the example works correctly once again.

13.4.3 Web server performance improved in `safertos_demo`. (Reference 11685)

Resource allocation for lwIP was increased to improve the performance of the web server in the `safertos_demo` example application. Prior to this change, load times for the lwIP statistics page served by the application were extremely long when using some browsers including Firefox for Windows.

13.4.4 `USB_VID_LUMINARY` replaced with `USB_VID_STELLARIS` (Reference 11808)

The label `USB_VID_LUMINARY`, defining the USB vendor ID for Luminary Micro, has been replaced by `USB_VID_STELLARIS`. The new label is defined to the same value as the one it replaces, namely `0x1cbe`. The previous label remains defined in header file `usb-ids.h` but is marked as deprecated.

13.5 Bug Fixes in EK-LM3S3748 Firmware Package

13.5.1 In `usb_stick_demo`, delay call to `usb_stick_update` until button is released (Reference 11692)

Previously, `usb_stick_demo` would call `usb_stick_update` as soon as the push button is pressed. It is possible for the update to occur prior to the button being released, in which case the update

will occur again since `usb_stick_update` uses the pressed state of the button as a signal to update instead of calling the application. Now, `usb_stick_update` is not called until the button is pressed and then released, removing this possibility.

13.5.2 USB_VID_LUMINARY replaced with USB_VID_STELLARIS (Reference 11808)

The label `USB_VID_LUMINARY`, defining the USB vendor ID for Luminary Micro, has been replaced by `USB_VID_STELLARIS`. The new label is defined to the same value as the one it replaces, namely `0x1cbe`. The previous label remains defined in header file `usb-ids.h` but is marked as deprecated.

13.6 Bug Fixes in EK-LM3S9B90 Firmware Package

13.6.1 In `usb_stick_demo`, delay call to `usb_stick_update` until button is released (Reference 11692)

Previously, `usb_stick_demo` would call `usb_stick_update` as soon as the push button is pressed. It is possible for the update to occur prior to the button being released, in which case the update will occur again since `usb_stick_update` uses the pressed state of the button as a signal to update instead of calling the application. Now, `usb_stick_update` is not called until the button is pressed and then released, removing this possibility.

13.6.2 Added explicit `GPIOPinConfigure` calls to examples (Reference 11733)

Explicit `GPIOPinConfigure` calls for the UART pins were added to all the example application to help clarify the requirement to use this call to configure the pins. While not required for `UART0` (since it is the default configuration of those pins), it would be required if the code was used as a basis for something that uses `UART1`.

13.6.3 USB_VID_LUMINARY replaced with USB_VID_STELLARIS (Reference 11808)

The label `USB_VID_LUMINARY`, defining the USB vendor ID for Luminary Micro, has been replaced by `USB_VID_STELLARIS`. The new label is defined to the same value as the one it replaces, namely `0x1cbe`. The previous label remains defined in header file `usb-ids.h` but is marked as deprecated.

13.7 Bug Fixes in EK-LM3S9B92 Firmware Package

13.7.1 In `usb_stick_demo`, delay call to `usb_stick_update` until button is released (Reference 11692)

Previously, `usb_stick_demo` would call `usb_stick_update` as soon as the push button is pressed. It is possible for the update to occur prior to the button being released, in which case the update will occur again since `usb_stick_update` uses the pressed state of the button as a signal to update instead of calling the application. Now, `usb_stick_update` is not called until the button is pressed and then released, removing this possibility.

13.7.2 Added explicit `GPIOPinConfigure` calls to examples (Reference 11733)

Explicit `GPIOPinConfigure` calls for the UART pins were added to all the example application to help clarify the requirement to use this call to configure the pins. While not required for UART0 (since it is the default configuration of those pins), it would be required if the code was used as a basis for something that uses UART1.

13.7.3 `USB_VID_LUMINARY` replaced with `USB_VID_STELLARIS` (Reference 11808)

The label `USB_VID_LUMINARY`, defining the USB vendor ID for Luminary Micro, has been replaced by `USB_VID_STELLARIS`. The new label is defined to the same value as the one it replaces, namely 0x1cbe. The previous label remains defined in header file `usb-ids.h` but is marked as deprecated.

13.8 Bug Fixes in RDK-BDC Firmware Package

13.8.1 Corrected speed sensing when driving in the negative direction (Reference 11752)

When driving the motor in the negative direction, the sensed motor speed would occasionally appear to the PID loop as a positive speed despite the fact that the motor is turning in the negative direction. This has been corrected, providing better PID loop performance in the reverse direction (it is now symmetrical to the forward direction).

13.8.2 Prevent roll over in the PID integrator (Reference 11753)

When presented with a large error term, it was possible for the integrator in the PID loop to roll over (from positive to negative or negative to positive), causing the PID loop to fail to control the motor as expected. This roll over is now prevented and the PID loop behaves as expected.

13.8.3 Corrected current sensing when driving in the negative direction (Reference 11797)

When driving the motor in the negative direction, the sensed motor current would occasionally appear to the PID loop as a positive current despite the fact that the motor is turning in the negative direction. This has been corrected, providing better PID loop performance in the reverse direction (it is now symmetrical to the forward direction).

13.9 Bug Fixes in RDK-BDC24 Firmware Package

13.9.1 Corrected speed sensing when driving in the negative direction (Reference 11752)

When driving the motor in the negative direction, the sensed motor speed would occasionally appear to the PID loop as a positive speed despite the fact that the motor is turning in the negative direction. This has been corrected, providing better PID loop performance in the reverse direction (it is now symmetrical to the forward direction).

13.9.2 Prevent roll over in the PID integrator (Reference 11753)

When presented with a large error term, it was possible for the integrator in the PID loop to roll over (from positive to negative or negative to positive), causing the PID loop to fail to control the motor as expected. This roll over is now prevented and the PID loop behaves as expected.

13.9.3 Corrected current sensing when driving in the negative direction (Reference 11797)

When driving the motor in the negative direction, the sensed motor current would occasionally appear to the PID loop as a positive current despite the fact that the motor is turning in the negative direction. This has been corrected, providing better PID loop performance in the reverse direction (it is now symmetrical to the forward direction).

13.10 Bug Fixes in RDK-IDM Firmware Package

13.10.1 bldc_ctrl example rebranded (Reference 11713)

The bldc_ctrl example has been updated to show Texas Instruments branding in place of the previous Luminary Micro text and logo.

13.11 Bug Fixes in Stellaris Firmware Development Package

13.11.1 Modified CCS linker command file to ensure proper location of vtable (Reference 11710)

If the application used dynamic interrupt registration (through an IntRegister function), sometimes the vector table in RAM (vtable) would not be located correctly. This only affected CCS projects and only if the vtable was used which is not usual. This problem has been fixed by explicitly setting the location of vtable in the linker command file.

14 Release Notes for StellarisWare Revision 5727 (March 2, 2010)

Bug Fixes for Stellaris Boot Loader	119
New Features for Stellaris Peripheral Driver Library	119
Bug Fixes for Stellaris Peripheral Driver Library	120
New Features for Third Party Packages	120
Bug Fixes for Third Party Packages	120
New Features for Stellaris USB Library	121
Bug Fixes for Stellaris USB Library	121
New Features for Stellaris Utility Library	122
Bug Fixes for Stellaris Utility Library	122
Bug Fixes for DK-LM3S9B96 Firmware Package	123
Bug Fixes for EK-LM3S3748 Firmware Package	123
Bug Fixes for EK-LM3S6965 Firmware Package	123
Bug Fixes for EK-LM3S8962 Firmware Package	124
Bug Fixes for EK-LM3S9B90 Firmware Package	124
Bug Fixes for EK-LM3S9B92 Firmware Package	125
Bug Fixes for RDK-BDC Firmware Package	125
Bug Fixes for RDK-IDM Firmware Package	125
Bug Fixes for RDK-IDM-SBC Firmware Package	126
Bug Fixes for RDK-S2E Firmware Package	126
New Features for Stellaris Firmware Development Package	127
Bug Fixes for Stellaris Firmware Development Package	127

14.1 Bug Fixes in Stellaris Boot Loader

14.1.1 Ethernet boot loader fails to ACK last packet in some cases (Reference 11552)

When the last portion of a file being transferred via TFTP is contained in a full data packet of 512 bytes, an additional empty data packet is subsequently sent to indicate that the transfer has completed. When this occurs at the end of Flash, the empty packet was incorrectly responded to with an error packet instead of an ACK packet. It will now be ACKed, allowing the TFTP server (such as eflash) to properly detect the end of the transfer.

14.2 New Features in Stellaris Peripheral Driver Library

14.2.1 New automatic and manual USB power control (Reference 11469)

The USB DriverLib power configuration function was not allowing the Stellaris USB controller to automatically power VBUS in OTG mode and was forcing the application or USB library to use a manual power method. Since the manual power method is still desirable and allows an ap-

plication to use it's own method to power VBUS, this mode remains and new mode was added to allow the USB controller full control over powering VBUS. This change added the new USBHostPwrConfig() power configuration function that replaces the old USBHostPwrFaultConfig() function. The old USB_HOST_PWREN_* values and the USBHostPwrFaultConfig() function have been deprecated and new values have been added to use with the new USBHostPwrConfig() function. The USB_HOST_PWREN_MAN_LOW and USB_HOST_PWREN_MAN_HIGH allow the application to control when power is applied to VBUS and USB_HOST_PWREN_AUTOLOW and USB_HOST_PWREN_AUTOHIGH will allow the USB OTG controller to have full control over powering to VBUS.

14.2.2 Add ADC functions to support use of an external reference (Reference 11494)

Added two new ADC functions, ADCReferenceSet() and ADCReferenceGet(). These can be used to select internal or external reference for those parts that support an external reference.

14.3 Bug Fixes in Stellaris Peripheral Driver Library

14.3.1 uDMA function uDMAChannelSizeGet() was returning the wrong value for completed transfers (Reference 11632)

When all of the items had been transferred and the transfer was complete, this function was returning a 1 when it should have returned a 0. This has now been fixed. For all other conditions, this function was returning the correct value.

14.4 New Features in Third Party Packages

14.4.1 Upgraded to FLTK 1.1.10 (Reference 11551)

The FLTK host toolkit was upgraded from version 1.1.9 to 1.1.10, and the applications which use it updated as well. This avoid the compile errors seen with some flavors of Linux when using 1.1.9 (therefore allowing the host utilities that use FLTK to build under Linux).

14.5 Bug Fixes in Third Party Packages

14.5.1 Explicit casts added to lwIP TCP_SEQ_LT/LTE/GT/GTE macros (Reference 11600)

Explicit casts have been added to the parameters passed to the TCP_SEQ_LT, TCP_SEQ_LTE, TCP_SEQ_GT and TCP_SEQ_GTE macros in lwIP header file tcp.h to ensure that these versions

behave the same way as the original macros regardless of whether they are passed signed or unsigned values. These macros were replaced in the previous release to work around an IAR 5.41 compiler bug. The edit will be removed once a toolchain fix is available.

14.6 New Features in Stellaris USB Library

14.6.1 Added the ability to use the USB VBUS filter (Reference 11339)

Some Stellaris microcontrollers with USB OTG functionality have the ability to ignore short dips in VBUS. These momentary dips are usually caused by inrush current to a device and can drop VBUS below VBUS valid. When VBUS drops below VBUS valid level the USB OTG controller will exit host mode and drop VBUS to below session valid level and attempt to power the device again. The VBUS filter is enabled by calling the USBHostPwrConfig() function with the USB_HOST_PWREN_FILTER bit set.

14.6.2 Added Isochronous Host controller support to USB Library (Reference 11528)

The USB library did not have support for using the Host controller with Isochronous devices. This update adds support for USB Isochronous Audio devices and provides an example of how to enumerate other USB Isochronous devices and interact with Isochronous IN and OUT endpoints. See the USB library documentation for more information on using the USB Host Isochronous audio class.

14.6.3 Added new function to allocate FIFO to an endpoint (Reference 11557)

The USBHCDPipeAlloc() was the only method used to allocate USB FIFO memory to endpoints and used a fixed allocation of 64 bytes per endpoint. To work with endpoints that have larger FIFO requirements, like Isochronous endpoints, a new USBHCDPipeAllocSize() function was added that adds a size parameter to attempt to allocate memory to an endpoint. This allows Isochronous endpoints to allocate up to 1024 bytes to a single endpoint while still allowing Bulk, Interrupt and Control endpoints to use the standard 64 byte FIFOs.

14.7 Bug Fixes in Stellaris USB Library

14.7.1 USBlib overwrites power configuration in OTG mode (Reference 11338)

When using OTG mode, usbllib was using a fixed setting for the power control pins and ignoring the application supplied settings. OTG mode now correctly uses the settings that the application provides to usbllib.

14.7.2 USB Control requests can hang on error (Reference 11326)

If an error state occurs on USB control request to endpoint 0, it could cause the USB library to hang while attempting to enumerate a USB device. The control requests to endpoint 0 will now terminate in the event of an error and allow the USB library and an application to respond to the error. This issue could affect any USB device during enumeration, however it was having a more obvious effect on some USB Mass Storage devices.

14.7.3 Host enumeration was incorrectly requesting a zero byte packet (Reference 11517)

The USB library host enumeration code was incorrectly requesting an extra zero length packet when reading descriptors from a USB device. This could cause the device to Stall the transaction and the USB library would then fail to enumerate the device. This only happened when a USB device had any 64 byte aligned descriptors.

14.8 New Features in Stellaris Utility Library

14.8.1 Added features to bdc-comm (Reference 11321)

Several new features have been added to the bdc-comm GUI. There is now a mechanism for recovering a MDL-BDC or MDL-BDC24 that has had the incorrect firmware programmed into it (accessed via the File->Recover Device menu item). It is now possible to assign device IDs to a MDL-BDC or MDL-BDC24 even if bdc-comm can not find any devices on the network (they may be there without an assigned ID and therefore do not enumerate). The Help->About menu item was added, which brings up a dialog that shows the version of the bdc-comm application. The numeric entry fields within the GUI have been modified to behave in the expected manner (click and drag will now select portions of the value instead of changing the value). And the firmware filename field in the firmware update dialog is now pre-populated with the previous firmware filename so that it can be used multiple times to update more than one MDL-BDC or MDL-BDC24.

14.9 Bug Fixes in Stellaris Utility Library

14.9.1 Correct leap day handling in ulocaltime (Reference 11049)

Leap days were not properly handled in ulocaltime, causing it to incorrectly report Feb 29 of a leap year as Mar 1, and Mar 1 of a leap year as Mar 2 (with all other days being reported correctly). It now properly handles leap days.

14.10 Bug Fixes in DK-LM3S9B96 Firmware Package

14.10.1 Rework of lwIP HTTPD debug message handling (Reference 11480)

Debug message handling in the TI-modified lwIP HTTPD server has been reworked such that it follows the same convention as other lwIP modules. Calls to the UARTprintf() function have been replaced with the LWIP_DEBUGF macro. This change has no impact on non-debug builds of the server.

14.10.2 Explicit casts added to lwIP TCP_SEQ_LT/LTE/GT/GTE macros (Reference 11600)

Explicit casts have been added to the parameters passed to the TCP_SEQ_LT, TCP_SEQ_LTE, TCP_SEQ_GT and TCP_SEQ_GTE macros in lwIP header file tcp.h to ensure that these versions behave the same way as the original macros regardless of whether they are passed signed or unsigned values. These macros were replaced in the previous release to work around an IAR 5.41 compiler bug. The edit will be removed once a toolchain fix is available.

14.11 Bug Fixes in EK-LM3S3748 Firmware Package

14.11.1 Modify udma_demo example app to work around known problem with DMA channel (Reference 11640)

There is a chip erratum for this part related to incorrect operation of the DMA channel dedicated to software initiated transfers. The example app was modified to implement the simple workaround.

14.12 Bug Fixes in EK-LM3S6965 Firmware Package

14.12.1 Rework of lwIP HTTPD debug message handling (Reference 11480)

Debug message handling in the TI-modified lwIP HTTPD server has been reworked such that it follows the same convention as other lwIP modules. Calls to the UARTprintf() function have been replaced with the LWIP_DEBUGF macro. This change has no impact on non-debug builds of the server.

14.12.2 Explicit casts added to lwIP TCP_SEQ_LT/LTE/GT/GTE macros (Reference 11600)

Explicit casts have been added to the parameters passed to the TCP_SEQ_LT, TCP_SEQ_LTE, TCP_SEQ_GT and TCP_SEQ_GTE macros in lwIP header file tcp.h to ensure that these versions

behave the same way as the original macros regardless of whether they are passed signed or unsigned values. These macros were replaced in the previous release to work around an IAR 5.41 compiler bug. The edit will be removed once a toolchain fix is available.

14.13 Bug Fixes in EK-LM3S8962 Firmware Package

14.13.1 Rework of lwIP HTTPD debug message handling (Reference 11480)

Debug message handling in the TI-modified lwIP HTTPD server has been reworked such that it follows the same convention as other lwIP modules. Calls to the UARTprintf() function have been replaced with the LWIP_DEBUGF macro. This change has no impact on non-debug builds of the server.

14.13.2 Explicit casts added to lwIP TCP_SEQ_LT/LTE/GT/GTE macros (Reference 11600)

Explicit casts have been added to the parameters passed to the TCP_SEQ_LT, TCP_SEQ_LTE, TCP_SEQ_GT and TCP_SEQ_GTE macros in lwIP header file tcp.h to ensure that these versions behave the same way as the original macros regardless of whether they are passed signed or unsigned values. These macros were replaced in the previous release to work around an IAR 5.41 compiler bug. The edit will be removed once a toolchain fix is available.

14.14 Bug Fixes in EK-LM3S9B90 Firmware Package

14.14.1 Remove udma_timer_ccp example from EK-LM3S9B90 board because the LM3S9B90 does not have PWM (Reference 11476)

The udma_timer_ccp example uses PWM as a signal source for the timer edge-timer feature. The LM3S9B90 chip does not have PWM

14.14.2 Rework of lwIP HTTPD debug message handling (Reference 11480)

Debug message handling in the TI-modified lwIP HTTPD server has been reworked such that it follows the same convention as other lwIP modules. Calls to the UARTprintf() function have been replaced with the LWIP_DEBUGF macro. This change has no impact on non-debug builds of the server.

14.14.3 Explicit casts added to lwIP TCP_SEQ_LT/LTE/GT/GTE macros (Reference 11600)

Explicit casts have been added to the parameters passed to the TCP_SEQ_LT, TCP_SEQ_LTE, TCP_SEQ_GT and TCP_SEQ_GTE macros in lwIP header file tcp.h to ensure that these versions behave the same way as the original macros regardless of whether they are passed signed or unsigned values. These macros were replaced in the previous release to work around an IAR 5.41 compiler bug. The edit will be removed once a toolchain fix is available.

14.15 Bug Fixes in EK-LM3S9B92 Firmware Package

14.15.1 Rework of lwIP HTTPD debug message handling (Reference 11480)

Debug message handling in the TI-modified lwIP HTTPD server has been reworked such that it follows the same convention as other lwIP modules. Calls to the UARTprintf() function have been replaced with the LWIP_DEBUGF macro. This change has no impact on non-debug builds of the server.

14.15.2 Changed timer configuration in udma_timer_ccp example (Reference 11591)

The timer load value corrected and an unneeded function call to set the prescaler was removed.

14.16 Bug Fixes in RDK-BDC Firmware Package

14.16.1 MDL-BDC sometimes misread the power-on state of the push button (Reference 11586)

In certain situations, the MDL-BDC would misread the power-on state of the push button, causing it to reset its stored settings (servo input calibration and CAN device ID assignment). A delay was added between the enable and the read of the GPIO to allow the RC time constant of the push button circuit to pass so that the button state is properly read.

14.17 Bug Fixes in RDK-IDM Firmware Package

14.17.1 Rework of lwIP HTTPD debug message handling (Reference 11480)

Debug message handling in the TI-modified lwIP HTTPD server has been reworked such that it follows the same convention as other lwIP modules. Calls to the UARTprintf() function have been

replaced with the LWIP_DEBUGF macro. This change has no impact on non-debug builds of the server.

14.17.2 Explicit casts added to lwIP TCP_SEQ_LT/LTE/GT/GTE macros (Reference 11600)

Explicit casts have been added to the parameters passed to the TCP_SEQ_LT, TCP_SEQ_LTE, TCP_SEQ_GT and TCP_SEQ_GTE macros in lwIP header file tcp.h to ensure that these versions behave the same way as the original macros regardless of whether they are passed signed or unsigned values. These macros were replaced in the previous release to work around an IAR 5.41 compiler bug. The edit will be removed once a toolchain fix is available.

14.18 Bug Fixes in RDK-IDM-SBC Firmware Package

14.18.1 Rework of lwIP HTTPD debug message handling (Reference 11480)

Debug message handling in the TI-modified lwIP HTTPD server has been reworked such that it follows the same convention as other lwIP modules. Calls to the UARTprintf() function have been replaced with the LWIP_DEBUGF macro. This change has no impact on non-debug builds of the server.

14.18.2 Removed non-functional link from idm-checkout web site (Reference 11658)

The web site served by the idm-checkout application previously included an erroneous link indicating that HTML could be served from an attached USB flash stick. This particular example does not include support for USB flash sticks so this link has been removed.

14.19 Bug Fixes in RDK-S2E Firmware Package

14.19.1 Rework of lwIP HTTPD debug message handling (Reference 11480)

Debug message handling in the TI-modified lwIP HTTPD server has been reworked such that it follows the same convention as other lwIP modules. Calls to the UARTprintf() function have been replaced with the LWIP_DEBUGF macro. This change has no impact on non-debug builds of the server.

14.19.2 Explicit casts added to lwIP TCP_SEQ_LT/LTE/GT/GTE macros (Reference 11600)

Explicit casts have been added to the parameters passed to the TCP_SEQ_LT, TCP_SEQ_LTE, TCP_SEQ_GT and TCP_SEQ_GTE macros in lwIP header file tcp.h to ensure that these versions behave the same way as the original macros regardless of whether they are passed signed or unsigned values. These macros were replaced in the previous release to work around an IAR 5.41 compiler bug. The edit will be removed once a toolchain fix is available.

14.20 New Features in Stellaris Firmware Development Package

14.20.1 Added project files for Keil uVision 4 (Reference 11578)

Project files are now provided for building the various components of StellarisWare using Keil uVision 4. The uVision 3 project files are still provided to ease the transition to Keil's new tools.

14.21 Bug Fixes in Stellaris Firmware Development Package

14.21.1 Projects for Code Red's Red Suite were erroneously including a subdirectory for Code Composer Studio (Reference 11465)

When a project is imported into a workspace using Code Red's red_suite, a subdirectory named "ccs" was also imported by mistake. This subdirectory contains files relevant to TI's Code Composer Studio and should not be part of a red_suite project. This change fixes the problem. The mistaken import of "ccs", while a nuisance, did not actually cause any problems for the red_suite project.

14.21.2 Some applications linked to wrong address with Sourcery G++ (Reference 11624)

For applications that provided a customized Im3sNNNN-rom.ld linker script (to modify the memory descriptor so that the application is linked to an address other than 0), that linker script was not being included into the Sourcery G++ project file. It was therefore using the default linker script and linking the application to 0. The customized linker script is now included as part of the project, resulting in the application being linked correctly.

15 Release Notes for StellarisWare Revision 5604 (January 19, 2010)

New Features for Stellaris Peripheral Driver Library	129
Bug Fixes for Stellaris Host Tools	129
Bug Fixes for Stellaris USB Library	129
New Features for EK-LM3S1968 Firmware Package	130
New Features for EK-LM3S2965 Firmware Package	130
New Features for EK-LM3S6965 Firmware Package	130
New Features for EK-LM3S8962 Firmware Package	130
New Features for RDK-BDC Firmware Package	131
New Features for RDK-BDC24 Firmware Package	131

15.1 New Features in Stellaris Peripheral Driver Library

15.1.1 REVISION_IS_C0 macro added to hw_types.h (Reference 11274)

File hw_types.h contains macros to check for particular silicon major and minor revisions. Although macros already existed for revisions C1 and C2, no definition was included for C0 so this has been added for completeness.

15.2 Bug Fixes in Stellaris Host Tools

15.2.1 Improvements to bdc-comm (Reference 11260)

Functional and cosmetic improvements have been made to the bdc-comm application. In some cases, the previous version would fail to send commands to the RDK-BDC24 in response to GUI actions. In other cases, the value set via the GUI would read back as off by one (for example, setting the I coefficient to 0.005 would be read back and displayed as 0.004). These issues have been corrected.

15.3 Bug Fixes in Stellaris USB Library

15.3.1 USB Host: Polling interval from devices was ignored. (Reference 11068)

The USB host enumeration library was not using the polling interval specified by USB devices that were connected. This caused HID devices to poll at a 1ms rate instead of what the HID device specified in it's descriptor. The polling interval is no longer ignored by the USBHCDPipeConfig() function and will now set the polling interval for endpoints correctly.

15.4 New Features in EK-LM3S1968 Firmware Package

15.4.1 Changed logo in “graphics” example application (Reference 11220)

The logo displayed by the “graphics” example application has been replaced. The application has also been updated such that it includes an unaltered 4bpp Windows bitmap and parses the dimensions out of this. In previous versions, the image was a Windows bitmap with the header information removed and dimensions hard-coded. This change is intended to make it easier for users to change the graphic.

15.5 New Features in EK-LM3S2965 Firmware Package

15.5.1 Changed logo in “graphics” example application (Reference 11220)

The logo displayed by the “graphics” example application has been replaced. The application has also been updated such that it includes an unaltered 4bpp Windows bitmap and parses the dimensions out of this. In previous versions, the image was a Windows bitmap with the header information removed and dimensions hard-coded. This change is intended to make it easier for users to change the graphic.

15.6 New Features in EK-LM3S6965 Firmware Package

15.6.1 Changed logo in “graphics” example application (Reference 11220)

The logo displayed by the “graphics” example application has been replaced. The application has also been updated such that it includes an unaltered 4bpp Windows bitmap and parses the dimensions out of this. In previous versions, the image was a Windows bitmap with the header information removed and dimensions hard-coded. This change is intended to make it easier for users to change the graphic.

15.7 New Features in EK-LM3S8962 Firmware Package

15.7.1 Changed logo in “graphics” example application (Reference 11220)

The logo displayed by the “graphics” example application has been replaced. The application has also been updated such that it includes an unaltered 4bpp Windows bitmap and parses the dimensions out of this. In previous versions, the image was a Windows bitmap with the header information removed and dimensions hard-coded. This change is intended to make it easier for users to change the graphic.

15.8 New Features in RDK-BDC Firmware Package

15.8.1 Added a command to return the control mode. (Reference 11262)

A new status command was added to request the control mode for a motor controller. This command returns the last control mode that the controller was set to as an 8-bit value indicating Voltage, Current, Position, or Speed mode.

15.9 New Features in RDK-BDC24 Firmware Package

15.9.1 Added a command to return the control mode. (Reference 11262)

A new status command was added to request the control mode for a motor controller. This command returns the last control mode that the controller was set to as an 8-bit value indicating Voltage, Current, Position, or Speed mode.

16 Release Notes for StellarisWare Revision 5570 (January 8, 2010)

New Features for Stellaris Peripheral Driver Library	133
Bug Fixes for Stellaris Graphics Library	134
New Features for Third Party Packages	134
New Features for Stellaris Utility Library	134
New Features for DK-LM3S9B96 Firmware Package	135
Bug Fixes for DK-LM3S9B96 Firmware Package	135
New Features for EK-LM3S3748 Firmware Package	136
Bug Fixes for EK-LM3S3748 Firmware Package	136
Bug Fixes for EK-LM3S6965 Firmware Package	137
Bug Fixes for EK-LM3S8962 Firmware Package	137
New Features for EK-LM3S9B90 Firmware Package	137
Bug Fixes for EK-LM3S9B90 Firmware Package	138
New Features for EK-LM3S9B92 Firmware Package	138
Bug Fixes for EK-LM3S9B92 Firmware Package	139
Bug Fixes for RDK-ACIM Firmware Package	139
New Features for RDK-BDC24 Firmware Package	139
Bug Fixes for RDK-BLDC Firmware Package	140
Bug Fixes for RDK-IDM Firmware Package	140
Bug Fixes for RDK-IDM-L35 Firmware Package	140
Bug Fixes for RDK-IDM-SBC Firmware Package	140
Bug Fixes for RDK-S2E Firmware Package	141
Bug Fixes for RDK-STEPPER Firmware Package	141

16.1 New Features in Stellaris Peripheral Driver Library

16.1.1 Added header files for new Stellaris parts (Reference 11183)

Added part-specific header files for the recently introduced LM3S1811, LM3S1816, LM3S1J11, LM3S1J16, LM3S1N11, LM3S1N16, LM3S1W16, LM3S1Z16, LM3S3826, LM3S3J26, LM3S3N26, LM3S3w26, LM3S5651, LM3S5656, LM3S5951, LM3S5956, LM3S5K31, LM3S5K36, LM3S5P31, LM3S5P36, LM3S5P51, LM3S5P56, LM3S5R31, LM3S5R36, LM3S5T36, LM3S5Y36, LM3S9997, and LM3S9L97.

16.1.2 Add support for Code Composer Studio (Reference 10407)

Support has been added for the Code Composer Studio tools from Texas Instruments. Compiler specific code has been added where necessary in order to work with the new compiler, and all example applications now have CCS project files in addition to the already existing project files for the other toolchains.

16.2 Bug Fixes in Stellaris Graphics Library

16.2.1 Added explicit casts in imgbutton.h (Reference 11149)

Explicit casts have been added to various macros defined in the ImageButton widget header file, imgbutton.h. These allow either a generic tWidget or specific tImageButtonWidget pointer to be passed as the first parameter without a compiler warning being generated.

16.3 New Features in Third Party Packages

16.3.1 Updated to lwIP 1.3.1 (Reference 10577)

lwIP 1.3.1 has been incorporated into StellarisWare and all example applications that use lwIP have been updated to use the new version. Additionally, the lwIP driver now has support for being used with SafeRTOS.

16.3.2 Added headers for accessing SafeRTOS (Reference 11070)

Header files have been added for use by applications that wish to utilize the SafeRTOS stored in the ROM of certain Stellaris devices.

16.3.3 Changed licensing terms on AES third party code (Reference 11176)

The AES implementation is now based on PolarSSL-0.10.1 which is covered by a BSD-style license. Previously the AES implementation was covered by the LGPL. See the file LICENSE.txt for the licensing terms.

16.4 New Features in Stellaris Utility Library

16.4.1 Baud rate used by uartstdio may now be specified (Reference 11075)

A new function, UARTStdioInitExpCik(), has been added to the uartstdio module API. This function takes two parameters, the UART port number and baud rate, and may be used instead of UARTStdioInit() for applications which wish to run the UART at baud rates other than the default 115,200bps.

16.5 New Features in DK-LM3S9B96 Firmware Package

16.5.1 Added SafeRTOS demo application (Reference 11008)

Added an example application (`safertos_demo`) that utilizes SafeRTOS and lwIP. The behavior of the SafeRTOS tasks can be modified via the web server provided via lwIP, and tasks can be created/terminated via the touch screen display.

16.5.2 `enet_uip` example added to dk-lm3s9b96 release (Reference 10961)

A new example application, `enet_uip`, has been added to the dk-lm3s9b96 release. This implements a very simple web server on top of the uIP TCP/IP stack.

16.6 Bug Fixes in DK-LM3S9B96 Firmware Package

16.6.1 Fixed flash programming error in `usb_stick_update` (Reference 11041)

The first two locations were being programmed as all Fs instead of being left unprogrammed during the initial programming of the image. This practice violates the programming rules from some parts. The example application has now been changed to leave the first two locations unprogrammed until the last step of image programming.

16.6.2 Removed unneeded data alignment pragmas for IAR tools (Reference 10993)

This only affects IAR tools. There were extra pragma statements like this: `#pragma data_alignment=4`, intended to reset the data alignment after earlier setting the alignment to 1024. This is actually not needed and these extra pragmas were causing warnings.

16.6.3 Support for lower audio rates (Reference 11107)

The sound driver provided with the dk-lm3s9b96 was not capable of supporting lower audio sample rates. This was because the MCLK source clock could not be divided down enough to support lower rates on the I2S interface. This change allows audio sample rates down to 6.1 kHz mono 8 bit audio. The lower sample rates are supported by shifting out more bits than are used for 8 and 16 bit audio formats. This solution may not be acceptable for I2S audio DACs that only support right justified I2S audio formats or require the number of bits per frame to exactly match the number of bits in the audio sample.

16.6.4 Added explicit casts in imgbutton.h (Reference 11149)

Explicit casts have been added to various macros defined in the ImageButton widget header file, imgbutton.h. These allow either a generic tWidget or specific tImageButtonWidget pointer to be passed as the first parameter without a compiler warning being generated.

16.6.5 Minor change in lwIP tcp.h header file (Reference 11218)

To work around an apparent bug in the IAR 5.41 compiler, four macros in the lwIP 1.3.1 header tcp.h have been replaced with simpler (but equivalent) versions. If the original definitions are used, IAR 5.41 generates code which is incorrect and results in TCP/IP connection ACK processing problems. This change will be removed once a compiler fix is available.

16.7 New Features in EK-LM3S3748 Firmware Package

16.7.1 LMScope now provides a helpful error if run without the driver installed (Reference 11099)

In previous releases, the LMScope Windows example application statically linked the USB driver DLL Imusbdll.dll. This meant that the user would see a generic Windows "DLL not found" message if the application was run before the USB device driver for the ek-lm3s3748 qs-scope device were installed. The application has now been reworked to dynamically load the driver DLL and this allows it to provide a more helpful message in cases where the driver doesn't exist.

16.8 Bug Fixes in EK-LM3S3748 Firmware Package

16.8.1 Fixed flash programming error in usb_stick_update (Reference 11041)

The first two locations were being programmed as all Fs instead of being left unprogrammed during the initial programming of the image. This practice violates the programming rules from some parts. The example application has now been changed to leave the first two locations unprogrammed until the last step of image programming.

16.8.2 Removed unneeded data alignment pragmas for IAR tools (Reference 10993)

This only affects IAR tools. There were extra pragma statements like this: #pragma data_alignment=4, intended to reset the data alignment after earlier setting the alignment to 1024. This is actually not needed and these extra pragmas were causing warnings.

16.8.3 Added explicit casts in imgbutton.h (Reference 11149)

Explicit casts have been added to various macros defined in the ImageButton widget header file, imgbutton.h. These allow either a generic tWidget or specific tImageButtonWidget pointer to be passed as the first parameter without a compiler warning being generated.

16.9 Bug Fixes in EK-LM3S6965 Firmware Package

16.9.1 Minor change in lwIP tcp.h header file (Reference 11218)

To work around an apparent bug in the IAR 5.41 compiler, four macros in the lwIP 1.3.1 header tcp.h have been replaced with simpler (but equivalent) versions. If the original definitions are used, IAR 5.41 generates code which is incorrect and results in TCP/IP connection ACK processing problems. This change will be removed once a compiler fix is available.

16.10 Bug Fixes in EK-LM3S8962 Firmware Package

16.10.1 Minor change in lwIP tcp.h header file (Reference 11218)

To work around an apparent bug in the IAR 5.41 compiler, four macros in the lwIP 1.3.1 header tcp.h have been replaced with simpler (but equivalent) versions. If the original definitions are used, IAR 5.41 generates code which is incorrect and results in TCP/IP connection ACK processing problems. This change will be removed once a compiler fix is available.

16.11 New Features in EK-LM3S9B90 Firmware Package

16.11.1 Add new example using the uDMA controller with a periodic timer (Reference 11061)

A new example has been created to demonstrate use of DMA with a periodic timer. A uDMA channel is configured to perform a transfer based on a periodic timer timeout.

16.11.2 Add new example using the uDMA controller with a timer edge capture mode (Reference 11143)

A new example has been created to demonstrate use of DMA with a timer configured for an edge capture mode. A timer is configured for the edge timer capture mode. This mode is used to measure time between edges on an input pin. A uDMA channel is configured to transfer the captured time into a buffer and after a certain number of edges are captured the program analyzes the captured data. This example uses a PWM output as a stimulus and requires two signals to be jumpered together on the evaluation board.

16.12 Bug Fixes in EK-LM3S9B90 Firmware Package

16.12.1 Fixed flash programming error in `usb_stick_update` (Reference 11041)

The first two locations were being programmed as all Fs instead of being left unprogrammed during the initial programming of the image. This practice violates the programming rules from some parts. The example application has now been changed to leave the first two locations unprogrammed until the last step of image programming.

16.12.2 Removed unneeded data alignment pragmas for IAR tools (Reference 10993)

This only affects IAR tools. There were extra pragma statements like this: `#pragma data_alignment=4`, intended to reset the data alignment after earlier setting the alignment to 1024. This is actually not needed and these extra pragmas were causing warnings.

16.12.3 Minor change in lwIP `tcp.h` header file (Reference 11218)

To work around an apparent bug in the IAR 5.41 compiler, four macros in the lwIP 1.3.1 header `tcp.h` have been replaced with simpler (but equivalent) versions. If the original definitions are used, IAR 5.41 generates code which is incorrect and results in TCP/IP connection ACK processing problems. This change will be removed once a compiler fix is available.

16.13 New Features in EK-LM3S9B92 Firmware Package

16.13.1 Add new example using the uDMA controller with a periodic timer (Reference 11061)

A new example has been created to demonstrate use of DMA with a periodic timer. A uDMA channel is configured to perform a transfer based on a periodic timer timeout.

16.13.2 Add new example using the uDMA controller with a timer edge capture mode (Reference 11143)

A new example has been created to demonstrate use of DMA with a timer configured for an edge capture mode. A timer is configured for the edge timer capture mode. This mode is used to measure time between edges on an input pin. A uDMA channel is configured to transfer the captured time into a buffer and after a certain number of edges are captured the program analyzes the captured data. This example uses a PWM output as a stimulus and requires two signals to be jumpered together on the evaluation board.

16.14 Bug Fixes in EK-LM3S9B92 Firmware Package

16.14.1 Fixed flash programming error in `usb_stick_update` (Reference 11041)

The first two locations were being programmed as all Fs instead of being left unprogrammed during the initial programming of the image. This practice violates the programming rules from some parts. The example application has now been changed to leave the first two locations unprogrammed until the last step of image programming.

16.14.2 Removed unneeded data alignment pragmas for IAR tools (Reference 10993)

This only affects IAR tools. There were extra pragma statements like this: `#pragma data_alignment=4`, intended to reset the data alignment after earlier setting the alignment to 1024. This is actually not needed and these extra pragmas were causing warnings.

16.14.3 Minor change in lwIP `tcp.h` header file (Reference 11218)

To work around an apparent bug in the IAR 5.41 compiler, four macros in the lwIP 1.3.1 header `tcp.h` have been replaced with simpler (but equivalent) versions. If the original definitions are used, IAR 5.41 generates code which is incorrect and results in TCP/IP connection ACK processing problems. This change will be removed once a compiler fix is available.

16.15 Bug Fixes in RDK-ACIM Firmware Package

16.15.1 Fix temperature calculation for motor kits (Reference 11029)

Modify the calculation of ambient temperature to use a signed short value rather than an unsigned char value. This will correct the problem of temperature wrapping to a large number and triggering a temperature fault on the motor kit when the temperature drops below 0 degrees Celsius. This fix will update both the motor kit firmware and the motor kit GUI software.

16.16 New Features in RDK-BDC24 Firmware Package

16.16.1 Added RDK-BDC24 support (Reference 11170)

The firmware for the RDK-BDC24 motor controller has been added.

16.17 Bug Fixes in RDK-BLDC Firmware Package

16.17.1 Fix temperature calculation for motor kits (Reference 11029)

Modify the calculation of ambient temperature to use a signed short value rather than an unsigned char value. This will correct the problem of temperature wrapping to a large number and triggering a temperature fault on the motor kit when the temperature drops below 0 degrees Celsius. This fix will update both the motor kit firmware and the motor kit GUI software.

16.18 Bug Fixes in RDK-IDM Firmware Package

16.18.1 Added explicit casts in imgbutton.h (Reference 11149)

Explicit casts have been added to various macros defined in the ImageButton widget header file, imgbutton.h. These allow either a generic tWidget or specific tImageButtonWidget pointer to be passed as the first parameter without a compiler warning being generated.

16.18.2 Minor change in lwIP tcp.h header file (Reference 11218)

To work around an apparent bug in the IAR 5.41 compiler, four macros in the lwIP 1.3.1 header tcp.h have been replaced with simpler (but equivalent) versions. If the original definitions are used, IAR 5.41 generates code which is incorrect and results in TCP/IP connection ACK processing problems. This change will be removed once a compiler fix is available.

16.19 Bug Fixes in RDK-IDM-L35 Firmware Package

16.19.1 Added explicit casts in imgbutton.h (Reference 11149)

Explicit casts have been added to various macros defined in the ImageButton widget header file, imgbutton.h. These allow either a generic tWidget or specific tImageButtonWidget pointer to be passed as the first parameter without a compiler warning being generated.

16.20 Bug Fixes in RDK-IDM-SBC Firmware Package

16.20.1 Fixed flash programming error in usb_stick_update (Reference 11041)

The first two locations were being programmed as all Fs instead of being left unprogrammed during the initial programming of the image. This practice violates the programming rules from some parts.

The example application has now been changed to leave the first two locations unprogrammed until the last step of image programming.

16.20.2 Removed unneeded data alignment pragmas for IAR tools (Reference 10993)

This only affects IAR tools. There were extra pragma statements like this: `#pragma data_alignment=4`, intended to reset the data alignment after earlier setting the alignment to 1024. This is actually not needed and these extra pragmas were causing warnings.

16.20.3 Added explicit casts in `imgbutton.h` (Reference 11149)

Explicit casts have been added to various macros defined in the ImageButton widget header file, `imgbutton.h`. These allow either a generic `tWidget` or specific `tImageButtonWidget` pointer to be passed as the first parameter without a compiler warning being generated.

16.20.4 Minor change in lwIP `tcp.h` header file (Reference 11218)

To work around an apparent bug in the IAR 5.41 compiler, four macros in the lwIP 1.3.1 header `tcp.h` have been replaced with simpler (but equivalent) versions. If the original definitions are used, IAR 5.41 generates code which is incorrect and results in TCP/IP connection ACK processing problems. This change will be removed once a compiler fix is available.

16.21 Bug Fixes in RDK-S2E Firmware Package

16.21.1 Minor change in lwIP `tcp.h` header file (Reference 11218)

To work around an apparent bug in the IAR 5.41 compiler, four macros in the lwIP 1.3.1 header `tcp.h` have been replaced with simpler (but equivalent) versions. If the original definitions are used, IAR 5.41 generates code which is incorrect and results in TCP/IP connection ACK processing problems. This change will be removed once a compiler fix is available.

16.22 Bug Fixes in RDK-STEPPER Firmware Package

16.22.1 Fix temperature calculation for motor kits (Reference 11029)

Modify the calculation of ambient temperature to use a signed short value rather than an unsigned char value. This will correct the problem of temperature wrapping to a large number and triggering a temperature fault on the motor kit when the temperature drops below 0 degrees Celsius. This fix will update both the motor kit firmware and the motor kit GUI software.

17 Release Notes for StellarisWare Revision 5450 (December 2, 2009)

New Features for Stellaris Boot Loader	143
New Features for Stellaris Peripheral Driver Library	143
Bug Fixes for Stellaris Peripheral Driver Library	144
Bug Fixes for Stellaris Utility Library	144
New Features for DK-LM3S9B96 Firmware Package	145
Bug Fixes for DK-LM3S9B96 Firmware Package	145
Bug Fixes for EK-LM3S6965 Rev A Firmware Package	146
Bug Fixes for EK-LM3S6965 Firmware Package	146
Bug Fixes for EK-LM3S8962 Firmware Package	146
Bug Fixes for EK-LM3S9B90 Firmware Package	146
Bug Fixes for EK-LM3S9B92 Firmware Package	147
Bug Fixes for RDK-BDC Firmware Package	147
New Features for RDK-IDM Firmware Package	147
Bug Fixes for RDK-IDM-SBC Firmware Package	147
Bug Fixes for RDK-S2E Firmware Package	148

17.1 New Features in Stellaris Boot Loader

17.1.1 Added Internal Pull up/down to boot loader. (Reference 10876)

The boot loader has the ability to check an external pin to see if it is set to a high or low voltage level and remain in the boot loader. However, the boot loader did not have a way to enable an internal pull-up or pull-down when using this feature. Two additional configuration options were added to enable an internal pull-up resistor by defining `FORCED_UPDATE_WPU` or an internal pull-down by defining `FORCED_UPDATE_WPD` value. These values are mutually exclusive and only one or the other should be used when using an internal pull resistor. If an external resistor pull-up or pull-down is used then neither valued should be defined.

17.2 New Features in Stellaris Peripheral Driver Library

17.2.1 Added `IntPendSet()` and `IntPendClear()` APIs (Reference 10694)

The `IntPendSet()` and `IntPendClear()` APIs have been added to the interrupt controller driver. They allow an interrupt to be pended (made to appear as if it has occurred) or unpended (made to appear as if it has not occurred). Unpending an interrupt is sometimes useful prior to enabling it (if the process of configuring the interrupt source causes a false trigger prior to the interrupt being enabled).

17.3 Bug Fixes in Stellaris Peripheral Driver Library

17.3.1 I2CMasterErr returned I2C_MASTER_ERR_NONE if arbitration was lost (Reference 10821)

Function I2CMasterErr previously assumed that bit 2 of the I2CMCS register would be set in all error conditions and, if this bit was clear, assumed no error had occurred. Unfortunately, this bit only indicates an ACK error so the function would return I2C_MASTER_ERR_NONE if the controller lost arbitration. This has been fixed.

17.3.2 USBFIFOFlush() fails to flush endpoints. (Reference 10853)

The USBFIFOFlush() function was improperly checking the state of the FIFO and was not allowing endpoints to flush the endpoint's FIFO. This affected all endpoints other than endpoint zero.

17.3.3 Use of non-MOTO formats in SSISConfigSetExpClk() can cause minor errors in the actual clock rate (Reference 10922)

If a non-MOTO format was specified in a call to the SSISConfigSetExpClk() function, two lower bits of a clock divisor register could be corrupted. The result was a small error in the actual clock rate. This has been fixed.

17.3.4 Added support for PWM3 trigger to ADC (Reference 10943)

Add the ability to configure an ADC sample sequence to be triggered by the event generated by the PWM3 generator, when present. The ADC_TRIGGER_PWM3 is now supported by ADCSequenceConfigure().

17.3.5 Corrected definition of NUM_INTERRUPTS (Reference 10908)

The definition of NUM_INTERRUPTS was off by one, resulting in improper treatment of the last interrupt (GPIOJ) by the IntRegister()/IntUnregister() functions, and assertion failures by the remaining Interrupt driver APIs.

17.4 Bug Fixes in Stellaris Utility Library

17.4.1 Fixed trailing slash handling errors in fswrapper (Reference 10892)

Three related changes have been made to fix problems experienced when using fswrapper and the "cd" command on the qs-checkout application serial command line. Previously fswrapper would result in a NULL pointer in ppcFSFilename if the pcName string passed did not contain a second

slash character. It now returns a pointer to the terminating NULL instead, preventing a corrupt string being displayed by the application. Additionally, file.c in qs-checkout has been modified to ensure that it never leaves a trailing slash at the end of the current working directory string and will also detect and fail attempts to change into non-FAT directories since the internal file system image access functions do not support directory navigation and listing.

17.5 New Features in DK-LM3S9B96 Firmware Package

17.5.1 qs-checkout application updated to support FPGA/Camera daughter board (Reference 10647)

Minor changes have been made to the qs-checkout example application to ensure that it operates correctly with the FPGA/Camera daughter board attached. In this case, no external RAM is available to store a directly accessible copy of the photo gallery file system image so this web site is not available and the "Image Viewer" function reports "No file system image".

17.6 Bug Fixes in DK-LM3S9B96 Firmware Package

17.6.1 JPEG decode example rebranding (Reference 10614)

The JPEG image used in the showjpeg example application has been replaced with a version including the Texas Instruments logo rather than the Luminary Micro logo.

17.6.2 Fixed trailing slash handling errors in fswrapper (Reference 10892)

Three related changes have been made to fix problems experienced when using fswrapper and the "cd" command on the qs-checkout application serial command line. Previously fswrapper would result in a NULL pointer in ppcFSFilename if the pcName string passed did not contain a second slash character. It now returns a pointer to the terminating NULL instead, preventing a corrupt string being displayed by the application. Additionally, file.c in qs-checkout has been modified to ensure that it never leaves a trailing slash at the end of the current working directory string and will also detect and fail attempts to change into non-FAT directories since the internal file system image access functions do not support directory navigation and listing.

17.6.3 Corrected error in IAR linker script for ext_demo_1 and ext_demo_2 (Reference 10978)

An error in the definition of the size of the SRAM on the Flash/SRAM/LCD daughter board was fixed in the IAR toolchain linker scripts for example applications ext_demo_1 and ext_demo_2. The previous versions defined the SRAM to be 64KB in size when it should have been 1MB.

17.6.4 eflash tool added to dk-lm3s9b96 release (Reference 10979)

Although documentation for the “eflash” tool was included in previous StellarisWare releases for dk-lm3s9b96, the actual source and binary for the tool was omitted. These files have now been included and can be found in the “tools” subdirectory after StellarisWare installation.

17.7 Bug Fixes in EK-LM3S6965 Rev A Firmware Package

17.7.1 Fix handling of invalid page in uip web server (Reference 10981)

Fixed a cut-paste error in the setting of the page length for an invalid page. Also modified the invalid page to return very simple “page not found” content.

17.8 Bug Fixes in EK-LM3S6965 Firmware Package

17.8.1 Fix handling of invalid page in uip web server (Reference 10981)

Fixed a cut-paste error in the setting of the page length for an invalid page. Also modified the invalid page to return very simple “page not found” content.

17.9 Bug Fixes in EK-LM3S8962 Firmware Package

17.9.1 Fix handling of invalid page in uip web server (Reference 10981)

Fixed a cut-paste error in the setting of the page length for an invalid page. Also modified the invalid page to return very simple “page not found” content.

17.10 Bug Fixes in EK-LM3S9B90 Firmware Package

17.10.1 Fix handling of invalid page in uip web server (Reference 10981)

Fixed a cut-paste error in the setting of the page length for an invalid page. Also modified the invalid page to return very simple “page not found” content.

17.11 Bug Fixes in EK-LM3S9B92 Firmware Package

17.11.1 Fix handling of invalid page in uip web server (Reference 10981)

Fixed a cut-paste error in the setting of the page length for an invalid page. Also modified the invalid page to return very simple “page not found” content.

17.12 Bug Fixes in RDK-BDC Firmware Package

17.12.1 Properly handle overflow in PID controller (Reference 8535)

An overflow of the output of the PID controller will now clip instead of wrapping. The wrapping behavior could cause unexpected behavior, like the motor being driven in the wrong direction. With clipping, the motor behaves as expected.

17.13 New Features in RDK-IDM Firmware Package

17.13.1 Display and touchscreen driver updated to support the ILI9328 controller (Reference 10894)

The display and touchscreen drivers for rdk-idm have been updated to support the new KWH028Q02-F02 display module. This features an ILI9328 display controller which is compatible with the ILI9325 found on the previous module, KWH028Q02-F05. Minor updates in these drivers ensure that all three display controller IDs are handled correctly allowing a single binary to run on IDMs equipped with any of the displays.

17.14 Bug Fixes in RDK-IDM-SBC Firmware Package

17.14.1 qs-blox web site now updates correctly using IE7 (Reference 10613)

Special-case JavaScript has been added to the web site served by the qs-blox example application to ensure that the dynamically updated fields are correctly displayed in Internet Explorer 7. This browser insists on interpreting the XML response from the board as plain text so the JavaScript which receives the request now constructs an XML document around the response text and parses out the individual fields from it.

17.14.2 JPEG decode example rebranding (Reference 10614)

The JPEG image used in the showjpeg example application has been replaced with a version including the Texas Instruments logo rather than the Luminary Micro logo.

17.14.3 QS-Blox web site now updates in IE (Reference 10738)

A workaround for an Internet Explorer problem has been added to the web site served by the qs-blox example application. This allows the page to update automatically without a manual reload being required. The previous version of the web site operated correctly on standards-compliant browsers.

17.14.4 Fixed trailing slash handling errors in fswrapper (Reference 10892)

Three related changes have been made to fix problems experienced when using fswrapper and the "cd" command on the qs-checkout application serial command line. Previously fswrapper would result in a NULL pointer in ppcFSFilename if the pcName string passed did not contain a second slash character. It now returns a pointer to the terminating NULL instead, preventing a corrupt string being displayed by the application. Additionally, file.c in qs-checkout has been modified to ensure that it never leaves a trailing slash at the end of the current working directory string and will also detect and fail attempts to change into non-FAT directories since the internal file system image access functions do not support directory navigation and listing.

17.15 Bug Fixes in RDK-S2E Firmware Package

17.15.1 Fix storage of baud rate in RFC2217 code (Reference 10839)

In RFC2217, the baud rate parameter is a four octet parameter, which arrives in network (big-endian) order. The code that saves this parameter data as it arrives has been corrected to properly store it in host (little-endian) order.

18 Release Notes for StellarisWare Revision 5228 (October 1, 2009)

Bug Fixes for Stellaris Boot Loader	149
New Features for Stellaris Peripheral Driver Library	150
Bug Fixes for Stellaris Peripheral Driver Library	151
Bug Fixes for Third Party Packages	152
New Features for Stellaris Host Tools	152
Bug Fixes for Stellaris USB Library	152
Bug Fixes for Stellaris Utility Library	152
New Features for DK-LM3S9B96 Firmware Package	153
Bug Fixes for DK-LM3S9B96 Firmware Package	155
New Features for EK-LM3S811 Firmware Package	155
Bug Fixes for EK-LM3S811 Firmware Package	155
New Features for EK-LM3S2965 Firmware Package	155
New Features for EK-LM3S6965 Rev A Firmware Package	156
Bug Fixes for EK-LM3S6965 Rev A Firmware Package	156
New Features for EK-LM3S6965 Firmware Package	156
New Features for EK-LM3S8962 Firmware Package	157
New Features for EK-LM3S9B90 Firmware Package	157
New Features for EK-LM3S9B92 Firmware Package	158
Bug Fixes for RDK-ACIM Firmware Package	159
New Features for RDK-BLDC Firmware Package	159
Bug Fixes for RDK-BLDC Firmware Package	159
New Features for RDK-IDM-SBC Firmware Package	159
Bug Fixes for RDK-IDM-SBC Firmware Package	160
New Features for RDK-S2E Firmware Package	160
Bug Fixes for RDK-STEPPER Firmware Package	160

18.1 Bug Fixes in Stellaris Boot Loader

18.1.1 Ensure vector table is not compressed in IAR boot loader builds (Reference 10345)

The file `bl_link.icf` was updated to ensure that the IAR tools never compress the relocated boot loader vector table and initialized data sections. Using version 5.3 of Embedded Workbench for ARM, compression of these sections was noted in some cases during development of a boot loader supporting execution from external flash and, since relocation is not handled using IAR's code, this caused the boot loader to crash when run.

18.1.2 Use read-modify-write when configuring pins and peripherals in the boot loader (Reference 10348)

The boot loader now uses read-modify-write when enabling or disabling peripherals and configuring pins. This ensures that any peripheral or pin that has been configured during an application-specific hook function will not be unintentionally disabled or reconfigured by the boot loader code.

18.2 New Features in Stellaris Peripheral Driver Library

18.2.1 Add new GPIOPinTypeEthernetLED API (Reference 10090)

Add new API, GPIOPinTypeEthernetLED, to GPIO driver in driverlib. In this function the default drive strength for the Ethernet LED pins is now 8ma. Modified all of the sample applications that were enabling the Ethernet LED pin functions “manually” to now use this new API.

18.2.2 Added SSIBusy() function (Reference 9606)

This function determines if the SSI peripheral is busy transmitting data.

18.2.3 EPIConfigNoModeSet renamed to EPIConfigGPModeSet (Reference 10247)

The DriverLib API function EPIConfigNoModeSet has been renamed EPIConfigGPModeSet to ensure that the terminology used in the driver matches the part datasheets. Similarly, several labels defined in epi.h have been renamed to ensure consistency with the microcontroller documentation. The previous function and labels defined in epi.h have been deprecated but macros have been added to the header file to ensure that existing code using the function will still build and operate.

18.2.4 EPINonBlockingWriteCount renamed EPIWriteFIFOCountGet (Reference 10248)

The previous API EPINonBlockingWriteCount() has been renamed EPIWriteFIFOCountGet() to clarify operation. All EPI writes are via the write FIFO. If space is available, they do not block, otherwise they block until they can be added. The previous API has been deprecated but is mapped to the new function via a macro in epi.h to ensure backwards compatibility.

18.2.5 EPI driver function additions (Reference 10064)

Several changes have been made to the EPI driver. New configuration parameter flags have been added to EPIConfigHB8Set() and EPIConfigSDRAMSet() to allow configuration of features found in the EPIHB8CFG2 and EPISDRAMCFG2 registers respectively.

18.2.6 CANMessageSet() now provides flag to enable FIFO mode. (Reference 10431)

The CANMessageSet() did not allow configuring a set of message objects as a FIFO for transmitting or receiving CAN messages. This change adds the MSG_OBJ_FIFO flag value to tag message objects as part of a FIFO and not the final entry in a FIFO. This allows multiple message objects to be linked together to transfer or receive more than 8 bytes at a time.

18.3 Bug Fixes in Stellaris Peripheral Driver Library

18.3.1 Remove uDMAIntStatus() and uDMAIntClear() APIs (Reference 10148)

The APIs that use the DMA_CHIS register have been deleted because this register is no longer available for use and has been removed from the data sheet.

18.3.2 I2C_MASTER_CMD_BURST_RECEIVE_ERROR_STOP definition corrected (Reference 10434)

The value of I2C_MASTER_CMD_BURST_RECEIVE_ERROR_STOP was incorrect; the correct value is now provided.

18.3.3 CanBitRateSet() was incorrectly checking requested bit rate inputs. (Reference 10439)

The function CanBitRateSet() function was incorrectly checking the limits for possible bit rates given an input clock rate. The correct checking is now in place as ASSERT() checks to allow the parameter checking code to be removed in non-DEBUG builds.

18.3.4 Error in epi.h address size definitions corrected (Reference 10461)

An error in epi.h has been corrected and affected example applications have been updated. Labels EPI_ADDR_PER_SIZE_512MB and EPI_ADDR_RAM_SIZE_512MB have been replaced with the correct definitions for those register bit patterns, EPI_ADDR_PER_SIZE_256MB and EPI_ADDR_RAM_SIZE_256MB.

18.4 Bug Fixes in Third Party Packages

18.4.1 JPEG decoder reworked to use new ExtRAMAlloc/Free functions. (Reference 10262)

The JPEG decoder has been reworked to use functions ExtRAMAlloc() and ExtRAMFree() in place of the now-deprecated SDRAMAlloc() and SDRAMFree().

18.5 New Features in Stellaris Host Tools

18.5.1 pnmtoc now supports grayscale “PGM” files (Reference 10402)

The pnmtoc tool used to convert PBM/PNM format images into C arrays for use with the Stellaris Graphics Library has been updated to support conversion of grayscale “Portable Gray Map” (identifier “P5”) images. The previous version supported only color PBM images with identifier “P6”. Gray map images are created by the open source giftopnm tool when the input GIF image contains only shades of gray.

18.5.2 Windows USB example application rebranding (Reference 10500)

The Windows USB examples and their installer have been changed to present TI branding rather than Luminary Micro. This rework involved no functional changes in any application. Applications now install into “C:\Program Files\Texas Instruments\Stellaris” by default and shortcuts can be found under “Start\All Programs\Texas Instruments\Stellaris”.

18.6 Bug Fixes in Stellaris USB Library

18.6.1 USB host applications using OTG mode will hang if connected as a device. (Reference 10142)

USB application that are using OTG mode without having initialized device mode operation will hang if they are connected as a device to another USB host. This bug will affect all USB host example applications on kits that provide a USB OTG connector.

18.7 Bug Fixes in Stellaris Utility Library

18.7.1 Additional pointer checking added to fswrapper (Reference 10374)

When using a position independent file system image, some additional safety checks have been added in fswrapper and the qs-checkout application for dk-lm3s9b96 to prevent a fault exception

from occurring if the file system image is corrupted. The file system code now checks that pointers calculated from the linked list in the file system image are actually within the bounds of the image itself before dereferencing them. Although a corrupt file system is itself a serious error, this change allows the qs-checkout application to boot successfully even with a bad file system image in SSI flash and allows the user to update the bad image via TFTP.

18.8 New Features in DK-LM3S9B96 Firmware Package

18.8.1 Add new GPIOPinTypeEthernetLED API (Reference 10090)

Add new API, GPIOPinTypeEthernetLED, to GPIO driver in driverlib. In this function the default drive strength for the Ethernet LED pins is now 8ma. Modified all of the sample applications that were enabling the Ethernet LED pin functions “manually” to now use this new API.

18.8.2 Higher data rate audio files can now be played in qs-checkout (Reference 10151)

Recent optimizations in the USB library have allowed the previous 64KB/S data rate restriction when playing uncompressed audio files from a USB flash stick to be lifted. Smooth audio playback is now possible from USB flash sticks for stereo files at 44.1KHz and 48KHz while running the qs-checkout example application.

18.8.3 Support added for SRAM/Flash/LCD Daughter Board (Reference 10307)

Three new examples and a new driver have been added to the StellarisWare release for dk-lm3s9b96 in support of the new SRAM/Flash/LCD daughter board. The examples are a sample boot loader (boot_eth_ext) allowing images to be written to external flash and booted from there and two small example applications that will operate with that boot loader, ext_demo_1 and ext_demo_1. A new driver, extflash.c, is included to support erasing and programming the external flash.

18.8.4 EPIConfigNoModeSet renamed to EPIConfigGPModeSet (Reference 10247)

The DriverLib API function EPIConfigNoModeSet has been renamed EPIConfigGPModeSet to ensure that the terminology used in the driver matches the part datasheets. Similarly, several labels defined in epi.h have been renamed to ensure consistency with the microcontroller documentation. The previous function and labels defined in epi.h have been deprecated but macros have been added to the header file to ensure that existing code using the function will still build and operate.

18.8.5 PinoutSet() now performs dynamic EPI configuration. (Reference 10042)

Function PinoutSet() in drivers/set_pinout.c has been reworked to offer dynamic configuration of the Extended Peripheral Interface (EPI) based upon information read from an I2C-connected EEPROM device. The new code is intended to support future daughter cards for the dk-lm3s9b96 board which will feature this EEPROM device and is used in all dk-lm3s9b96 example applications by default. To allow simplified EPI and pinout configurations and to remove the overhead of the new dynamic configuration code, a second implementation of the PinoutSet() function is provided which merely configures the pinout and EPI based on a hardcoded configuration. This may be enabled by building the file with label SIMPLE_PINOUT_SET defined.

18.8.6 Embedded web site rework (Reference 10517)

The embedded web sites served by the enet_io and enet_lwip example applications have been reworked to use 8.3 filenames. As a result, these sites can now be copied to SDCard and served from there when using the enet_lwip application.

18.8.7 New example applications ext_demo_1 and ext_demo_2 added (Reference 9968)

Two new example applications illustrating execution from EPI-connected flash have been added to the dk-lm3s9b96 release. Both are intended for use with the SRAM/Flash/LCD daughter board and the external flash Ethernet boot loader (boot_eth_ext).

18.8.8 Display driver updated to support SRAM/Flash/LCD daughter board (Reference 9511)

The kitronix320x240x16_ssd2119_8bit.c display driver for dk-lm3s9b96 has been updated to support the SRAM/Flash/LCD daughter board and dynamically switch between GPIO-based and EPI-based access to the display depending upon the hardware detected. The display type determination is made inside function PinoutSet() which can be found in file drivers/set_pinout.c.

18.8.9 Added an example boot loader targeting external flash (Reference 9513)

Example application boot_eth_ext has been added to the dk-lm3s9b96 StellarisWare package. This is a version of the Ethernet boot loader which can be used to download and run applications linked to run from the address space of the external flash found on the optional SRAM/Flash/LCD daughter board.

18.9 Bug Fixes in DK-LM3S9B96 Firmware Package

18.9.1 Error in epi.h address size definitions corrected (Reference 10461)

An error in epi.h has been corrected and affected example applications have been updated. Labels EPI_ADDR_PER_SIZE_512MB and EPI_ADDR_RAM_SIZE_512MB have been replaced with the correct definitions for those register bit patterns, EPI_ADDR_PER_SIZE_256MB and EPI_ADDR_RAM_SIZE_256MB.

18.10 New Features in EK-LM3S811 Firmware Package

18.10.1 Added support for RIT display on new ek-lm3s811 boards (Reference 10106)

The display driver for the ek-lm3s811 board has been updated to support both the OSRAM display found on the existing boards and the RIT display use on newer revisions. Since the driver is no longer specific to the OSRAM display, it has been renamed from osram96x16x1 to display96x16x1 and all example applications have been updated accordingly. Macros are provided in the new display96x169x.h header file to ensure that the previous API calls will be correctly remapped to the new functions.

This change causes the code size of the display driver to increase slightly but the new driver offers the ability to build for either one or other display by defining either OSRAM_ONLY or RIT_ONLY via the project file or makefile when building. If neither label is defined, the driver will include support for both displays and will determine which is required at runtime.

18.11 Bug Fixes in EK-LM3S811 Firmware Package

18.11.1 Quickstart application rebranded (Reference 10397)

The opening graphic displayed by the qs_ek-lm3s811 application has been changed to show the Texas Instruments logo rather than the Luminary Micro logo.

18.12 New Features in EK-LM3S2965 Firmware Package

18.12.1 Add a CAN FIFO example. (Reference 10430)

Two new CAN examples were added that use FIFO mode to transfer data to and from the main board to the CAN device board. The can_fifo example is run on the main board and the can_device_fifo is run on the CAN device board. These applications demonstrates how to use the DriverLib CAN APIs to use multiple CAN message objects as a FIFO for transferring data.

18.13 New Features in EK-LM3S6965 Rev A Firmware Package

18.13.1 Add new GPIOPinTypeEthernetLED API (Reference 10090)

Add new API, GPIOPinTypeEthernetLED, to GPIO driver in driverlib. In this function the default drive strength for the Ethernet LED pins is now 8ma. Modified all of the sample applications that were enabling the Ethernet LED pin functions “manually” to now use this new API.

18.13.2 Embedded web site rework (Reference 10524)

The embedded web site served by the enet_lwip example application has been reworked to use 8.3 filenames. As a result, this site can now be copied to SDCard and served from there when using the enet_lwip application.

18.14 Bug Fixes in EK-LM3S6965 Rev A Firmware Package

18.14.1 Embedded web site rebranding (Reference 10538)

The web sites served by the enet_io and enet_ptpd example applications have been rebranded to show Texas Instruments logos and information rather than the Luminary Micro equivalents. In the process, filenames were also updated to conform to the 8.3 naming convention to ease use of the sites from SDCards rather than internal flash.

18.15 New Features in EK-LM3S6965 Firmware Package

18.15.1 Add new GPIOPinTypeEthernetLED API (Reference 10090)

Add new API, GPIOPinTypeEthernetLED, to GPIO driver in driverlib. In this function the default drive strength for the Ethernet LED pins is now 8ma. Modified all of the sample applications that were enabling the Ethernet LED pin functions “manually” to now use this new API.

18.15.2 Embedded web site rework (Reference 10523)

The embedded web sites served by the enet_ptpd, enet_io and enet_lwip example applications have been reworked to use 8.3 filenames. As a result, these sites can now be copied to SDCard and served from there when using the enet_lwip application.

18.16 New Features in EK-LM3S8962 Firmware Package

18.16.1 Add new GPIOPinTypeEthernetLED API (Reference 10090)

Add new API, GPIOPinTypeEthernetLED, to GPIO driver in driverlib. In this function the default drive strength for the Ethernet LED pins is now 8ma. Modified all of the sample applications that were enabling the Ethernet LED pin functions “manually” to now use this new API.

18.16.2 Add a CAN FIFO example. (Reference 10430)

Two new CAN examples were added that use FIFO mode to transfer data to and from the main board to the CAN device board. The can_fifo example is run on the main board and the can_device_fifo is run on the CAN device board. These applications demonstrates how to use the DriverLib CAN APIs to use multiple CAN message objects as a FIFO for transferring data.

18.16.3 Embedded web site rework (Reference 10523)

The embedded web sites served by the enet_ptpd, enet_io and enet_lwip example applications have been reworked to use 8.3 filenames. As a result, these sites can now be copied to SDCard and served from there when using the enet_lwip application.

18.17 New Features in EK-LM3S9B90 Firmware Package

18.17.1 Add new GPIOPinTypeEthernetLED API (Reference 10090)

Add new API, GPIOPinTypeEthernetLED, to GPIO driver in driverlib. In this function the default drive strength for the Ethernet LED pins is now 8ma. Modified all of the sample applications that were enabling the Ethernet LED pin functions “manually” to now use this new API.

18.17.2 Add uDMA support to the enet_uip example application (Reference 10196)

The enet_uip example has been modified to add support for using uDMA with the Ethernet controller. This change is meant to demonstrate how an application can use the uDMA controller with the Ethernet controller in a general application.

18.17.3 EPIConfigNoModeSet renamed to EPIConfigGPModeSet (Reference 10247)

The DriverLib API function EPIConfigNoModeSet has been renamed EPIConfigGPModeSet to ensure that the terminology used in the driver matches the part datasheets. Similarly, several labels

defined in epi.h have been renamed to ensure consistency with the microcontroller documentation. The previous function and labels defined in epi.h have been deprecated but macros have been added to the header file to ensure that existing code using the function will still build and operate.

18.17.4 Embedded web site rework (Reference 10525)

The embedded web sites served by the enet_ptpd and enet_lwip example applications have been reworked to use 8.3 filenames and present TI brand information.

18.18 New Features in EK-LM3S9B92 Firmware Package

18.18.1 Add new GPIOPinTypeEthernetLED API (Reference 10090)

Add new API, GPIOPinTypeEthernetLED, to GPIO driver in driverlib. In this function the default drive strength for the Ethernet LED pins is now 8ma. Modified all of the sample applications that were enabling the Ethernet LED pin functions “manually” to now use this new API.

18.18.2 Add uDMA support to the enet_uip example application (Reference 10196)

The enet_uip example has been modified to add support for using uDMA with the Ethernet controller. This change is meant to demonstrate how an application can use the uDMA controller with the Ethernet controller in a general application.

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The DriverLib API function EPIConfigNoModeSet has been renamed EPIConfigGPModeSet to ensure that the terminology used in the driver matches the part datasheets. Similarly, several labels defined in epi.h have been renamed to ensure consistency with the microcontroller documentation. The previous function and labels defined in epi.h have been deprecated but macros have been added to the header file to ensure that existing code using the function will still build and operate.

18.18.4 Embedded web site rework (Reference 10525)

The embedded web sites served by the enet_ptpd and enet_lwip example applications have been reworked to use 8.3 filenames and present TI brand information.

18.19 Bug Fixes in RDK-ACIM Firmware Package

18.19.1 Change motor kit GUI install and start menu locations (Reference 10547)

The motor kit GUI programs install location has been changed from “Luminary Micro” to “Texas Instruments/Stellaris” in the Program Files directory. The Windows start menu location has likewise been changed so that the programs now appear under “Texas Instruments/Stellaris”.

18.20 New Features in RDK-BLDC Firmware Package

18.20.1 Add new GPIOPinTypeEthernetLED API (Reference 10090)

Add new API, GPIOPinTypeEthernetLED, to GPIO driver in driverlib. In this function the default drive strength for the Ethernet LED pins is now 8ma. Modified all of the sample applications that were enabling the Ethernet LED pin functions “manually” to now use this new API.

18.21 Bug Fixes in RDK-BLDC Firmware Package

18.21.1 Change motor kit GUI install and start menu locations (Reference 10547)

The motor kit GUI programs install location has been changed from “Luminary Micro” to “Texas Instruments/Stellaris” in the Program Files directory. The Windows start menu location has likewise been changed so that the programs now appear under “Texas Instruments/Stellaris”.

18.22 New Features in RDK-IDM-SBC Firmware Package

18.22.1 Add new GPIOPinTypeEthernetLED API (Reference 10090)

Add new API, GPIOPinTypeEthernetLED, to GPIO driver in driverlib. In this function the default drive strength for the Ethernet LED pins is now 8ma. Modified all of the sample applications that were enabling the Ethernet LED pin functions “manually” to now use this new API.

18.22.2 Functions SDRAMAlloc and SDRAMFree have been renamed. (Reference 10268)

The SDRAM memory management functions provided in drivers/sdram.c have been renamed to ExtRAMAlloc and ExtRAMFree to match the similar functions provided by the dk-lm3s9b96 software

release. These functions are used by the shared JPEG decoder software so must match across all releases which use JPEG. The previous functions are deprecated but macro definitions in `sdram.h` will remap them to the new names, ensuring that existing code which uses them will continue to build and operate.

18.23 Bug Fixes in RDK-IDM-SBC Firmware Package

18.23.1 Documentation correction (Reference 10139)

The documentation for the `idm-checkout` example application in the `rdk-idm-sbc` release of StellarisWare incorrectly stated that the board comes with a web site image already stored in the serial flash device. This is not the case - the user must download this image using TFTP if desired. The documentation has been updated to reflect this.

18.24 New Features in RDK-S2E Firmware Package

18.24.1 Add new `GPIOPinTypeEthernetLED` API (Reference 10090)

Add new API, `GPIOPinTypeEthernetLED`, to GPIO driver in `driverlib`. In this function the default drive strength for the Ethernet LED pins is now 8ma. Modified all of the sample applications that were enabling the Ethernet LED pin functions “manually” to now use this new API.

18.24.2 Embedded web site rework (Reference 10528)

The embedded configuration web site for the `ser2enet` application has been reworked to present TI brand information and the factory default name for the module has been changed from “Luminary Micro Serial2Ethernet Module” to “TI Stellaris Serial2Ethernet Module”. No functional changes were made to the application.

18.25 Bug Fixes in RDK-STEPPER Firmware Package

18.25.1 Fix Stack Overflow in RDK-Stepper Application (Reference 10459)

Under some circumstances the stack could overflow in the `qs-stepper` application. The stack size has been increased to accommodate the additional required stack space.

18.25.2 Change motor kit GUI install and start menu locations (Reference 10547)

The motor kit GUI programs install location has been changed from “Luminary Micro” to “Texas Instruments/Stellaris” in the Program Files directory. The Windows start menu location has likewise been changed so that the programs now appear under “Texas Instruments/Stellaris”.

19 Release Notes for StellarisWare Revision 4905 (July 30, 2009)

New Features for Stellaris Boot Loader	163
Bug Fixes for Stellaris Peripheral Driver Library	164
Bug Fixes for Stellaris Graphics Library	164
Bug Fixes for Third Party Packages	164
Bug Fixes for Stellaris Host Tools	165
New Features for Stellaris USB Library	165
Bug Fixes for Stellaris USB Library	165
New Features for Stellaris Utility Library	166
Bug Fixes for Stellaris Utility Library	166
New Features for DK-LM3S9B96 Firmware Package	166
Bug Fixes for DK-LM3S9B96 Firmware Package	167
Bug Fixes for EK-LM3S3748 Firmware Package	168
New Features for EK-LM3S6965 Firmware Package	168
Bug Fixes for EK-LM3S6965 Firmware Package	168
New Features for EK-LM3S8962 Firmware Package	168
Bug Fixes for EK-LM3S8962 Firmware Package	168
New Features for EK-LM3S9B90 Firmware Package	169
Bug Fixes for EK-LM3S9B90 Firmware Package	169
New Features for EK-LM3S9B92 Firmware Package	169
Bug Fixes for EK-LM3S9B92 Firmware Package	170
New Features for RDK-IDM Firmware Package	170
Bug Fixes for RDK-IDM Firmware Package	170
New Features for RDK-IDM-SBC Firmware Package	170
Bug Fixes for RDK-IDM-SBC Firmware Package	171
New Features for RDK-S2E Firmware Package	171
Bug Fixes for RDK-S2E Firmware Package	171

19.1 New Features in Stellaris Boot Loader

19.1.1 Improved boot loader performance for dk-lm3s9b96 (Reference 9842)

The boot loader was reworked to offer the ability to replace the low level flash sizing, erase and programming functions. For Tempest-class devices such as the lm3s9b96, the boot loader flash programming function has been replaced with a version which makes use of the flash write buffer, improving download performance dramatically compared to the previous release. Note that the ROM-based boot loaders for Tempest-class devices were already making use of the flash write buffer - this change only affects boot loaders built to run from flash or SRAM.

19.1.2 Boot loader now allows vector table to be initialized in SRAM (Reference 9993)

A new label, `VTABLE_START_ADDRESS`, was added to the list supported by `bl_config.h` to allow an application to specify that its vector table should be relocated to SRAM prior to the boot loader transferring control to it. This is intended to support applications running out of EPI-connected memory where the vector table at the beginning of the application image is not accessible by the NVIC.

19.2 Bug Fixes in Stellaris Peripheral Driver Library

19.2.1 Missing configuration options added for `EPIConfigHB8Set` and `EPIConfigNoModeSet` (Reference 9778)

Additional flags have been added for use in the `ulConfig` parameter passed to `EPIConfigNoModeSet` and `EPIConfigHB8Set`. These allow selection of word access mode and, for the `HostBus8` case, allow the function of CS to be defined. Prior to this addition, direct access to an EPI configuration register was required to set these options.

19.2.2 `USBDevEndpointConfigSet()` does not properly configure isochronous endpoints (Reference 9856)

The `USBDevEndpointConfigSet()` had an incorrect conditional statement that causes isochronous endpoints to be configured incorrectly. This causes the endpoint to acknowledge incoming packets, which results in the host controller not transmitting any more packets to that endpoint.

19.3 Bug Fixes in Stellaris Graphics Library

19.3.1 Rendering of 1bpp and 4bpp compressed images (Reference 9642)

`GrlImageDraw()` now properly displays 1bpp and 4bpp compressed images. Due to a pair of rounding errors, previously it would incorrectly display images that were not a multiple of 8 pixels wide (1bpp) or 2 pixels wide (4bpp).

19.4 Bug Fixes in Third Party Packages

19.4.1 MIME type for icons is now correctly set (Reference 10021)

The lwIP HTTPD server and `makefsfile` tool have both been updated to correctly recognize files with extension “.ico” and report these as type `image/x-icon`. In previous releases, these were not

specifically handled and defaulted to MIME type text/plain.

19.5 Bug Fixes in Stellaris Host Tools

19.5.1 MIME type for icons is now correctly set (Reference 10021)

The lwIP HTTPD server and makefsfile tool have both been updated to correctly recognize files with extension “.ico” and report these as type image/x-icon. In previous releases, these were not specifically handled and defaulted to MIME type text/plain.

19.6 New Features in Stellaris USB Library

19.6.1 Add support for USB audio class in device mode. (Reference 9894)

This update adds support for USB audio device class to the USB library. The USB audio class support only audio playback with volume control implemented as well. The audio device class is implemented as a generic USB audio class and will work with any operating system that supports USB audio class devices without the need for additional operating system drivers.

19.7 Bug Fixes in Stellaris USB Library

19.7.1 USB library enumeration code not properly clearing FIFO flags. (Reference 10044)

When handling standard device request, the USB library was not always clearing the FIFO read flag when a new request was received. This could effect any commands that followed the request that failed to clear the FIFO read flag.

19.7.2 USB library not handling VBUS errors in OTG mode. (Reference 10100)

The USB library is not properly handling VBUS error interrupts during host enumeration in OTG mode. If VBUS error occurs during enumeration, it causes the USB library code to hang in an intermediate state and not properly turn off power and retry the connection.

19.8 New Features in Stellaris Utility Library

19.8.1 New function `ustrnicmp` added to the `ustdlib` module (Reference 9862)

An implementation of the standard C runtime `strnicmp` (compare strings without regard to case) has been added to the `ustrlib` module.

19.8.2 General purpose TFTP server module added (Reference 10053)

A new general purpose TFTP server module has been added to the `utils` directory for all kits supporting Ethernet. This module makes use of the lwIP TCP/IP stack and offers a simple method of transferring files to and from an application over Ethernet.

19.9 Bug Fixes in Stellaris Utility Library

19.9.1 Fix UDP-Only configuration of LWIP (Reference 9898)

Add conditional compilation wrapper to the code that supports the TCP timer. This will prevent undefined references when compiling the LWIP library for UDP only (i.e. no TCP).

19.10 New Features in DK-LM3S9B96 Firmware Package

19.10.1 Improved boot loader performance for `dk-lm3s9b96` (Reference 9842)

The boot loader was reworked to offer the ability to replace the low level flash sizing, erase and programming functions. For Tempest-class devices such as the `lm3s9b96`, the boot loader flash programming function has been replaced with a version which makes use of the flash write buffer, improving download performance dramatically compared to the previous release. Note that the ROM-based boot loaders for Tempest-class devices were already making use of the flash write buffer - this change only affects boot loaders built to run from flash or SRAM.

19.10.2 `qs-checkout` example now uses general-purpose TFTP server (Reference 9976)

The `qs-checkout` example application for `dk-lm3s9b96` has been updated to make use of the new, general-purpose TFTP module (`utils/tftp.c`).

19.10.3 EPI configuration moved to PinoutSet() function (Reference 10012)

Configuration of the External Peripheral Interface (EPI) has been moved from individual drivers into the PinoutSet() function. This ensures that any external memories attached via EPI are accessible from early in the application startup process.

19.10.4 General purpose TFTP server module added (Reference 10053)

A new general purpose TFTP server module has been added to the utils directory for all kits supporting Ethernet. This module makes use of the lwIP TCP/IP stack and offers a simple method of transferring files to and from an application over Ethernet.

19.11 Bug Fixes in DK-LM3S9B96 Firmware Package

19.11.1 Missing configuration options added for EPIConfigHB8Set and EPIConfigNoModeSet (Reference 9778)

Additional flags have been added for use in the ulConfig parameter passed to EPIConfigNoModeSet and EPIConfigHB8Set. These allow selection of word access mode and, for the HostBus8 case, allow the function of CS to be defined. Prior to this addition, direct access to an EPI configuration register was required to set these options.

19.11.2 Sound driver improperly calls buffer callback function. (Reference 10010)

The sound driver could call a buffer's callback function after the buffer had already been used. The buffer callback will now only be called if the buffer pointer is still valid.

19.11.3 MIME type for icons is now correctly set (Reference 10021)

The lwIP HTTPD server and makefsfile tool have both been updated to correctly recognize files with extension ".ico" and report these as type image/x-icon. In previous releases, these were not specifically handled and defaulted to MIME type text/plain.

19.11.4 Fix compatibility problem with recent Keil compiler in the usb_stick_update example application (Reference 10038)

The static declaration on a function was removed to work around a problem in the recent Keil toolchain (3.50) that was causing an internal fault in the compiler.

19.12 Bug Fixes in EK-LM3S3748 Firmware Package

19.12.1 Fix compatibility problem with recent Keil compiler in the usb_stick_update example application (Reference 10038)

The static declaration on a function was removed to work around a problem in the recent Keil toolchain (3.50) that was causing an internal fault in the compiler.

19.13 New Features in EK-LM3S6965 Firmware Package

19.13.1 General purpose TFTP server module added (Reference 10053)

A new general purpose TFTP server module has been added to the utils directory for all kits supporting Ethernet. This module makes use of the lwIP TCP/IP stack and offers a simple method of transferring files to and from an application over Ethernet.

19.14 Bug Fixes in EK-LM3S6965 Firmware Package

19.14.1 MIME type for icons is now correctly set (Reference 10021)

The lwIP HTTPD server and makefsfile tool have both been updated to correctly recognize files with extension “.ico” and report these as type image/x-icon. In previous releases, these were not specifically handled and defaulted to MIME type text/plain.

19.15 New Features in EK-LM3S8962 Firmware Package

19.15.1 General purpose TFTP server module added (Reference 10053)

A new general purpose TFTP server module has been added to the utils directory for all kits supporting Ethernet. This module makes use of the lwIP TCP/IP stack and offers a simple method of transferring files to and from an application over Ethernet.

19.16 Bug Fixes in EK-LM3S8962 Firmware Package

19.16.1 MIME type for icons is now correctly set (Reference 10021)

The lwIP HTTPD server and makefsfile tool have both been updated to correctly recognize files with extension “.ico” and report these as type image/x-icon. In previous releases, these were not specifically handled and defaulted to MIME type text/plain.

19.17 New Features in EK-LM3S9B90 Firmware Package

19.17.1 General purpose TFTP server module added (Reference 10053)

A new general purpose TFTP server module has been added to the utils directory for all kits supporting Ethernet. This module makes use of the lwIP TCP/IP stack and offers a simple method of transferring files to and from an application over Ethernet.

19.18 Bug Fixes in EK-LM3S9B90 Firmware Package

19.18.1 Missing configuration options added for EPIConfigHB8Set and EPIConfigNoModeSet (Reference 9778)

Additional flags have been added for use in the ulConfig parameter passed to EPIConfigNoModeSet and EPIConfigHB8Set. These allow selection of word access mode and, for the HostBus8 case, allow the function of CS to be defined. Prior to this addition, direct access to an EPI configuration register was required to set these options.

19.18.2 MIME type for icons is now correctly set (Reference 10021)

The lwIP HTTPD server and makefsfile tool have both been updated to correctly recognize files with extension “.ico” and report these as type image/x-icon. In previous releases, these were not specifically handled and defaulted to MIME type text/plain.

19.18.3 Fix compatibility problem with recent Keil compiler in the usb_stick_update example application (Reference 10038)

The static declaration on a function was removed to work around a problem in the recent Keil toolchain (3.50) that was causing an internal fault in the compiler.

19.19 New Features in EK-LM3S9B92 Firmware Package

19.19.1 General purpose TFTP server module added (Reference 10053)

A new general purpose TFTP server module has been added to the utils directory for all kits supporting Ethernet. This module makes use of the lwIP TCP/IP stack and offers a simple method of transferring files to and from an application over Ethernet.

19.20 Bug Fixes in EK-LM3S9B92 Firmware Package

19.20.1 MIME type for icons is now correctly set (Reference 10021)

The lwIP HTTPD server and makefsfile tool have both been updated to correctly recognize files with extension “.ico” and report these as type image/x-icon. In previous releases, these were not specifically handled and defaulted to MIME type text/plain.

19.20.2 Fix compatibility problem with recent Keil compiler in the usb_stick_update example application (Reference 10038)

The static declaration on a function was removed to work around a problem in the recent Keil toolchain (3.50) that was causing an internal fault in the compiler.

19.21 New Features in RDK-IDM Firmware Package

19.21.1 General purpose TFTP server module added (Reference 10053)

A new general purpose TFTP server module has been added to the utils directory for all kits supporting Ethernet. This module makes use of the lwIP TCP/IP stack and offers a simple method of transferring files to and from an application over Ethernet.

19.22 Bug Fixes in RDK-IDM Firmware Package

19.22.1 MIME type for icons is now correctly set (Reference 10021)

The lwIP HTTPD server and makefsfile tool have both been updated to correctly recognize files with extension “.ico” and report these as type image/x-icon. In previous releases, these were not specifically handled and defaulted to MIME type text/plain.

19.23 New Features in RDK-IDM-SBC Firmware Package

19.23.1 General purpose TFTP server module added (Reference 10053)

A new general purpose TFTP server module has been added to the utils directory for all kits supporting Ethernet. This module makes use of the lwIP TCP/IP stack and offers a simple method of transferring files to and from an application over Ethernet.

19.23.2 Add USB Memory Stick Updater Application (Reference 10048)

Two new applications have been added to demonstrate the ability to perform a firmware update over USB from a memory stick. The application `usb_stick_update` is the updater, and the application `usb_stick_demo` provides an example that can be loaded from a USB memory stick.

19.24 Bug Fixes in RDK-IDM-SBC Firmware Package

19.24.1 Sound driver improperly calls buffer callback function. (Reference 10010)

The sound driver could call a buffer's callback function after the buffer had already been used. The buffer callback will now only be called if the buffer pointer is still valid.

19.24.2 MIME type for icons is now correctly set (Reference 10021)

The lwIP HTTPD server and `makefsfile` tool have both been updated to correctly recognize files with extension ".ico" and report these as type `image/x-icon`. In previous releases, these were not specifically handled and defaulted to MIME type `text/plain`.

19.25 New Features in RDK-S2E Firmware Package

19.25.1 General purpose TFTP server module added (Reference 10053)

A new general purpose TFTP server module has been added to the `utils` directory for all kits supporting Ethernet. This module makes use of the lwIP TCP/IP stack and offers a simple method of transferring files to and from an application over Ethernet.

19.26 Bug Fixes in RDK-S2E Firmware Package

19.26.1 MIME type for icons is now correctly set (Reference 10021)

The lwIP HTTPD server and `makefsfile` tool have both been updated to correctly recognize files with extension ".ico" and report these as type `image/x-icon`. In previous releases, these were not specifically handled and defaulted to MIME type `text/plain`.

20 Release Notes for StellarisWare Revision 4781 (June 30, 2009)

New Features for Stellaris Peripheral Driver Library	173
Bug Fixes for Stellaris Peripheral Driver Library	174
Bug Fixes for Stellaris Graphics Library	174
New Features for DK-LM3S9B96 Firmware Package	175
New Features for EK-LM3S3748 Firmware Package	175
New Features for EK-LM3S9B90 Firmware Package	175
New Features for EK-LM3S9B92 Firmware Package	175
Bug Fixes for RDK-IDM Firmware Package	175
Bug Fixes for RDK-IDM-SBC Firmware Package	176
Bug Fixes for Stellaris Firmware Development Package	176

20.1 New Features in Stellaris Peripheral Driver Library

20.1.1 Add API for ADC Digital Comparators (Reference 9668)

In the Tempest class devices, a Digital Comparator feature has been added to the ADC module. This feature allows ADC samples to be sent to a digital comparator. This comparator can be programmed to trigger on low-band, mid-band or high-band values, and the trigger can be used to generate an interrupt or trigger a fault condition to the PWM module. The ADC API has been expanded to provide support for this new feature. Additional details about the operation of the digital comparator can be found in the data sheets for the Tempest Class Stellaris devices.

20.1.2 Added support devices that support 32 USB endpoints. (Reference 9666)

Newer devices allow for more endpoints with up to 32 IN/OUT endpoints now available. Support for the additional endpoints was added to the DriverLib USB functions and examples of using the new APIs were added to the USB library. The main change to the DriverLib API was to deprecate the interrupt handling functions because they could not support 32 endpoints as defined. The deprecated APIs are USBIntDisable(), USBIntEnable(), USBIntStatus() which can still be used with older devices that have only 8 endpoints. There are six added APIs that provide the same functionality, except the new APIs are split between control interrupts and endpoint interrupts. The new APIs are the following: USBIntDisableControl(), USBIntEnableControl(), USBIntStatusControl(), USBIntDisableEndpoint(), USBIntEnableEndpoint(), and USBIntStatusEndpoint(). The flags to use with the new USB control interrupt functions start with USB_INTCTRL_ while the new USB endpoint interrupt functions use the USB_INTEP_ flags.

20.2 Bug Fixes in Stellaris Peripheral Driver Library

20.2.1 SysCtlClockGet() provided incorrect results in some cases (Reference 9555)

If the PLL is enabled, SysCtlClockGet() now applies the system divider to the computed PLL output frequency even if the USESYSYSDIV bit in RCC is not set. It is possible to configure RCC where the PLL is enabled and USESYSYSDIV is not set, but the device forces the use of the system divider (since the PLL is enabled). This change causes SysCtlClockGet() to mimic the behavior of the device and therefore provide correct results in this case.

20.2.2 USBDevEndpointConfig() deprecated in favor of USBDevEndpointConfigSet() (Reference 9297)

The function USBDevEndpointConfig() has been marked as DEPRECATED and the name has been changed to USBDevEndpointConfigSet() to be symmetrical with the USBDevEndpointConfigGet() API. This has no affect on any current code however the definitions for USBDevEndpointConfig() may be removed at some point in the future.

20.2.3 SysCtlPeripheralPresent() did not properly handle USB (Reference 9756)

The SysCtlPeripheralPresent() API added a case to handle the USB peripheral because the current definition will incorrectly indicate the presence of the USB0 peripheral even when there is no USB controller present.

20.3 Bug Fixes in Stellaris Graphics Library

20.3.1 WidgetRemove() now clears the widget's next pointer (Reference 9615)

The next pointer on a widget is now cleared when it is removed from the widget tree with WidgetRemove(). If the widget is later added back to the widget tree with WidgetAdd(), it will no longer corrupt the widget tree since the next pointer no longer points to a potentially invalid widget.

20.3.2 GrStringSet() did not properly handle the ulSize parameter (Reference 9630)

The GrStringGet() was not using the ulSize parameter in all cases and was allowing the function to write beyond the end of the buffer provided to the function. This could cause other variables or data to overwritten with data for a given string.

20.4 New Features in DK-LM3S9B96 Firmware Package

20.4.1 Add USB Memory Stick Updater Application (Reference 9722)

Two new applications have been added to demonstrate the ability to perform a firmware update over USB from a memory stick. The application `usb_stick_update` is the updater, and the application `usb_stick_demo` provides an example that can be loaded from a USB memory stick.

20.5 New Features in EK-LM3S3748 Firmware Package

20.5.1 Add USB Memory Stick Updater Application (Reference 9722)

Two new applications have been added to demonstrate the ability to perform a firmware update over USB from a memory stick. The application `usb_stick_update` is the updater, and the application `usb_stick_demo` provides an example that can be loaded from a USB memory stick.

20.6 New Features in EK-LM3S9B90 Firmware Package

20.6.1 Add USB Memory Stick Updater Application (Reference 9722)

Two new applications have been added to demonstrate the ability to perform a firmware update over USB from a memory stick. The application `usb_stick_update` is the updater, and the application `usb_stick_demo` provides an example that can be loaded from a USB memory stick.

20.7 New Features in EK-LM3S9B92 Firmware Package

20.7.1 Add USB Memory Stick Updater Application (Reference 9722)

Two new applications have been added to demonstrate the ability to perform a firmware update over USB from a memory stick. The application `usb_stick_update` is the updater, and the application `usb_stick_demo` provides an example that can be loaded from a USB memory stick.

20.8 Bug Fixes in RDK-IDM Firmware Package

20.8.1 `sd_card` application was not properly configuring the Graphics Library (Reference 9793)

The `sd_card` application was failing to properly configure the Graphics Library before calling `GrStringDraw()` which was causing the application to halt. This problem occurred whenever a re-

quest to update the firmware was received from the Ethernet controller.

20.9 Bug Fixes in RDK-IDM-SBC Firmware Package

20.9.1 Corrected text misalignment in usb_host_mouse and usb_host_keyboard (Reference 9787)

The text strings in the status panel at the bottom of the display for the IDM-SBC versions of usb_host_mouse and usb_host_keyboard have been moved to prevent possible overlap.

20.10 Bug Fixes in Stellaris Firmware Development Package

20.10.1 Updated project files for Sourcery G++ for Stellaris (Reference 9667)

The project files for Sourcery G++ for Stellaris have been updated to reflect the requirements of the new version of CodeSourcery's tool chain. This fixes some of the project/workspace import problems that occurred with the previous version of StellarisWare and Sourcery G++ for Stellaris.

21 Release Notes for StellarisWare Revision 4694 (May 27, 2009)

New Features for Stellaris Graphics Library	177
New Features for Stellaris USB Library	177
Bug Fixes for DK-LM3S9B96 Firmware Package	177

21.1 New Features in Stellaris Graphics Library

21.1.1 Additions to the ImageButton widget (Reference 9484)

New functionality has been added to the ImageButton widget offered by the Graphics Library. The widget now supports IB_STYLE_FILL for drawing a background color and new macros allow the button background and keycap images to be enabled and disabled. These changes have been implemented to keep the interface backwards compatible, hence the use of style flags IB_STYLE_KEYCAP_OFF and IB_STYLE_IMAGE_OFF (since the previous version of the widget assumed that both images were disabled unless a NULL pointer was used to populate the relevant image pointer).

21.2 New Features in Stellaris USB Library

21.2.1 USB host event driver added to USB library (Reference 9534)

An event driver was added to the USB host library to provide notification of important system events and class specific events that were previously not visible to the application.

21.3 Bug Fixes in DK-LM3S9B96 Firmware Package

21.3.1 i2s_demo application report wrong elapsed time for 8bit wav files. (Reference 8973)

There was a problem in the interpretation of the byte rate of .wav files being played that caused the byte rate calculation to be incorrect by a factor of 2 for 8 bit .wav files.

22 Release Notes for StellarisWare Revision 4674 (May 19, 2009)

Bug Fixes for Stellaris Boot Loader	179
New Features for Stellaris Peripheral Driver Library	180
Bug Fixes for Stellaris Graphics Library	180
New Features for Third Party Packages	181
Bug Fixes for Third Party Packages	181
New Features for Stellaris Host Tools	181
Bug Fixes for Stellaris Host Tools	182
Bug Fixes for Stellaris USB Library	183
New Features for Stellaris Utility Library	183
Bug Fixes for Stellaris Utility Library	183
New Features for DK-LM3S9B96 Firmware Package	184
Bug Fixes for DK-LM3S9B96 Firmware Package	184
New Features for EK-LM3S3748 Firmware Package	185
Bug Fixes for EK-LM3S3748 Firmware Package	185
Bug Fixes for EK-LM3S6965 Rev A Firmware Package	186
Bug Fixes for EK-LM3S6965 Firmware Package	186
Bug Fixes for EK-LM3S8962 Firmware Package	186
New Features for EK-LM3S9B90 Firmware Package	187
Bug Fixes for EK-LM3S9B90 Firmware Package	187
New Features for EK-LM3S9B92 Firmware Package	187
Bug Fixes for EK-LM3S9B92 Firmware Package	188
Bug Fixes for RDK-BLDC Firmware Package	188
Bug Fixes for RDK-IDM-SBC Firmware Package	188
Bug Fixes for RDK-S2E Firmware Package	189
New Features for Stellaris Firmware Development Package	189

22.1 Bug Fixes in Stellaris Boot Loader

22.1.1 Ethernet boot loader hangs in some cases (Reference 9240)

A delay has been added between enabling the Ethernet controller and accessing it. If the boot loader was configured to enable the Ethernet LEDs, this was performing the function of that delay. If the LEDs were not used, a fault would occur since the Ethernet controller was accessed too quickly after being enabled. This delay resolves that problem in the case that the LEDs are not used.

22.2 New Features in Stellaris Peripheral Driver Library

22.2.1 Added two new uDMA API functions to support the interrupt status register in Tempest (Reference 9179)

Added two new functions to the uDMA API: `uDMAIntStatus()` and `uDMAIntClear()` to support the new DMA interrupt status register that is available in Tempest class parts.

22.2.2 Add CAN Bit Rate API (Reference 9315)

A simplified CAN Bit Rate API, `CANBitRateSet()` was added to provide an easier method of setting the CAN bit timing as opposed to having to fully specify the CAN bit timing with the `CANBitTimingSet()` API. The new API can directly set the CAN bit rate based on the clock source for the CAN controller. The `CANBitTimingSet()` API can still be used if more precise timing parameters are needed by an application.

22.2.3 Added I2S and EPI drivers to DriverLib (Reference 9419)

Drivers have been added for the I2S and EPI peripherals that are available on the new Stellaris parts.

22.3 Bug Fixes in Stellaris Graphics Library

22.3.1 Corrected operation of `ListBoxLock()` and `ListBoxUnlock()` (Reference 9441)

In previous releases, the operation of the `ListBoxLock()` and `ListBoxUnlock()` macros was reversed. This has now been corrected.

22.3.2 Corrected operation of Lock and Unlock macros for Slider and JPEG-Widget (Reference 9471)

In previous releases, the operation of the `SliderLock()/SliderUnlock()` and `JPEGWidgetLock()/JPEGWidgetUnlock()` macros were reversed. This has now been corrected.

22.4 New Features in Third Party Packages

22.4.1 Added support for AES ROM tables in Tempest class parts (Reference 9089)

Modified the AES code in `third_party` to use the AES tables from ROM for Tempest class devices. Also modified the AES example applications for Tempest based boards.

22.5 Bug Fixes in Third Party Packages

22.5.1 Closed lwIP HTTPD timing hole that could cause hangs on connection shutdown (Reference 9256)

A race condition in the lwIP HTTPD server which could cause a NULL pointer to be dereferenced in some cases during connection termination was fixed.

22.5.2 lwIP HTTP server now sends correct headers for XML files (Reference 9358)

The lwIP HTTPD server previously described XML files using header "text/plain". This caused problems for AJAX browser applications since the XML responses were not parsed correctly when received. The server now uses the correct "text/xml" header with any file whose extension is ".xml".

22.6 New Features in Stellaris Host Tools

22.6.1 New board locator tool for Ethernet-based applications (Reference 9094)

A board locator tool has been created that will search the Ethernet network for Stellaris-based boards running code which utilizes Ethernet and the board locator service. This allows an easy method to discover the presence, IP address, and MAC address of the Ethernet-based boards on the network, as well as a description of the application that is running on that board.

22.6.2 Windows USB Examples have moved to the tools directory (Reference 9388)

The Windows USB example applications which were previously found in the `StellarisWare/boards/ek-lm3s3748/windows_examples` directory have moved to the `StellarisWare/tools` directory instead. Previously, these examples only applied to the `lm3s3748` kit but,

with the introduction of new Im3s9b90, Im3s9b92 and Im3s9b96 kits, they are now required by several boards so this change ensures that they are in a single, common location for all boards that make use of them.

22.6.3 Update to Red Suite Project Import XML Files (Reference 9445)

Red Suite Version 2 upgrades the compiler tools to version 4.3.2. For building the boot loader, the `-Os` option should be specified now (same as for Code Sourcery and GCC). Also, the way that compiler defines are specified has changed and the new XML files will support these changes.

22.7 Bug Fixes in Stellaris Host Tools

22.7.1 Makefile updated to prevent generation of invalid C code (Reference 8651)

The makefile tool was updated to ensure that filenames containing characters which are not legal within C variable names would be correctly translated into something that is valid C. In the previous version, only spaces, dots and slashes were replaced with underscores. The new version adds all the non-alphanumeric (shifted) characters to this list. Without this change, it was possible to generate a C file system image file which would not compile if filenames in the directory being imaged contained characters such as `'-'`, `'+'`.

22.7.2 makefile tool now adds correct headers to XML files (Reference 9361)

The makefile tool, used to generate images for internal file systems which can be used by the lwIP HTTP server, would previously describe any file with a `.xml` extension as `'text/plain'` rather than `'text/xml'`. This caused problems when using AJAX since the XMLHttpRequest object would not have the `responseXML` field set when the asynchronous request completed (the response would be stored only in the `responseText` field).

22.7.3 Library files for Windows USB DLLs have been added to the release (Reference 9386)

In previous releases, the library files `Imusb.dll` and `Imdfu.dll` were missing making it impossible to build some of the USB example applications without having access to the Windows Device Driver Kit. These files have now been added to the appropriate directories under `StellarisWare/tools` allowing the examples to be built. Additionally, copies of the files have been included in the Windows device driver package (`SW-USB-windrivers`) which already includes the DLLs that these library files relate to, `Imusb.dll` and `Imdfu.dll`.

22.8 Bug Fixes in Stellaris USB Library

22.8.1 Fixed a USB host MSC bug causing a hang on multi-block reads (Reference 9411)

A bug existed in the previous release which would cause `USBHMSCBlockRead()` and `USBHMSCBlockWrite()` to hang if passed a `ulNumBlocks` value greater than 1. This was due to an assumption in `usbhscsi.c` that all reads and writes would be performed on a block-by-block basis resulting in incorrect block numbers being written to the read and write command blocks generated in `USBHSCSIRead10()` and `USBHSCSIWrite10()`.

22.8.2 `USBDCDInit()` now disconnects before reconnecting (Reference 9442)

The `USBLib` device initialization function `USBDCDInit()` now explicitly disconnects the device from the bus and delays approximately 100mS before connecting it once again. The previous version of the function did not perform this disconnect operation and, as a result, if the function was called when the device was already connected to the USB bus, it would not be reenumerated resulting in missing callbacks to the application and resulting application confusion.

22.9 New Features in Stellaris Utility Library

22.9.1 Added function `fs_map_path()` to `fswrapper` module (Reference 9322)

The `fswrapper` module offers a method to give multiple file system images user-friendly names in web URLs. It can support FAT logical drives and binary file system images but only provides the subset of file system operations typically required by a web server. To allow access to the more advanced functions provided by `FatFS` for FAT logical drives, a new API has been provided, `fs_map_path()`, which will map a path in the `fswrapper` namespace to the equivalent path at the `FatFS` level (for mount points that correspond to FAT logical drives). For example, passing the string `"/sdcard/index.htm"` would return `"0:/index.htm"` assuming the mount point name `"sdcard"` is associated with FAT logical drive number 0.

22.10 Bug Fixes in Stellaris Utility Library

22.10.1 Change between static and DHCP IP sometimes fails (Reference 9438)

The function, `lwIPNetworkConfigChange`, does not always switch properly between static IP and Auto IP (with DHCP). This is due to the fact that the variable that retains the current IP mode setting

is not properly saved. This variable, `g_uIIPMode`, is now saved at the end of the function for all cases.

22.11 New Features in DK-LM3S9B96 Firmware Package

22.11.1 Added support for AES ROM tables in Tempest class parts (Reference 9089)

Modified the AES code in `third_party` to use the AES tables from ROM for Tempest class devices. Also modified the AES example applications for Tempest based boards.

22.12 Bug Fixes in DK-LM3S9B96 Firmware Package

22.12.1 Library files for Windows USB DLLs have been added to the release (Reference 9386)

In previous releases, the library files `lmsusb.dll.lib` and `lmdfu.dll.lib` were missing making it impossible to build some of the USB example applications without having access to the Windows Device Driver Kit. These files have now been added to the appropriate directories under `StellarisWare/tools` allowing the examples to be built. Additionally, copies of the files have been included in the Windows device driver package (`SW-USB-windrivers`) which already includes the DLLs that these library files relate to, `lmsusb.dll` and `lmdfu.dll`.

22.12.2 Corrected operation of Lock and Unlock macros for Slider and JPG-Widget (Reference 9471)

In previous releases, the operation of the `SliderLock()/SliderUnlock()` and `JPEGWidgetLock()/JPEGWidgetUnlock()` macros were reversed. This has now been corrected.

22.12.3 Web server opens Luminary Micro site in the wrong frame (Reference 9488)

In various applications supporting an embedded web server (depending upon the kit, `enet_io`, `enet_lwip`, `qs-checkout` and `idm-checkout`) used to open the link to <http://www.luminarymicro.com> within a frame. The sites have been updated to open this link in the top level window instead.

22.13 New Features in EK-LM3S3748 Firmware Package

22.13.1 Windows USB Examples have moved to the tools directory (Reference 9388)

The Windows USB example applications which were previously found in the StellarisWare/boards/ek-lm3s3748/windows_examples directory have moved to the StellarisWare/tools directory instead. Previously, these examples only applied to the lm3s3748 kit but, with the introduction of new lm3s9b90, lm3s9b92 and lm3s9b96 kits, they are now required by several boards so this change ensures that they are in a single, common location for all boards that make use of them.

22.14 Bug Fixes in EK-LM3S3748 Firmware Package

22.14.1 Library files for Windows USB DLLs have been added to the release (Reference 9386)

In previous releases, the library files lmusbdll.lib and lmdfu.lib were missing making it impossible to build some of the USB example applications without having access to the Windows Device Driver Kit. These files have now been added to the appropriate directories under StellarisWare/tools allowing the examples to be built. Additionally, copies of the files have been included in the Windows device driver package (SW-USB-windrivers) which already includes the DLLs that these library files relate to, lmusbdll.dll and lmdfu.dll.

22.14.2 Stack overflow in usb_dev_serial example (Reference 9446)

The stack size allocated for the usb_dev_serial example was increased to prevent an overflow which had been seen occasionally in a previous version of the application.

22.14.3 Bitband example was failing to run on all tool chains. (Reference 9443)

The bitband example was failing on some tool chains due to the stack not being large enough. The stack size was increased to prevent the stack overflow from causing the application to crash.

22.15 Bug Fixes in EK-LM3S6965 Rev A Firmware Package

22.15.1 enet_ptpd web server occasionally returns too much data (Reference 9435)

The file system module in the enet_ptpd application used strlen() to determine the amount of data that should be served up by the web server instead of the file size that is stored in the file system structure. Return the stored size instead since the strlen() size since the later can be incorrect at times (if there is no trailing NULL in the file data).

22.15.2 Replace use of strstr with strstr (Reference 9447)

To avoid potential runtime library issues that vary from toolchain to toolchain, replace the use of the strstr function with strstr, which is provided in the utils folder.

22.16 Bug Fixes in EK-LM3S6965 Firmware Package

22.16.1 enet_ptpd web server occasionally returns too much data (Reference 9435)

The file system module in the enet_ptpd application used strlen() to determine the amount of data that should be served up by the web server instead of the file size that is stored in the file system structure. Return the stored size instead since the strlen() size since the later can be incorrect at times (if there is no trailing NULL in the file data).

22.16.2 Replace use of strstr with strstr (Reference 9447)

To avoid potential runtime library issues that vary from toolchain to toolchain, replace the use of the strstr function with strstr, which is provided in the utils folder.

22.17 Bug Fixes in EK-LM3S8962 Firmware Package

22.17.1 enet_ptpd web server occasionally returns too much data (Reference 9435)

The file system module in the enet_ptpd application used strlen() to determine the amount of data that should be served up by the web server instead of the file size that is stored in the file system structure. Return the stored size instead since the strlen() size since the later can be incorrect at times (if there is no trailing NULL in the file data).

22.17.2 Replace use of strstr with strstr (Reference 9447)

To avoid potential runtime library issues that vary from toolchain to toolchain, replace the use of the strstr function with strstr, which is provided in the utils folder.

22.18 New Features in EK-LM3S9B90 Firmware Package

22.18.1 Added applications for new evaluation board (Reference 9348)

A suite of example applications has been added for the new evaluation board.

22.18.2 Added support for AES ROM tables in Tempest class parts (Reference 9089)

Modified the AES code in third_party to use the AES tables from ROM for Tempest class devices. Also modified the AES example applications for Tempest based boards.

22.19 Bug Fixes in EK-LM3S9B90 Firmware Package

22.19.1 Library files for Windows USB DLLs have been added to the release (Reference 9386)

In previous releases, the library files lmusbdll.lib and lmdfu.lib were missing making it impossible to build some of the USB example applications without having access to the Windows Device Driver Kit. These files have now been added to the appropriate directories under StellarisWare/tools allowing the examples to be built. Additionally, copies of the files have been included in the Windows device driver package (SW-USB-windrivers) which already includes the DLLs that these library files relate to, lmusbdll.dll and lmdfu.dll.

22.20 New Features in EK-LM3S9B92 Firmware Package

22.20.1 Added applications for new evaluation board (Reference 9348)

A suite of example applications has been added for the new evaluation board.

22.20.2 Added support for AES ROM tables in Tempest class parts (Reference 9089)

Modified the AES code in third_party to use the AES tables from ROM for Tempest class devices. Also modified the AES example applications for Tempest based boards.

22.21 Bug Fixes in EK-LM3S9B92 Firmware Package

22.21.1 Library files for Windows USB DLLs have been added to the release (Reference 9386)

In previous releases, the library files lmusbdll.lib and lmdfu.lib were missing making it impossible to build some of the USB example applications without having access to the Windows Device Driver Kit. These files have now been added to the appropriate directories under StellarisWare/tools allowing the examples to be built. Additionally, copies of the files have been included in the Windows device driver package (SW-USB-windrivers) which already includes the DLLs that these library files relate to, lmusbdll.dll and lmdfu.dll.

22.22 Bug Fixes in RDK-BLDC Firmware Package

22.22.1 Enhance Hall Sensor Speed Calculation (Reference 9476)

Modify the speed calculation algorithm to use every rising/falling edge of a Hall sensor input, instead of just the rising edge of Hall Sensor A. This improves the granularity of the speed calculation, and allows the PI loop to respond to changes in speed more quickly.

22.23 Bug Fixes in RDK-IDM-SBC Firmware Package

22.23.1 Corrected operation of Lock and Unlock macros for Slider and JPG-Widget (Reference 9471)

In previous releases, the operation of the SliderLock()/SliderUnlock() and JPEGWidgetLock()/JPEGWidgetUnlock() macros were reversed. This has now been corrected.

22.23.2 Web server opens Luminary Micro site in the wrong frame (Reference 9488)

In various applications supporting an embedded web server (depending upon the kit, enet_io, enet_lwip, qs-checkout and idm-checkout) used to open the link to

<http://www.luminarymicro.com> within a frame. The sites have been updated to open this link in the top level window instead.

22.24 Bug Fixes in RDK-S2E Firmware Package

22.24.1 Change between static and DHCP IP sometimes fails (Reference 9438)

The function, `lwIPNetworkConfigChange`, does not always switch properly between static IP and Auto IP (with DHCP). This is due to the fact that the variable that retains the current IP mode setting is not properly saved. This variable, `g_ulIPMode`, is now saved at the end of the function for all cases.

22.25 New Features in Stellaris Firmware Development Package

22.25.1 Add SourceryG++ for Stellaris project files (Reference 9469)

Project files (`.sgxx`) and workspace files (`.sgxw`) for use by the SourceryG++ for Stellaris IDE are now provided for the libraries, applications, and boards that are provided in StellarisWare.

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