StellarisWare Release Notes

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Revision Information

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1 Release Notes for StellarisWare Revision 10634 (March 29, 2013)

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1.1 Bug Fixes in Stellaris Boot Loader

1.1.1 Ethernet boot loader would accept packets with bad CRCs (Reference 15105)

The Ethernet boot loader now configures the Ethernet controller to reject packets with bad CRCs. This configuration must still be performed by the application in the case of application-initiated Ethernet firmware updates.

1.2 Bug Fixes in Stellaris Peripheral Driver Library

1.2.1 Fixed value of GPIO_HIGH_LEVEL (Reference 15387)

The value of GPIO_HIGH_LEVEL has been fixed so that it no longer results in GPIO_BOTH_EDGES behavior.

1.2.2 Upper 256K of flash could not be protected (Reference 15388)

The flash memory protection for the upper 256K of flash on Firestorm-class devices was not accessible via the FlashProtectGet() and FlashProtectSet() APIs. This has been corrected.

1.2.3 Remove GPIO_PIN_TYPE_OD_WP? (Reference 13848)

The pads do not support pull-downs or pull-ups when in open-drain mode, so the corresponding defines have been removed from the GPIO driver.

1.3 New Features in Stellaris Firmware Development Package

1.3.1 Added BSD-licensed project (Reference 15384)

A BSD-licensed project has been added to the examples/project directory of StellarisWare. This project can be used as a starting point for a project that does not utilize any source code covered by the TI StellarisWare Clickwrap SLA.

2 Release Notes for StellarisWare Revision 9453 (September 5, 2012)

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2.1 Bug Fixes in Stellaris Peripheral Driver Library

2.1.1 USBEndpointDataSend() not checking transmit ready correctly (Reference 14707)

The USBEndpointDataSend() function was using the incorrect bit definition to determine if a transmit packet was already pending on a non-zero endpoint. This caused the function to improperly return an error when the function should have accepted the request. Applications using double buffering were affected because the USBEndpointDataSend() function would fail until the FIFO from the previous transmission was complete. The USBEndpointDataSend() function now uses the correct bit definition and only exits when the function is called with a transfer already pending.

2.2 New Features in Stellaris MIFARE Library

2.2.1 Update MIFARE code to support the TRF7970 (Reference 15009)

The MIFARE has been updated to support the TRF7970 in addition to the TRF7960 that was previously supported. The radio to be used is selected at compile time.

2.3 New Features in Third Party Packages

2.3.1 FreeRTOS Support Added to LWIP (Reference 14820)

The LWIP supports FreeRTOS along with SafeRTOS. To use FreeRTOS, define NO_SYS to 0, RTOS_SAFERTOS to 0 and RTOS_FREERTOS to 1 in lwipopts.h project-specific file.

2.4 Bug Fixes in Stellaris Host Tools

2.4.1 Driver download instructions corrected in dfuprog (Reference 14943)

Instructions on how to download the Stellaris USB drivers in the dfuprog example application have been corrected. The application had not previously been updated when the USB drivers were moved from an independently-downloaded package into the StellarisWare release itself.

2.5 New Features in Stellaris USB Library

2.5.1 Minor changes to USBLib to aid use with an RTOS (Reference 14967)

Direct calls from the USB library to interrupt control functions which touch the NVIC have been replaced by macros. These can be replaced by RTOS-specific implementations in a new header file, driverlib/rtos_bindings.h, if the USB library is to be used in an application making use of an operating system. Note that this change does not imply that the USBLib API (or any other StellarisWare API) is reentrant but merely means that source code changes within the library are no longer required to ensure that it uses RTOS-friendly interrupt control functions.

2.5.2 USB buffer's insertion of zero-length packets is now controllable (Reference 15049)

A new API has been added to the USB library to control whether or not the USB buffer sends a zero-length packet in any case where a full (64 byte) packet has previously been sent and no more data remains to be transmitted. By default, no ZLP is transmitted but this can be enabled by calling the new USBBufferZeroLengthPacketInsert() function.

2.6 Bug Fixes in Stellaris USB Library

2.6.1 USB buffers failed to send required zero-length packets (Reference 14727)

A bug in the USB buffer code which caused transactions containing full packets not to complete correctly has been fixed. When a USB buffer has previously sent a full packet and that transmission completes with no more data remaining to send, a zero-length packet is now generated to signal to the host that the previous transaction is complete.

2.6.2 Non-DMA transfers greater than 64 bytes not completing (Reference 14776)

The USB host is not properly terminating transfers that are greater than 64 bytes when the transfer does not use DMA. The USB Host USBHCDPipeRead() function was terminating once the first transfer completed. The function is now properly sending packets of 64 bytes until all of the requested is sent.

2.6.3 USB device SCSI Inquiry command copying 16 bytes from a 4 byte string. (Reference 14921)

The USB device library for mass storage class was copying 16 bytes from the 4 byte version string when it received a SCSI Inquiry request. The length of the copy has been reduced to 4 bytes so that the extra bytes are not copied.

2.6.4 USBHubMain() could access uninitialized memory when Hub driver not present. (Reference 14955)

The USB library was accessing uninitialized memory when the USB hub driver was not included in a USB Host or OTG application. The USB library host stack now properly initializes all local instances of USB hub data and does not access USB hub functions when the USB Hub driver is not present.

2.7 New Features in Stellaris Utility Library

2.7.1 FreeRTOS Support Added to LWIP (Reference 14820)

The LWIP supports FreeRTOS along with SafeRTOS. To use FreeRTOS, define NO_SYS to 0, RTOS_SAFERTOS to 0 and RTOS_FREERTOS to 1 in lwipopts.h project-specific file.

2.7.2 Added %i support in printf-like functions (Reference 15001)

The formatting insert “i” can now be used as an alias for “d” in all printf-like calls in StellarisWare, UARTprintf() in uartstdio.c and usprintf(), usnprintf() and uvsnprintf() in ustdlib.c.

2.8 New Features in DK-LM3S9D96 Firmware Package

2.8.1 Selection between SafeRTOS/FreeRTOS in LWIP applications (Reference 14835)

LWIP supports FreeRTOS along with SafeRTOS. Project-specific file lwipopts.h is updated to enable selection between SafeRTOS or FreeRTOS. To use SafeRTOS, define NO_SYS to 0, RTOS_FREERTOS to 0 and RTOS_SAFERTOS to 1.

3 Release Notes for StellarisWare Revision 9107 (June 7, 2012)

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3.1 New Features in Stellaris Peripheral Driver Library

3.1.1 Driver Library Moved to TI BSD License (Reference 14617)

The driver library has been moved to the TI BSD License. Please refer to the TI-BSD-EULA.txt file in the root of the StellarisWare install for the terms of this license.

3.2 New Features in Stellaris Graphics Library

3.2.1 Support added for UTF-16 text encoding (Reference 14485)

Codepage mapping functions supporting UTF-16LE and UTF-16BE text encoding formats have been added to the graphics library. This allows UTF-16 strings to be passed to GrStringDraw() if the text codepage has been set to the appropriate UTF-16 format first. Note that this support does not extend to string tables which must still be encoded using UTF-8 or an 8-bit codepage from the ISO8859 or Windows125x sets.

3.3 Bug Fixes in Stellaris Graphics Library

3.3.1 GrTransparentImageDraw and GrImageDraw could corrupt images in some cases (Reference 14670)

Various bugs in GrTransparentImageDraw and GrImageDraw have been fixed. Previous code could cause corruption of 1-bpp and 4-bpp images drawn via either function when particular clipping rectangles were in use. Further, use of 1-bpp and 4-bpp images in GrTransparentImageDraw would often cause pixel shifts in some image segments resulting in incorrect, jagged edges in the rendered image.

3.4 New Features in Stellaris Host Tools

3.4.1 New command line option for ftrasterize (Reference 14477)

A new command line option, “-l”, has been added to ftrasterize to allow the bitmaps for chosen codepoints to be displayed on the terminal using a grid of “.” and “X” characters. This can be useful when checking font codepage support or to see the bitmap that will be encoded into the output file. When “-l” is specified, no font output files are written. The characters displayed are those that would otherwise be encoded according to the character map file or the “-p” and “-e” parameters passed. To display a single character’s glyph, use “-p” and “-e” and set each to the code of the character whose bitmap is to be displayed. When using “-l”, “-s” is also required to set the size of the glyphs that are displayed.

3.5 Bug Fixes in Stellaris Host Tools

3.5.1 Update to CCS Project Files (Reference 14595)

When importing CCS projects in the CCSv5, the board application files are copied into the CCS workspace. Also, the board application folder is added to the include file path. If this folder contains header files, the project will then have header files with the same name in two different locations: the workspace and the original application folder. This has been corrected by changing the CCS include path to reference the CCS workspace/project folder rather than the original source tree project folder.

3.6 New Features in Stellaris USB Library

3.6.1 USB Library host enable/disable event notification (Reference 14666)

The USB library added the ability to enable and disable some of the event notifications that are sent to the application when the library is operating in host mode. The USBHCDEventEnable() and USBHCDEventDisable() are the new APIs that can be used by an application to enable or disable the USB library from signaling certain USB events. By default all current events will still signal as before, but now the application can enable or disable events at any time. The USB library also added a new event USB_EVENT_SOF that is signaled every time a start of frame event occurs.

3.7 Bug Fixes in Stellaris USB Library

3.7.1 USB Device HID was not properly handling SET REPORT (Reference 14594)

The USB library was not responding correctly to SET REPORT request and was incorrectly stalling some transactions. This error was timing dependent and did not occur all transactions. It was caused USB HID code not properly acknowledging the SET REPORT request and indicating that more data was expected causing a stall condition. This affected the USB keyboard device class by not always allowing the host to send the modifier keys to a keyboard device, causing the keyboard to get out of sync with the host.

3.7.2 USB Library host hub reset timing incorrect (Reference 14468)

The USB library was not inserting the required delays before accessing devices when they are connected to a USB hub in host mode. The USB 2.0 specification requires that the host wait at least 100ms before accessing a device after the host detects the new device and also delaying for at least 10ms after a reset before accessing the device. These delays have been added to the enumeration sequence in USB library and it now properly delays for each of these events.

3.7.3 USB Host Mode Audio Volume Control Fix (Reference 14626)

The USBAudioOpen function was not getting the ID of the feature unit. This caused the volume function's control transfer to be sent to an invalid ID. In this release, the feature unit's ID is correctly saved and attempts to access and change the volume level should work.

3.8 New Features in Stellaris Utility Library

3.8.1 CRC-32 Calculation Function Added (Reference 14649)

The function Crc32() has been added to the CRC module in utils. This module already contains functions to generate 8- and 16-bit CRCs.

3.9 Bug Fixes in Stellaris Utility Library

3.9.1 Locator now accepts packets from any source port number. (Reference 14667)

The locator module previously included a call to udp_connect() which caused the network stack to reject any incoming packet sent to the desired port (23) unless it was also sent from the same port number. The service worked because the finder application (provided in /tools/bin) always sent packets from port 23 but caused problems when people used this as sample UDP code and attempted to receive packets from other applications which sent from different source ports. To clarify operation and remove this restriction, the udp_connect() call has been removed and the locator module will now receive packets sent to port 23 regardless of the port they were sent from.

3.10 Bug Fixes in DK-LM3S9B96 Firmware Package

3.10.1 Timing hole in i2s_demo volume control fixed (Reference 14698)

If touchscreen activity was occurring during startup of the i2s_demo application, it could get into a state where the volume slider on the screen showed a different value from the actual volume setting. This was due to a timing hole where the touchscreen driver was initialized between the slider initialization and setting the initial volume level. This has been fixed by ensuring that the slider value is set immediately after the volume initialization.

3.11 Bug Fixes in DK-LM3S9D96 Firmware Package

3.11.1 Timing hole in i2s_demo volume control fixed (Reference 14698)

If touchscreen activity was occurring during startup of the i2s_demo application, it could get into a state where the volume slider on the screen showed a different value from the actual volume setting. This was due to a timing hole where the touchscreen driver was initialized between the slider initialization and setting the initial volume level. This has been fixed by ensuring that the slider value is set immediately after the volume initialization.

3.12 Bug Fixes in RDK-IDM-SBC Firmware Package

3.12.1 Corrected LED sense in idm-checkout example (Reference 14703)

In previous releases, the sense of the LED controlled by the idm-checkout example application was reverse. The LED turned off when the UI checkbox was checked and on when it was clear. This has now been reversed to make the control more intuitive with the LED illuminated when the checkbox is checked.

3.13 New Features in Stellaris Firmware Development Package

3.13.1 Removed AES Examples and Tools (Reference 14679)

The AES examples and tools have been removed from the package due to export control compliance.

4 Release Notes for StellarisWare Revision 8555 (January 28, 2012)

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4.1 New Features in Stellaris Peripheral Driver Library

4.1.1 Added IntIsEnable() API (Reference 14194)

The IntIsEnabled() API has been added to determine if a particular interrupt is enabled in the device.

4.2 Bug Fixes in Stellaris Peripheral Driver Library

4.2.1 USB Maximum packet size being set incorrectly for large packets (Reference 14185)

The USBHostEndpointConfig(), USBDevEndpointConfigSet() and USBDevEndpointConfigGet() functions were incorrectly reading and writing the maximum packet size registers as 8 bit values. Since the actual maximum allowable size is up to 1023 bytes for an isochronous endpoint, the reads and writes have been expanded to 16 bit accesses. This issue only affected applications

using greater than 255 byte packets with isochronous endpoints.

4.3 New Features in Stellaris Graphics Library

4.3.1 Additional codepage IDs added to grlib.h (Reference 14174)

Label definitions for the Windows 125x codepages have been added to grlib.h. Note that, to use these codepages, you will have to write your own simple codepage conversion functions to use in your tCodePointMap table since no specific conversion functions have been added to grlib. This is, however, a very straightforward process.

4.3.2 Character mapping from Win1251 to Unicode added (Reference 14203)

A new function, GrMapWIN1251_Unicode, has been added to the Stellaris Graphics Library. This allows source text using the Windows 1251 Cyrillic codepage to be used with Unicode fonts containing the appropriate glyphs.

4.3.3 Support added for Windows1250-1254 codepages (Reference 14216)

Functions to convert text encoded using the Windows1250, 1251, 1252, 1253 and 1254 codepages into Unicode have been added to the graphics library. These codepages are commonly used to handle text in various parts of Europe.

4.3.4 pnmtoc now handles PBM bitmaps (Reference 14282)

The pnmtoc tool has been updated to support 1 bit per pixel portable bitmap files. These files typically have extension “.pbm” and are tagged with the value “P4”. With this addition, pnmtoc can now handle all 1, 4 and 8bpp PNM format files with 8 bit color or greyscale components.

4.3.5 Transparent image draw added to Graphics Library (Reference 14271)

The GrTransparentImageDraw() function has been added to the graphics library. This function is similar to GrImageDraw() but includes an additional parameter specifying one color in the image that is to be considered transparent. It may be used to draw sprites or other irregularly shaped images assuming those images have been prepared such that they appear against a single, flat background color in the image file.

4.4 Bug Fixes in Stellaris Graphics Library

4.4.1 ListBox widget sometimes incorrectly painted the bottom line (Reference 14227)

An error in the ListBoxPaint function has been fixed. Prior to this release, if the listbox widget height was not an integer multiple of the font character cell height, the bottom line in the box could be redrawn incorrectly.

4.5 New Features in Stellaris Host Tools

4.5.1 Character mapping defines now generated by mkstringtable (Reference 14212)

When using mkstringtable to remap a string table for use with a custom font, the tool now writes a group of #defines into the generated header allowing an application to determine which code is used in the output string table for each character code in the original strings. This information makes it a great deal easier to scan the retrieved strings for particular characters such as, for example, the space character to allow for string reflow processing.

4.5.2 pnmtoc now handles PBM bitmaps (Reference 14282)

The pnmtoc tool has been updated to support 1 bit per pixel portable bitmap files. These files typically have extension ".pbm" and are tagged with the value "P4". With this addition, pnmtoc can now handle all 1, 4 and 8bpp PNM format files with 8 bit color or greyscale components.

4.6 New Features in Stellaris USB Library

4.6.1 USB Host hub support added (Reference 14234)

This release of StellarisWare introduces support for USB hubs in host mode. This allows multiple USB devices to be attached to a single USB hub with up to four ports.

4.7 Bug Fixes in Stellaris USB Library

4.7.1 USB HID mouse driver now handles USBD_HID_EVENT_GET_REPORT_BUF correctly (Reference 13945)

In previous releases of the Stellaris USB library, the HID mouse class driver incorrectly wrote a 0 to the pointer passed in pvMsgData when it received a USBD_HID_EVENT_GET_REPORT_BUFFER event. This parameter, though cast to a "void *", is actually the length of the requested buffer. This has now been fixed by removing the erroneous write.

4.7.2 SCSI_RS_KEY_BLANK_CHK had the wrong defined value (Reference 14103)

The define for SCSI_RS_KEY_BLANK_CHK was defined to have the value of 7 and it should have been 8 as defined in the SCSI specification.

4.7.3 USB Device HID Keyboard returning invalid pointer (Reference 14228)

The USBDHIDKeyboardInit() function was returning and invalid pointer to which could cause any calls to USBDHIDKeyboard access invalid data and possibly cause a fault in the application. The USBDHIDKeyboardInit() function returns the correct pointer information to the application.

4.7.4 USB Host library can hang if device is disconnected (Reference 14184)

The USB library's host functions can hang if the device is disconnected while the host is attempting to read from the device or write to the device. The USBHCDPipeWrite() and USBHCDPipeRead() functions that handle reading and writing devices in host mode now properly exit due to a disconnect event.

4.7.5 USB library was not handling endpoint deallocation correctly (Reference 14265)

The USB library was not properly handling calls to USBHCDPipeFree() in all cases. USBHCDPipeFree() was not checking correctly to see if DMA was in use by a USB Pipe and could assume that DMA was in use when it was not. This resulted in using an invalid index into the DMA array and could cause data to be accessed from the incorrect location.

4.8 New Features in Windows Drivers

4.8.1 Windows USB drivers are now production-signed (Reference 14180)

The Windows drivers found in the windows_drivers directory in USB-enabled StellarisWare releases are now signed with a production certificate rather than a test certificate. This removes a warning that some versions of Windows previously displayed when the drivers were first installed.

4.9 Bug Fixes in DK-LM3S9B96 Firmware Package

4.9.1 Pre-expanded keys in aes_expanded_key application have wrong endianness (Reference 14129)

The key generation utility in tools/aes_gen_key was generating expanded keys with the wrong endianness. The utility was fixed in the prior release but the expanded key example apps were still using the keys that were generated before the utility was fixed. So in this release, the expanded keys have been regenerated using the fixed key generation utility.

4.10 Bug Fixes in DK-LM3S9D96 Firmware Package

4.10.1 Pre-expanded keys in aes_expanded_key application have wrong endianness (Reference 14129)

The key generation utility in tools/aes_gen_key was generating expanded keys with the wrong endianness. The utility was fixed in the prior release but the expanded key example apps were still using the keys that were generated before the utility was fixed. So in this release, the expanded keys have been regenerated using the fixed key generation utility.

4.11 Bug Fixes in EK-LM3S1968 Firmware Package

4.11.1 Pre-expanded keys in aes_expanded_key application have wrong endianness (Reference 14129)

The key generation utility in tools/aes_gen_key was generating expanded keys with the wrong endianness. The utility was fixed in the prior release but the expanded key example apps were still using the keys that were generated before the utility was fixed. So in this release, the expanded keys have been regenerated using the fixed key generation utility.

4.12 Bug Fixes in EK-LM3S2965 Firmware Package

4.12.1 Pre-expanded keys in aes_expanded_key application have wrong endianness (Reference 14129)

The key generation utility in tools/aes_gen_key was generating expanded keys with the wrong endianness. The utility was fixed in the prior release but the expanded key example apps were still using the keys that were generated before the utility was fixed. So in this release, the expanded keys have been regenerated using the fixed key generation utility.

4.13 Bug Fixes in EK-LM3S3748 Firmware Package

4.13.1 Pre-expanded keys in aes_expanded_key application have wrong endianness (Reference 14129)

The key generation utility in tools/aes_gen_key was generating expanded keys with the wrong endianness. The utility was fixed in the prior release but the expanded key example apps were still using the keys that were generated before the utility was fixed. So in this release, the expanded keys have been regenerated using the fixed key generation utility.

4.14 Bug Fixes in EK-LM3S6965 Firmware Package

4.14.1 Pre-expanded keys in aes_expanded_key application have wrong endianness (Reference 14129)

The key generation utility in tools/aes_gen_key was generating expanded keys with the wrong endianness. The utility was fixed in the prior release but the expanded key example apps were still using the keys that were generated before the utility was fixed. So in this release, the expanded keys have been regenerated using the fixed key generation utility.

4.15 Bug Fixes in EK-LM3S8962 Firmware Package

4.15.1 Pre-expanded keys in aes_expanded_key application have wrong endianness (Reference 14129)

The key generation utility in tools/aes_gen_key was generating expanded keys with the wrong endianness. The utility was fixed in the prior release but the expanded key example apps were still using the keys that were generated before the utility was fixed. So in this release, the expanded keys have been regenerated using the fixed key generation utility.

4.16 Bug Fixes in EK-LM3S9B90 Firmware Package

4.16.1 Pre-expanded keys in aes_expanded_key application have wrong endianness (Reference 14129)

The key generation utility in tools/aes_gen_key was generating expanded keys with the wrong endianness. The utility was fixed in the prior release but the expanded key example apps were still using the keys that were generated before the utility was fixed. So in this release, the expanded keys have been regenerated using the fixed key generation utility.

4.17 Bug Fixes in EK-LM3S9B92 Firmware Package

4.17.1 Pre-expanded keys in aes_expanded_key application have wrong endianness (Reference 14129)

The key generation utility in tools/aes_gen_key was generating expanded keys with the wrong endianness. The utility was fixed in the prior release but the expanded key example apps were still using the keys that were generated before the utility was fixed. So in this release, the expanded keys have been regenerated using the fixed key generation utility.

4.18 Bug Fixes in EK-LM3S9D90 Firmware Package

4.18.1 Pre-expanded keys in aes_expanded_key application have wrong endianness (Reference 14129)

The key generation utility in tools/aes_gen_key was generating expanded keys with the wrong endianness. The utility was fixed in the prior release but the expanded key example apps were still using the keys that were generated before the utility was fixed. So in this release, the expanded keys have been regenerated using the fixed key generation utility.

4.19 Bug Fixes in EK-LM3S9D92 Firmware Package

4.19.1 Pre-expanded keys in aes_expanded_key application have wrong endianness (Reference 14129)

The key generation utility in tools/aes_gen_key was generating expanded keys with the wrong endianness. The utility was fixed in the prior release but the expanded key example apps were still using the keys that were generated before the utility was fixed. So in this release, the expanded keys have been regenerated using the fixed key generation utility.

4.20 New Features in RDK-BDC Firmware Package

4.20.1 Added support for periodic status messages (Reference 14218)

The motor controller now has the ability to send periodic status messages containing user-configurable status items.

4.20.2 Added non-ACKed set-point commands (Reference 14250)

New commands have been added for changing the set-point of each of the control modes without causing an ACK packet to be produced. This command is useful for situations where occasional set-point request packet loss is acceptable.

4.20.3 Added support for fault counters (Reference 14261)

Counters have been added that track the number of occurrences of the various fault conditions. These counters can be queried and reset via CAN.

4.20.4 Added support for sticky faults (Reference 14273)

The existing fault flags, which describe currently active faults, now have complementary “sticky” fault flags, which describe faults that have occurred since the last time the sticky fault flags were cleared. These can be queried and cleared via CAN.

4.20.5 Added handling for the CAN bus-off condition (Reference 14317)

Code has been added to detect a bus-off condition on the CAN bus and attempt to recover from it.

4.21 New Features in RDK-BDC24 Firmware Package

4.21.1 Added support for periodic status messages (Reference 14218)

The motor controller now has the ability to send periodic status messages containing user-configurable status items.

4.21.2 Added non-ACKed set-point commands (Reference 14250)

New commands have been added for changing the set-point of each of the control modes without causing an ACK packet to be produced. This command is useful for situations where occasional set-point request packet loss is acceptable.

4.21.3 Added support for fault counters (Reference 14261)

Counters have been added that track the number of occurrences of the various fault conditions. These counters can be queried and reset via CAN.

4.21.4 Added support for sticky faults (Reference 14273)

The existing fault flags, which describe currently active faults, now have complementary “sticky” fault flags, which describe faults that have occurred since the last time the sticky fault flags were cleared. These can be queried and cleared via CAN.

4.21.5 Added handling for the CAN bus-off condition (Reference 14317)

Code has been added to detect a bus-off condition on the CAN bus and attempt to recover from it.

4.22 New Features in RDK-IDM Firmware Package

4.22.1 lang_demo updated to include Japanese, Chinese and Korean (Reference 14198)

The lang_demo example has been updated to include Simplified Chinese, Japanese and Korean in the language options. The example also now uses a custom font and codepage to illustrate how these may be used to minimize the memory footprint when using ideograph-based languages.

4.23 New Features in RDK-IDM-SBC Firmware Package

4.23.1 lang_demo updated to include Japanese, Chinese and Korean (Reference 14198)

The lang_demo example has been updated to include Simplified Chinese, Japanese and Korean in the language options. The example also now uses a custom font and codepage to illustrate how these may be used to minimize the memory footprint when using ideograph-based languages.

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5.1 New Features in Stellaris Graphics Library

5.1.1 New ISO8859 codepage mapping functions added (Reference 13969)

New functions to map from codepage ISO8859 variants 7 through 16 to Unicode have been added to the graphics library.

5.1.2 Custom font creation tools added to ftrasterize (Reference 13973)

A couple of new features have been added to the ftrasterize tool which, when used in conjunction with string tables and the latest version of mkstringtable, allow the creation of optimized fonts for use with specific application string tables. Ftrasterize will now accept up to four font names on the command line when used with the ”-r“ option. If a required glyph is not found in the first font, the others are searched in order until the glyph is found at which point it is incorporated into the output. This is especially useful when generating multi-language applications including strings to be rendered in different alphabets. In these cases individual fonts may not include all the necessary glyph sets for all required languages.

The second new feature offered by ftrasterize is codepage remapping. This allows a font to be generated which contains a single block of glyphs identified by codepoints 1 - N even when the

encoded glyphs are discontiguous in the original codepage (Unicode, for example). This remapping matches the process carried out in mkstringtable when used with its “-r” option and can save a significant amount of font storage when dealing with string tables containing many discontiguous characters.

5.1.3 New features added to mkstringtable (Reference 13976)

The mkstringtable tool has been updated to add new features in support of custom font creation and to support more input codepages. When using string tables containing ideographic languages such as Chinese and Japanese, it is seldom practical to use a font containing all possible characters since these would required hundreds of kilobytes of storage. The new version of mkstringtable, along with matching changes in ftrasterize, allows a character map file to be created which lists all characters required to display the strings in the string table. This file can be passed to ftrasterize as input to have it generate a custom font containing only those characters required by the application.

Since the character map for a given string table will typically contain many discontiguous characters, this would usually result in significant block description overhead in the custom font so another option has been added to both mkstringtable and ftrasterize to build a custom codepage for the string table and font. This custom codepage remaps the codepoint numbers for characters in the strings such that the most frequently used characters are encoded using the lowest numbers and so that all characters used form a single, contiguous block of codepoints in the output font. If a string table uses more than 255 unique characters, the strings are re-encoded using a UTF8-like mechanism which uses 8 bits to encode the most frequently used characters and more bits for the lower frequency glyphs.

In addition to these changes, mkstringtable now supports all ISO8859 variant codepages as input (in addition to ASCII and UTF8) and adds code to the output files to simplify the process of initializing the graphics library to use the appropriate codepages.

5.2 Bug Fixes in Stellaris Graphics Library

5.2.1 Corrected return code error from GrStringGet (Reference 14081)

An error in previous versions of GrStringGet caused the function to return 0 when the underlying string table was uncompressed (i.e. generated using the -u command line switch to mkstringtable). The return value is now the number of bytes copied to the buffer as expected.

5.3 New Features in Stellaris Host Tools

5.3.1 Custom font creation tools added to ftrasterize (Reference 13973)

A couple of new features have been added to the ftrasterize tool which, when used in conjunction with string tables and the latest version of mkstringtable, allow the creation of optimized fonts for use with specific application string tables. Ftrasterize will now accept up to four font names on the command line when used with the ”-r“ option. If a required glyph is not found in the first font, the others are searched in order until the glyph is found at which point it is incorporated into the

output. This is especially useful when generating multi-language applications including strings to be rendered in different alphabets. In these cases individual fonts may not include all the necessary glyph sets for all required languages.

The second new feature offered by ftrasterize is codepage remapping. This allows a font to be generated which contains a single block of glyphs identified by codepoints 1 - N even when the encoded glyphs are discontiguous in the original codepage (Unicode, for example). This remapping matches the process carried out in mkstringtable when used with its “-r” option and can save a significant amount of font storage when dealing with string tables containing many discontiguous characters.

5.3.2 New features added to mkstringtable (Reference 13976)

The mkstringtable tool has been updated to add new features in support of custom font creation and to support more input codepages. When using string tables containing ideographic languages such as Chinese and Japanese, it is seldom practical to use a font containing all possible characters since these would required hundreds of kilobytes of storage. The new version of mkstringtable, along with matching changes in ftrasterize, allows a character map file to be created which lists all characters required to display the strings in the string table. This file can be passed to ftrasterize as input to have it generate a custom font containing only those characters required by the application.

Since the character map for a given string table will typically contain many discontiguous characters, this would usually result in significant block description overhead in the custom font so another option has been added to both mkstringtable and ftrasterize to build a custom codepage for the string table and font. This custom codepage remaps the codepoint numbers for characters in the strings such that the most frequently used characters are encoded using the lowest numbers and so that all characters used form a single, contiguous block of codepoints in the output font. If a string table uses more than 255 unique characters, the strings are re-encoded using a UTF8-like mechanism which uses 8 bits to encode the most frequently used characters and more bits for the lower frequency glyphs.

In addition to these changes, mkstringtable now supports all ISO8859 variant codepages as input (in addition to ASCII and UTF8) and adds code to the output files to simplify the process of initializing the graphics library to use the appropriate codepages.

5.3.3 Custom font and codepage remapping support added (Reference 14088)

The mkstringtable and ftrasterize tools have been update to add support for the creation of application-specific custom fonts. This allows a font to be created which contains only the glyphs needed to display the strings found in a given string table. In addition, ftrasterize can now accept up to four input font names to allow hybrid fonts containing glyphs from several different alphabets or writing systems to be created even when no single source font contains all the necessary glyphs.

As an extension of this feature, the tools can now also remap the character codes in the string table to allow more efficient storage of the string data and to allow generation of a far more compact font paired to that string table.

5.4 Bug Fixes in Stellaris USB Library

5.4.1 USB Host Library can falsely detect DMA interrupt (Reference 14128)

The USB library was falsely detecting a USB DMA interrupt and causing the state machine to enter an unstable state. This was because the DMA pending flag was being set while USB interrupts were enabled but before DMA was started. The global pending flag indicated that a DMA transfer was pending and when an interrupt occurred before the DMA was enabled the actual DMA state would appear to be stopped incorrectly indicating completion of the transfer. This allowed a non-DMA interrupt to be interpreted as a DMA interrupt. USB interrupts have been disabled in the USB library in all areas that could cause changes to the DMA pending flag with DMA not yet enabled to prevent false detection of USB DMA interrupts.

5.5 Bug Fixes in Stellaris Utility Library

5.5.1 Fixed problem with key endianness in aes_gen_key utility (Reference 14049)

When the aes_gen_key utility was generating an expanded key, it was using the wrong endianness when reading the key. This has been fixed.

5.6 New Features in DK-LM3S9B96 Firmware Package

5.6.1 New features added to lang_demo example application (Reference 13980)

The lang_demo example application has been updated to include support for accented characters in German and Spanish strings and to include Korean, Simplified Chinese and Japanese translations. The example also now makes use of the new custom font and codepage remapping features offered by the mkstringtable and ftrasterize tools. As part of this change, the string table and font source can now be found under /third_party/fonts/lang_demo rather than in the application directory itself.

5.7 Bug Fixes in DK-LM3S9B96 Firmware Package

5.7.1 FontView application can now display fonts with more than 16 blocks. (Reference 14085)

The fontview example application in previous StellarisWare releases contained a bug which made it unable to display fonts stored on an SDCard if they contained more than 16 contiguous blocks of characters. This error has now been corrected and these fonts are now displayable.

5.7.2 Fixed occasional page view count corruption in enet_uip example (Reference 14125)

In previous releases, the simple HTTP server used by the enet_uip example application would corrupt the page view count sent to the browser if a uip_poll() call was made during the time that the page was being sent back to the client. The code has been updated to use a different state variable to track polling periods and the state of the HTTP request and, as a result, the page view count is now sent correctly regardless of any timeouts which may occur during the processing of the GET request.

5.8 New Features in DK-LM3S9D96 Firmware Package

5.8.1 New features added to lang_demo example application (Reference 13980)

The lang_demo example application has been updated to include support for accented characters in German and Spanish strings and to include Korean, Simplified Chinese and Japanese translations. The example also now makes use of the new custom font and codepage remapping features offered by the mkstringtable and ftrasterize tools. As part of this change, the string table and font source can now be found under /third_party/fonts/lang_demo rather than in the application directory itself.

5.9 Bug Fixes in DK-LM3S9D96 Firmware Package

5.9.1 FontView application can now display fonts with more than 16 blocks. (Reference 14085)

The fontview example application in previous StellarisWare releases contained a bug which made it unable to display fonts stored on an SDCard if they contained more than 16 contiguous blocks of characters. This error has now been corrected and these fonts are now displayable.

5.9.2 Fixed occasional page view count corruption in enet_uip example (Reference 14125)

In previous releases, the simple HTTP server used by the enet_uip example application would corrupt the page view count sent to the browser if a uip_poll() call was made during the time that the page was being sent back to the client. The code has been updated to use a different state variable to track polling periods and the state of the HTTP request and, as a result, the page view count is now sent correctly regardless of any timeouts which may occur during the processing of the GET request.

5.10 Bug Fixes in EK-LM3S6965 Firmware Package

5.10.1 Fixed occasional page view count corruption in enet_uip example (Reference 14125)

In previous releases, the simple HTTP server used by the enet_uip example application would corrupt the page view count sent to the browser if a uip_poll() call was made during the time that the page was being sent back to the client. The code has been updated to use a different state variable to track polling periods and the state of the HTTP request and, as a result, the page view count is now sent correctly regardless of any timeouts which may occur during the processing of the GET request.

5.11 Bug Fixes in EK-LM3S8962 Firmware Package

5.11.1 Fixed occasional page view count corruption in enet_uip example (Reference 14125)

In previous releases, the simple HTTP server used by the enet_uip example application would corrupt the page view count sent to the browser if a uip_poll() call was made during the time that the page was being sent back to the client. The code has been updated to use a different state variable to track polling periods and the state of the HTTP request and, as a result, the page view count is now sent correctly regardless of any timeouts which may occur during the processing of the GET request.

5.12 Bug Fixes in EK-LM3S9B90 Firmware Package

5.12.1 Fixed occasional page view count corruption in enet_uip example (Reference 14125)

In previous releases, the simple HTTP server used by the enet_uip example application would corrupt the page view count sent to the browser if a uip_poll() call was made during the time that

the page was being sent back to the client. The code has been updated to use a different state variable to track polling periods and the state of the HTTP request and, as a result, the page view count is now sent correctly regardless of any timeouts which may occur during the processing of the GET request.

5.13 Bug Fixes in EK-LM3S9B92 Firmware Package

5.13.1 Fixed occasional page view count corruption in enet_uip example (Reference 14125)

In previous releases, the simple HTTP server used by the enet_uip example application would corrupt the page view count sent to the browser if a uip_poll() call was made during the time that the page was being sent back to the client. The code has been updated to use a different state variable to track polling periods and the state of the HTTP request and, as a result, the page view count is now sent correctly regardless of any timeouts which may occur during the processing of the GET request.

5.14 New Features in MDL-LM3S818CNCD Firmware Package

5.14.1 Added support for the MDL-LM3S818CNCD (Reference 14108)

A firmware development package has been added that provides support for the MDL-LM3S818CNCD board.

5.15 New Features in RDK-BDC24 Firmware Package

5.15.1 Fan briefly turned on when powered up (Reference 13988)

The cooling fan is turned on for one second when the RDK-BDC24 starts up to provide a quick means of determining if it is properly connected and operational. This also provides a visual/audible clue that the RDK-BDC24 is running after a power-up event.

5.15.2 Added selectable automatic ramp mode (Reference 13989)

In voltage control mode, the RDK-BDC24 will immediately set the output to a newly requested output value unless a ramp rate is configured via a CAN or UART message. Now, a default ramp rate of $\sim$0.2V/ms can be selected by rotating the limit switch jumpers by 90 degrees when the RDK-BDC24 is powered on. Doing so will also disable the use of the limit switches.

5.16 Bug Fixes in RDK-BLDC Firmware Package

5.16.1 Change data size in speed calculation (Reference 14066)

A local variable in the hall sensor speed calculation was typed as unsigned short, but should have been unsigned long. This resulted in some comparisons being truncated erroneously, potentially resulting in faulty speed calculations.

5.17 Bug Fixes in RDK-IDM Firmware Package

5.17.1 FontView application can now display fonts with more than 16 blocks. (Reference 14085)

The fontview example application in previous StellarisWare releases contained a bug which made it unable to display fonts stored on an SDCard if they contained more than 16 contiguous blocks of characters. This error has now been corrected and these fonts are now displayable.

5.17.2 Fixed occasional page view count corruption in enet_uip example (Reference 14125)

In previous releases, the simple HTTP server used by the enet_uip example application would corrupt the page view count sent to the browser if a uip_poll() call was made during the time that the page was being sent back to the client. The code has been updated to use a different state variable to track polling periods and the state of the HTTP request and, as a result, the page view count is now sent correctly regardless of any timeouts which may occur during the processing of the GET request.

5.18 New Features in RDK-IDM-L35 Firmware Package

5.18.1 New features added to lang_demo example application (Reference 13980)

The lang_demo example application has been updated to include support for accented characters in German and Spanish strings and to include Korean, Simplified Chinese and Japanese translations. The example also now makes use of the new custom font and codepage remapping features offered by the mkstringtable and ftrasterize tools. As part of this change, the string table and font source can now be found under /third_party/fonts/lang_demo rather than in the application directory itself.

5.19 Bug Fixes in RDK-IDM-L35 Firmware Package

5.19.1 FontView application can now display fonts with more than 16 blocks. (Reference 14085)

The fontview example application in previous StellarisWare releases contained a bug which made it unable to display fonts stored on an SDCard if they contained more than 16 contiguous blocks of characters. This error has now been corrected and these fonts are now displayable.

5.20 Bug Fixes in RDK-IDM-SBC Firmware Package

5.20.1 FontView application can now display fonts with more than 16 blocks. (Reference 14085)

The fontview example application in previous StellarisWare releases contained a bug which made it unable to display fonts stored on an SDCard if they contained more than 16 contiguous blocks of characters. This error has now been corrected and these fonts are now displayable.

5.20.2 Fixed occasional page view count corruption in enet_uip example (Reference 14125)

In previous releases, the simple HTTP server used by the enet_uip example application would corrupt the page view count sent to the browser if a uip_poll() call was made during the time that the page was being sent back to the client. The code has been updated to use a different state variable to track polling periods and the state of the HTTP request and, as a result, the page view count is now sent correctly regardless of any timeouts which may occur during the processing of the GET request.

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6.1 New Features in Stellaris Graphics Library

6.1.1 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.

6.1.2 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.

6.1.3 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.

6.1.4 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.

6.2 New Features in Third Party Packages

6.2.1 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.

6.3 New Features in Stellaris Host Tools

6.3.1 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.

6.3.2 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 char-

acters 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.

6.4 New Features in Stellaris USB Library

6.4.1 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.

6.5 Bug Fixes in Stellaris USB Library

6.5.1 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.

6.5.2 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.

6.5.3 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.

6.5.4 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.

6.6 New Features in Stellaris Utility Library

6.6.1 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.

6.7 New Features in DK-LM3S9B96 Firmware Package

6.7.1 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.

6.8 Bug Fixes in DK-LM3S9B96 Firmware Package

6.8.1 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.

6.8.2 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.

6.9 New Features in DK-LM3S9D96 Firmware Package

6.9.1 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.

6.10 Bug Fixes in DK-LM3S9D96 Firmware Package

6.10.1 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.

6.10.2 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.

6.11 Bug Fixes in EK-LM3S3748 Firmware Package

6.11.1 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.

6.12 Bug Fixes in EK-LM3S9B96 Firmware Package

6.12.1 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.

6.13 New Features in RDK-IDM Firmware Package

6.13.1 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.

6.14 New Features in RDK-IDM-L35 Firmware Package

6.14.1 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.

6.15 New Features in RDK-IDM-SBC Firmware Package

6.15.1 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.

6.16 New Features in Stellaris Firmware Development Package

6.16.1 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.

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

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7.1 New Features in Stellaris Bluetopia Bluetooth Library

7.1.1 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 documenation for the Bluetooth stack.

7.2 Bug Fixes in Stellaris Boot Loader

7.2.1 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.

7.3 New Features in Stellaris Peripheral Driver Library

7.3.1 Added header files for new devices (Reference 13552)

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

7.4 Bug Fixes in Stellaris Peripheral Driver Library

7.4.1 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.

7.4.2 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.

7.5 New Features in Stellaris Graphics Library

7.5.1 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 were 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.

7.6 New Features in Stellaris Host Tools

7.6.1 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 were 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.

7.7 Bug Fixes in Stellaris Host Tools

7.7.1 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.

7.8 New Features in Stellaris USB Library

7.8.1 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.

7.9 Bug Fixes in Stellaris USB Library

7.9.1 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.

7.9.2 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.

7.9.3 USBOTGModeInit function was not clearing USB mode (Reference 13496)

The USBOTGModeInit() 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.

7.9.4 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 USBDSetInterface()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.

7.9.5 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.

7.10 New Features in Stellaris Utility Library

7.10.1 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 used 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.

7.10.2 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 usvnprint and ustrstr 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.

7.11 Bug Fixes in DK-LM3S9B96 Firmware Package

7.11.1 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.

7.11.2 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.

7.11.3 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.

7.12 New Features in DK-LM3S9D96 Firmware Package

7.12.1 New firmware development package (Reference 13566)

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

7.13 Bug Fixes in DK-LM3S9D96 Firmware Package

7.13.1 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.

7.14 Bug Fixes in EK-EVALBOT Firmware Package

7.14.1 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.

7.15 Bug Fixes in EK-LM3S1968 Firmware Package

7.15.1 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.

7.16 Bug Fixes in EK-LM3S2965 Firmware Package

7.16.1 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.

7.17 Bug Fixes in EK-LM3S3748 Firmware Package

7.17.1 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.

7.17.2 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.

7.18 Bug Fixes in EK-LM3S6965 Firmware Package

7.18.1 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.

7.18.2 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.

7.19 Bug Fixes in EK-LM3S8962 Firmware Package

7.19.1 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.

7.19.2 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.

7.20 New Features in EK-LM3S9D90 Firmware Package

7.20.1 New firmware development package (Reference 13566)

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

7.21 New Features in EK-LM3S9D92 Firmware Package

7.21.1 New firmware development package (Reference 13566)

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

7.22 Bug Fixes in RDK-ACIM Firmware Package

7.22.1 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.

7.23 Bug Fixes in RDK-BDC Firmware Package

7.23.1 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.

7.24 Bug Fixes in RDK-BDC24 Firmware Package

7.24.1 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.

7.25 Bug Fixes in RDK-BLDC Firmware Package

7.25.1 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.

7.26 Bug Fixes in RDK-IDM Firmware Package

7.26.1 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.

7.27 Bug Fixes in RDK-IDM-L35 Firmware Package

7.27.1 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.

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

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8.1 New Features in Stellaris Peripheral Driver Library

8.1.1 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.

8.1.2 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.

8.2 Bug Fixes in Stellaris Peripheral Driver Library

8.2.1 ADCProcessorTrigger now configures global sync correctly (Reference 13194)

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

8.2.2 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.

8.2.3 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.

8.3 Bug Fixes in Stellaris USB Library

8.3.1 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.

8.3.2 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.

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

The USB audio device class was incorrectly checking the uIndex 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.

8.3.4 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.

8.3.5 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.

8.4 New Features in Stellaris Utility Library

8.4.1 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.

8.5 Bug Fixes in Stellaris Utility Library

8.5.1 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.

8.6 New Features in DK-LM3S9B96 Firmware Package

8.6.1 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.

8.7 New Features in EK-EVALBOT Firmware Package

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

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

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

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9.1 Bug Fixes in Stellaris Boot Loader

9.1.1 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.

9.2 Bug Fixes in Stellaris Peripheral Driver Library

9.2.1 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.

9.2.2 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.

9.3 New Features in Stellaris Graphics Library

9.3.1 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.

9.3.2 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.

9.3.3 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.

9.4 Bug Fixes in Stellaris Graphics Library

9.4.1 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.

9.5 Bug Fixes in Stellaris USB Library

9.5.1 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.

9.6 New Features in Stellaris Utility Library

9.6.1 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.

9.7 Bug Fixes in DK-LM3S9B96 Firmware Package

9.7.1 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.

9.7.2 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.

9.8 Bug Fixes in EK-LM3S3748 Firmware Package

9.8.1 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.

9.9 Bug Fixes in EK-LM3S6965 Firmware Package

9.9.1 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.

9.9.2 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.

9.10 Bug Fixes in EK-LM3S8962 Firmware Package

9.10.1 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.

9.10.2 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.

9.11 Bug Fixes in RDK-BDC Firmware Package

9.11.1 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.

9.11.2 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.

9.12 Bug Fixes in RDK-BDC24 Firmware Package

9.12.1 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.

9.12.2 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.

9.13 Bug Fixes in RDK-IDM Firmware Package

9.13.1 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.

9.14 Bug Fixes in RDK-IDM-SBC Firmware Package

9.14.1 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.

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

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10.1 Bug Fixes in Stellaris Boot Loader

10.1.1 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.

10.1.2 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.

10.2 New Features in Stellaris Peripheral Driver Library

10.2.1 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.

10.2.2 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.

10.2.3 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.

10.3 Bug Fixes in Stellaris Peripheral Driver Library

10.3.1 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.

10.3.2 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.

10.4 Bug Fixes in Third Party Packages

10.4.1 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.

10.5 Bug Fixes in Stellaris Host Tools

10.5.1 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.

10.6 Bug Fixes in Stellaris USB Library

10.6.1 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.

10.7 Bug Fixes in Stellaris Utility Library

10.7.1 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.

10.8 New Features in DK-LM3S9B96 Firmware Package

10.8.1 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.

10.9 Bug Fixes in DK-LM3S9B96 Firmware Package

10.9.1 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.

10.10 Bug Fixes in EK-LM3S6965 Firmware Package

10.10.1 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.

10.11 Bug Fixes in EK-LM3S8962 Firmware Package

10.11.1 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.

10.12 New Features in EK-LM3S9B90 Firmware Package

10.12.1 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.

10.13 Bug Fixes in EK-LM3S9B90 Firmware Package

10.13.1 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.

10.14 New Features in EK-LM3S9B92 Firmware Package

10.14.1 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.

10.15 Bug Fixes in EK-LM3S9B92 Firmware Package

10.15.1 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.

10.16 Bug Fixes in RDK-IDM Firmware Package

10.16.1 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.

10.17 Bug Fixes in RDK-IDM-SBC Firmware Package

10.17.1 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.

10.18 Bug Fixes in RDK-S2E Firmware Package

10.18.1 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.

10.18.2 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.

10.18.3 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.

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

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11.1 Bug Fixes in Stellaris Boot Loader

11.1.1 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.

11.2 New Features in Stellaris Peripheral Driver Library

11.2.1 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.

11.2.2 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.

11.2.3 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.

11.2.4 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.

11.3 Bug Fixes in Stellaris Graphics Library

11.3.1 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.

11.4 Bug Fixes in Third Party Packages

11.4.1 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.

11.5 New Features in Stellaris Utility Library

11.5.1 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.

11.6 New Features in Stellaris Z-Stack Library

11.6.1 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.

11.7 New Features in DK-LM3S9B96 Firmware Package

11.7.1 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.

11.7.2 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.

11.8 Bug Fixes in DK-LM3S9B96 Firmware Package

11.8.1 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 lMin was non-zero.

11.8.2 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.

11.9 New Features in EK-LM3S3748 Firmware Package

11.9.1 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.

11.10 Bug Fixes in EK-LM3S3748 Firmware Package

11.10.1 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.

11.11 Bug Fixes in EK-LM3S6965 Firmware Package

11.11.1 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.

11.12 Bug Fixes in EK-LM3S8962 Firmware Package

11.12.1 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.

11.13 New Features in EK-LM3S9B90 Firmware Package

11.13.1 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.

11.14 Bug Fixes in EK-LM3S9B90 Firmware Package

11.14.1 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.

11.15 New Features in EK-LM3S9B92 Firmware Package

11.15.1 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.

11.16 Bug Fixes in EK-LM3S9B92 Firmware Package

11.16.1 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.

11.17 New Features in RDK-BDC Firmware Package

11.17.1 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.

11.17.2 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.

11.17.3 The motor controller now announces it 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.

11.17.4 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).

11.17.5 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.

11.18 New Features in RDK-BDC24 Firmware Package

11.18.1 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.

11.18.2 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.

11.18.3 The motor controller now announces it 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.

11.18.4 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).

11.18.5 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.

11.19 Bug Fixes in RDK-IDM Firmware Package

11.19.1 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 lMin was non-zero.

11.20 Bug Fixes in RDK-IDM-L35 Firmware Package

11.20.1 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 lMin was non-zero.

11.21 New Features in RDK-IDM-SBC Firmware Package

11.21.1 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.

11.21.2 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.

11.22 Bug Fixes in RDK-IDM-SBC Firmware Package

11.22.1 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 lMin was non-zero.

11.22.2 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.

11.23 Bug Fixes in RDK-S2E Firmware Package

11.23.1 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.

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

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12.1 New Features in Stellaris Peripheral Driver Library

12.1.1 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.

12.2 Bug Fixes in Stellaris Peripheral Driver Library

12.2.1 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.

12.3 New Features in Stellaris IQmath Library

12.3.1 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.

12.4 New Features in Stellaris MIFARE Library

12.4.1 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.

12.5 New Features in Stellaris SimpliciTI Library

12.5.1 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 (simplicitilib.c) to add the stack to a project.

12.6 New Features in Stellaris USB Library

12.6.1 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.

12.7 Bug Fixes in Stellaris USB Library

12.7.1 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.

12.7.2 USB serial device classes could hang if buffers filled to 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.

12.8 New Features in Stellaris Utility Library

12.8.1 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.

12.9 New Features in DK-LM3S9B96-EM2 Firmware Package

12.9.1 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.

12.10 New Features in DK-LM3S9B96 Firmware Package

12.10.1 Added IQmath demonstration (Reference 12493)

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

12.10.2 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.

12.10.3 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.

12.11 Bug Fixes in DK-LM3S9B96 Firmware Package

12.11.1 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.

12.11.2 “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.”

12.11.3 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() fuction.

12.12 New Features in EK-LM3S3748 Firmware Package

12.12.1 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.

12.13 Bug Fixes in EK-LM3S3748 Firmware Package

12.13.1 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 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.

12.13.2 “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.”

12.14 New Features in EK-LM3S9B90 Firmware Package

12.14.1 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.

12.15 Bug Fixes in EK-LM3S9B90 Firmware Package

12.15.1 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.

12.15.2 “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.”

12.16 New Features in EK-LM3S9B92 Firmware Package

12.16.1 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.

12.17 Bug Fixes in EK-LM3S9B96 Firmware Package

12.17.1 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, 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.

12.17.2 “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.”

12.18 Bug Fixes in Stellaris Firmware Development Package

12.18.1 FLASH_BOOTCFG had wrong address (Reference 12533)

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

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13.1 Bug Fixes in Stellaris Boot Loader

13.1.1 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.

13.2 Bug Fixes in Stellaris Peripheral Driver Library

13.2.1 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.

13.3 New Features in Stellaris Graphics Library

13.3.1 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.

13.4 Bug Fixes in Stellaris USB Library

13.4.1 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.

13.5 New Features in Stellaris Utility Library

13.5.1 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.

13.5.2 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.

13.5.3 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.

13.6 New Features in DK-LM3S9B96 Firmware Package

13.6.1 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).

13.7 Bug Fixes in DK-LM3S9B96 Firmware Package

13.7.1 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.

13.7.2 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.

13.7.3 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.

13.7.4 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.

13.8 Bug Fixes in EK-LM3S2965 Firmware Package

13.8.1 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.

13.9 Bug Fixes in EK-LM3S3748 Firmware Package

13.9.1 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.

13.9.2 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.

13.10 Bug Fixes in EK-LM3S8962 Firmware Package

13.10.1 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.

13.11 Bug Fixes in EK-LM3S9B90 Firmware Package

13.11.1 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.

13.11.2 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.

13.12 Bug Fixes in EK-LM3S9B92 Firmware Package

13.12.1 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.

13.12.2 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.

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

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14.1 New Features in Stellaris Boot Loader

14.1.1 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.

14.2 New Features in Stellaris Peripheral Driver Library

14.2.1 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-

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

14.3 Bug Fixes in Stellaris Peripheral Driver Library

14.3.1 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.

14.3.2 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.

14.3.3 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?.

14.4 New Features in Stellaris Graphics Library

14.4.1 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.

14.5 New Features in Third Party Packages

14.5.1 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.

14.6 Bug Fixes in Stellaris USB Library

14.6.1 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.

14.6.2 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.

14.6.3 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.

14.7 New Features in DK-LM3S9B96 Firmware Package

14.7.1 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.

14.7.2 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 lmusbdll.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.

14.7.3 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.

14.7.4 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.

14.7.5 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.

14.8 Bug Fixes in DK-LM3S9B96 Firmware Package

14.8.1 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.

14.8.2 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.

14.8.3 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.

14.8.4 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.

14.9 Bug Fixes in EK-LM3S1968 Firmware Package

14.9.1 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.

14.9.2 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.

14.10 Bug Fixes in EK-LM3S2965 Firmware Package

14.10.1 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.

14.10.2 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.

14.11 New Features in EK-LM3S3748 Firmware Package

14.11.1 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 lmusbdll.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.

14.11.2 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.

14.12 Bug Fixes in EK-LM3S3748 Firmware Package

14.12.1 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.

14.13 New Features in EK-LM3S6965 Firmware Package

14.13.1 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.

14.14 Bug Fixes in EK-LM3S6965 Firmware Package

14.14.1 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.

14.14.2 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.

14.15 New Features in EK-LM3S8962 Firmware Package

14.15.1 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.

14.16 Bug Fixes in EK-LM3S8962 Firmware Package

14.16.1 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.

14.16.2 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.

14.17 New Features in EK-LM3S9B90 Firmware Package

14.17.1 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 lmusbdll.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.

14.17.2 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.

14.18 Bug Fixes in EK-LM3S9B90 Firmware Package

14.18.1 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.

14.19 New Features in EK-LM3S9B92 Firmware Package

14.19.1 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 lmusbdll.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.

14.19.2 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.

14.20 Bug Fixes in EK-LM3S9B92 Firmware Package

14.20.1 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.

14.21 Bug Fixes in RDK-BDC Firmware Package

14.21.1 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.

14.22 Bug Fixes in RDK-BDC24 Firmware Package

14.22.1 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.

14.23 New Features in RDK-IDM-SBC Firmware Package

14.23.1 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.

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

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Bug Fixes for Stellaris Firmware Development Package 134

15.1 New Features in Stellaris Boot Loader

15.1.1 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.

15.1.2 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.

15.2 Bug Fixes in Stellaris USB Library

15.2.1 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.

15.2.2 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.

15.2.3 USBOTGModeInit() causes ASSERT in debug builds (Reference 12030)

The USBOTGModeInit() 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.

15.3 Bug Fixes in DK-LM3S9B96 Firmware Package

15.3.1 Hang in qs-checkout if run with FS8 daughter containing non-filesystem 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.

15.3.2 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.

15.3.3 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.

15.4 Bug Fixes in EK-LM3S3748 Firmware Package

15.4.1 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 that the USB mass storage device is ready before attempting access by the application.

15.4.2 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.

15.5 Bug Fixes in EK-LM3S9B90 Firmware Package

15.5.1 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 that the USB mass storage device is ready before attempting access by the application.

15.5.2 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.

15.6 Bug Fixes in EK-LM3S9B92 Firmware Package

15.6.1 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 that the USB mass storage device is ready before attempting access by the application.

15.6.2 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.

15.7 Bug Fixes in EK-LM3S9B96 Firmware Package

15.7.1 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 that the USB mass storage device is ready before attempting access by the application.

15.7.2 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.

15.8 New Features in RDK-BDC24 Firmware Package

15.8.1 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.

15.9 Bug Fixes in RDK-IDM Firmware Package

15.9.1 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.

15.10 Bug Fixes in RDK-IDM-SBC Firmware Package

15.10.1 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 that the USB mass storage device is ready before attempting access by the application.

15.10.2 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 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.

15.11 Bug Fixes in RDK-STEPPER Firmware Package

15.11.1 Fix rare stepper deceleration problem (Reference 11969)

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

15.12 New Features in Stellaris Firmware Development Package

15.12.1 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.

15.13 Bug Fixes in Stellaris Firmware Development Package

15.13.1 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.

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

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16.1 New Features in Stellaris USB Library

16.1.1 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.

16.2 Bug Fixes in Stellaris USB Library

16.2.1 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.

16.3 Bug Fixes in DK-LM3S9B96 Firmware Package

16.3.1 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.

16.3.2 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.

16.3.3 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.

16.4 Bug Fixes in EK-LM3S3748 Firmware Package

16.4.1 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.

16.4.2 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.

16.5 New Features in EK-LM3S6965 Firmware Package

16.5.1 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.

16.6 Bug Fixes in EK-LM3S6965 Firmware Package

16.6.1 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.

16.6.2 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.

16.7 Bug Fixes in EK-LM3S8962 Firmware Package

16.7.1 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.

16.7.2 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.

16.8 Bug Fixes in EK-LM3S9B90 Firmware Package

16.8.1 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.

16.8.2 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.

16.8.3 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.

16.9 Bug Fixes in EK-LM3S9B92 Firmware Package

16.9.1 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.

16.9.2 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.

16.10 Bug Fixes in EK-LM3S9B96 Firmware Package

16.10.1 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.

16.11 Bug Fixes in RDK-BLDC Firmware Package

16.11.1 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.

16.12 Bug Fixes in RDK-IDM Firmware Package

16.12.1 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.

16.12.2 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.

16.13 Bug Fixes in RDK-IDM-L35 Firmware Package

16.13.1 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.

16.14 Bug Fixes in RDK-IDM-SBC Firmware Package

16.14.1 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.

16.14.2 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.

16.14.3 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.

16.14.4 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.

16.15 Bug Fixes in RDK-S2E Firmware Package

16.15.1 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.

16.15.2 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.

16.16 Bug Fixes in Stellaris Firmware Development Package

16.16.1 Clarify parameter block size requirements in FlashPBInit() (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.

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17.1 New Features in Stellaris Peripheral Driver Library

17.1.1 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.

17.1.2 Added new part specific headers (Reference 11755)

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

17.1.3 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.

17.1.4 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.

17.1.5 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.

17.1.6 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.

17.2 Bug Fixes in Stellaris Peripheral Driver Library

17.2.1 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.

17.2.2 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.

17.3 Bug Fixes in Stellaris Utility Library

17.3.1 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 were no RTOS is being supported. If an RTOS is being used, these routines are already supported properly in the TCP thread.

17.4 Bug Fixes in DK-LM3S9B96 Firmware Package

17.4.1 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.

17.4.2 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.

17.4.3 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.

17.4.4 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.

17.5 Bug Fixes in EK-LM3S3748 Firmware Package

17.5.1 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.

17.5.2 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.

17.6 Bug Fixes in EK-LM3S9B90 Firmware Package

17.6.1 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.

17.6.2 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.

17.6.3 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.

17.7 Bug Fixes in EK-LM3S9B92 Firmware Package

17.7.1 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.

17.7.2 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.

17.7.3 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.

17.8 Bug Fixes in RDK-BDC Firmware Package

17.8.1 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).

17.8.2 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.

17.8.3 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).

17.9 Bug Fixes in RDK-BDC24 Firmware Package

17.9.1 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).

17.9.2 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.

17.9.3 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).

17.10 Bug Fixes in RDK-IDM Firmware Package

17.10.1 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.

17.11 Bug Fixes in Stellaris Firmware Development Package

17.11.1 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.

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18.1 Bug Fixes in Stellaris Boot Loader

18.1.1 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.

18.2 New Features in Stellaris Peripheral Driver Library

18.2.1 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.

18.2.2 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.

18.3 Bug Fixes in Stellaris Peripheral Driver Library

18.3.1 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.

18.4 New Features in Third Party Packages

18.4.1 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).

18.5 Bug Fixes in Third Party Packages

18.5.1 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.

18.6 New Features in Stellaris USB Library

18.6.1 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.

18.6.2 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.

18.6.3 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.

18.7 Bug Fixes in Stellaris USB Library

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

When using OTG mode, usblib 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 usblib.

18.7.2 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.

18.7.3 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.

18.8 New Features in Stellaris Utility Library

18.8.1 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 applcation. 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.

18.9 Bug Fixes in Stellaris Utility Library

18.9.1 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.

18.10 Bug Fixes in DK-LM3S9B96 Firmware Package

18.10.1 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.

18.10.2 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.

18.11 Bug Fixes in EK-LM3S3748 Firmware Package

18.11.1 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.

18.12 Bug Fixes in EK-LM3S6965 Firmware Package

18.12.1 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.

18.12.2 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.

18.13 Bug Fixes in EK-LM3S8962 Firmware Package

18.13.1 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.

18.13.2 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.

18.14 Bug Fixes in EK-LM3S9B90 Firmware Package

18.14.1 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

18.14.2 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.

18.14.3 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.

18.15 Bug Fixes in EK-LM3S9B92 Firmware Package

18.15.1 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.

18.15.2 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.

18.16 Bug Fixes in RDK-BDC Firmware Package

18.16.1 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.

18.17 Bug Fixes in RDK-IDM Firmware Package

18.17.1 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.

18.17.2 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.

18.18 Bug Fixes in RDK-IDM-SBC Firmware Package

18.18.1 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.

18.18.2 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.

18.19 Bug Fixes in RDK-S2E Firmware Package

18.19.1 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.

18.19.2 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.

18.20 New Features in Stellaris Firmware Development Package

18.20.1 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.

18.21 Bug Fixes in Stellaris Firmware Development Package

18.21.1 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.

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

For applications that provided a customized lm3sNNNN-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.

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

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19.1 New Features in Stellaris Peripheral Driver Library

19.1.1 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.

19.2 Bug Fixes in Stellaris Host Tools

19.2.1 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.

19.3 Bug Fixes in Stellaris USB Library

19.3.1 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.

19.4 New Features in EK-LM3S1968 Firmware Package

19.4.1 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.

19.5 New Features in EK-LM3S2965 Firmware Package

19.5.1 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.

19.6 New Features in EK-LM3S6965 Firmware Package

19.6.1 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.

19.7 New Features in EK-LM3S8962 Firmware Package

19.7.1 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.

19.8 New Features in RDK-BDC Firmware Package

19.8.1 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.

19.9 New Features in RDK-BDC24 Firmware Package

19.9.1 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.

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

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20.1 New Features in Stellaris Peripheral Driver Library

20.1.1 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.

20.1.2 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.

20.2 Bug Fixes in Stellaris Graphics Library

20.2.1 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.

20.3 New Features in Third Party Packages

20.3.1 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.

20.3.2 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.

20.3.3 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.

20.4 New Features in Stellaris Utility Library

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

A new function, UARTStdioInitExpClk(), 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.

20.5 New Features in DK-LM3S9B96 Firmware Package

20.5.1 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.

20.5.2 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.

20.6 Bug Fixes in DK-LM3S9B96 Firmware Package

20.6.1 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.

20.6.2 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.

20.6.3 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.

20.6.4 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.

20.6.5 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.

20.7 New Features in EK-LM3S3748 Firmware Package

20.7.1 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 lmusbdll.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.

20.8 Bug Fixes in EK-LM3S3748 Firmware Package

20.8.1 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.

20.8.2 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.

20.8.3 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.

20.9 Bug Fixes in EK-LM3S6965 Firmware Package

20.9.1 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.

20.10 Bug Fixes in EK-LM3S8962 Firmware Package

20.10.1 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.

20.11 New Features in EK-LM3S9B90 Firmware Package

20.11.1 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.

20.11.2 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.

20.12 Bug Fixes in EK-LM3S9B90 Firmware Package

20.12.1 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.

20.12.2 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.

20.12.3 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.

20.13 New Features in EK-LM3S9B92 Firmware Package

20.13.1 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.

20.13.2 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.

20.14 Bug Fixes in EK-LM3S9B92 Firmware Package

20.14.1 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.

20.14.2 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.

20.14.3 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.

20.15 Bug Fixes in RDK-ACIM Firmware Package

20.15.1 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.

20.16 New Features in RDK-BDC24 Firmware Package

20.16.1 Added RDK-BDC24 support (Reference 11170)

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

20.17 Bug Fixes in RDK-BLDC Firmware Package

20.17.1 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.

20.18 Bug Fixes in RDK-IDM Firmware Package

20.18.1 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.

20.18.2 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.

20.19 Bug Fixes in RDK-IDM-L35 Firmware Package

20.19.1 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.

20.20 Bug Fixes in RDK-IDM-SBC Firmware Package

20.20.1 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.

20.20.2 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.

20.20.3 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.

20.20.4 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.

20.21 Bug Fixes in RDK-S2E Firmware Package

20.21.1 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.

20.22 Bug Fixes in RDK-STEPPER Firmware Package

20.22.1 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.

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21.1 New Features in Stellaris Boot Loader

21.1.1 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.

21.2 New Features in Stellaris Peripheral Driver Library

21.2.1 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).

21.3 Bug Fixes in Stellaris Peripheral Driver Library

21.3.1 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.

21.3.2 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.

21.3.3 Use of non-MOTO formats in SSIConfigSetExpClk() can cause minor errors in the actual clock rate (Reference 10922)

If a non-MOTO format was specified in a call to the SSIConfigSetExpClk() 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.

21.3.4 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().

21.3.5 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.

21.4 Bug Fixes in Stellaris Utility Library

21.4.1 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 pointerin 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.

21.5 New Features in DK-LM3S9B96 Firmware Package

21.5.1 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”.

21.6 Bug Fixes in DK-LM3S9B96 Firmware Package

21.6.1 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.

21.6.2 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 pointerin 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.

21.6.3 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.

21.6.4 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.

21.7 Bug Fixes in EK-LM3S6965 Rev A Firmware Package

21.7.1 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.

21.8 Bug Fixes in EK-LM3S6965 Firmware Package

21.8.1 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.

21.9 Bug Fixes in EK-LM3S8962 Firmware Package

21.9.1 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.

21.10 Bug Fixes in EK-LM3S9B90 Firmware Package

21.10.1 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.

21.11 Bug Fixes in EK-LM3S9B92 Firmware Package

21.11.1 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.

21.12 Bug Fixes in RDK-BDC Firmware Package

21.12.1 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.

21.13 New Features in RDK-IDM Firmware Package

21.13.1 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.

21.14 Bug Fixes in RDK-IDM-SBC Firmware Package

21.14.1 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.

21.14.2 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.

21.14.3 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.

21.14.4 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 pointerin 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.

21.15 Bug Fixes in RDK-S2E Firmware Package

21.15.1 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.

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22.1 Bug Fixes in Stellaris Boot Loader

22.1.1 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.

22.1.2 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.

22.2 New Features in Stellaris Peripheral Driver Library

22.2.1 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.

22.2.2 Added SSIBusy() function (Reference 9606)

This function determines if the SSI peripheral is busy transmitting data.

22.2.3 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.

22.2.4 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.

22.2.5 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.

22.2.6 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.

22.3 Bug Fixes in Stellaris Peripheral Driver Library

22.3.1 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.

22.3.2 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.

22.3.3 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.

22.3.4 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.

22.4 Bug Fixes in Third Party Packages

22.4.1 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().

22.5 New Features in Stellaris Host Tools

22.5.1 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.

22.5.2 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”.

22.6 Bug Fixes in Stellaris USB Library

22.6.1 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.

22.7 Bug Fixes in Stellaris Utility Library

22.7.1 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.

22.8 New Features in DK-LM3S9B96 Firmware Package

22.8.1 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.

22.8.2 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.

22.8.3 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.

22.8.4 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.

22.8.5 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.

22.8.6 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.

22.8.7 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).

22.8.8 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.

22.8.9 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.

22.9 Bug Fixes in DK-LM3S9B96 Firmware Package

22.9.1 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.

22.10 New Features in EK-LM3S811 Firmware Package

22.10.1 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.

22.11 Bug Fixes in EK-LM3S811 Firmware Package

22.11.1 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.

22.12 New Features in EK-LM3S2965 Firmware Package

22.12.1 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.

22.13 New Features in EK-LM3S6965 Rev A Firmware Package

22.13.1 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.

22.13.2 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.

22.14 Bug Fixes in EK-LM3S6965 Rev A Firmware Package

22.14.1 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.

22.15 New Features in EK-LM3S6965 Firmware Package

22.15.1 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.

22.15.2 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.

22.16 New Features in EK-LM3S8962 Firmware Package

22.16.1 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.

22.16.2 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.

22.16.3 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.

22.17 New Features in EK-LM3S9B90 Firmware Package

22.17.1 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.

22.17.2 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.

22.17.3 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.

22.17.4 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.

22.18 New Features in EK-LM3S9B92 Firmware Package

22.18.1 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.

22.18.2 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.

22.18.3 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.

22.18.4 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.

22.19 Bug Fixes in RDK-ACIM Firmware Package

22.19.1 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”.

22.20 New Features in RDK-BLDC Firmware Package

22.20.1 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.

22.21 Bug Fixes in RDK-BLDC Firmware Package

22.21.1 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”.

22.22 New Features in RDK-IDM-SBC Firmware Package

22.22.1 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.

22.22.2 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.

22.23 Bug Fixes in RDK-IDM-SBC Firmware Package

22.23.1 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.

22.24 New Features in RDK-S2E Firmware Package

22.24.1 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.

22.24.2 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.

22.25 Bug Fixes in RDK-STEPPER Firmware Package

22.25.1 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.

22.25.2 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”.

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23.1 New Features in Stellaris Boot Loader

23.1.1 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.

23.1.2 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 transfering 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.

23.2 Bug Fixes in Stellaris Peripheral Driver Library

23.2.1 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.

23.2.2 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.

23.3 Bug Fixes in Stellaris Graphics Library

23.3.1 Rendering of 1bpp and 4bpp compressed images (Reference 9642)

GrImageDraw() 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).

23.4 Bug Fixes in Third Party Packages

23.4.1 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.

23.5 Bug Fixes in Stellaris Host Tools

23.5.1 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.

23.6 New Features in Stellaris USB Library

23.6.1 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.

23.7 Bug Fixes in Stellaris USB Library

23.7.1 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.

23.7.2 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.

23.8 New Features in Stellaris Utility Library

23.8.1 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.

23.8.2 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 transfering files to and from an application over Ethernet.

23.9 Bug Fixes in Stellaris Utility Library

23.9.1 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).

23.10 New Features in DK-LM3S9B96 Firmware Package

23.10.1 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.

23.10.2 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).

23.10.3 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.

23.10.4 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 transfering files to and from an application over Ethernet.

23.11 Bug Fixes in DK-LM3S9B96 Firmware Package

23.11.1 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.

23.11.2 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.

23.11.3 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.

23.11.4 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.

23.12 Bug Fixes in EK-LM3S3748 Firmware Package

23.12.1 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.

23.13 New Features in EK-LM3S6965 Firmware Package

23.13.1 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 transfering files to and from an application over Ethernet.

23.14 Bug Fixes in EK-LM3S6965 Firmware Package

23.14.1 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.

23.15 New Features in EK-LM3S8962 Firmware Package

23.15.1 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 transfering files to and from an application over Ethernet.

23.16 Bug Fixes in EK-LM3S8962 Firmware Package

23.16.1 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.

23.17 New Features in EK-LM3S9B90 Firmware Package

23.17.1 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 transfering files to and from an application over Ethernet.

23.18 Bug Fixes in EK-LM3S9B90 Firmware Package

23.18.1 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.

23.18.2 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.

23.18.3 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.

23.19 New Features in EK-LM3S9B92 Firmware Package

23.19.1 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 transfering files to and from an application over Ethernet.

23.20 Bug Fixes in EK-LM3S9B92 Firmware Package

23.20.1 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.

23.20.2 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.

23.21 New Features in RDK-IDM Firmware Package

23.21.1 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 transfering files to and from an application over Ethernet.

23.22 Bug Fixes in RDK-IDM Firmware Package

23.22.1 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.

23.23 New Features in RDK-IDM-SBC Firmware Package

23.23.1 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 transfering files to and from an application over Ethernet.

23.23.2 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.

23.24 Bug Fixes in RDK-IDM-SBC Firmware Package

23.24.1 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.

23.24.2 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.

23.25 New Features in RDK-S2E Firmware Package

23.25.1 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 transfering files to and from an application over Ethernet.

23.26 Bug Fixes in RDK-S2E Firmware Package

23.26.1 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.

24 Release Notes for StellarisWare Revision 4781 (June 30, 2009)

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24.1 New Features in Stellaris Peripheral Driver Library

24.1.1 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 digial 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.

24.1.2 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.

24.2 Bug Fixes in Stellaris Peripheral Driver Library

24.2.1 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 USESYSDIV bit in RCC is not set. It is possible to configure RCC where the PLL is enabled and USESYSDIV 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.

24.2.2 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.

24.2.3 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.

24.3 Bug Fixes in Stellaris Graphics Library

24.3.1 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.

24.3.2 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.

24.4 New Features in DK-LM3S9B96 Firmware Package

24.4.1 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.

24.5 New Features in EK-LM3S3748 Firmware Package

24.5.1 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.

24.6 New Features in EK-LM3S9B90 Firmware Package

24.6.1 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.

24.7 New Features in EK-LM3S9B92 Firmware Package

24.7.1 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.

24.8 Bug Fixes in RDK-IDM Firmware Package

24.8.1 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.

24.9 Bug Fixes in RDK-IDM-SBC Firmware Package

24.9.1 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.

24.10 Bug Fixes in Stellaris Firmware Development Package

24.10.1 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.

25 Release Notes for StellarisWare Revision 4694 (May 27, 2009)

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25.1 New Features in Stellaris Graphics Library

25.1.1 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).

25.2 New Features in Stellaris USB Library

25.2.1 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.

25.3 Bug Fixes in DK-LM3S9B96 Firmware Package

25.3.1 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.

26 Release Notes for StellarisWare Revision 4674 (May 19, 2009)

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26.1 Bug Fixes in Stellaris Boot Loader

26.1.1 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.

26.2 New Features in Stellaris Peripheral Driver Library

26.2.1 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.

26.2.2 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.

26.2.3 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.

26.3 Bug Fixes in Stellaris Graphics Library

26.3.1 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.

26.3.2 Corrected operation of Lock and Unlock macros for Slider and JPGWidget (Reference 9471)

In previous releases, the operation of the SliderLock()/SliderUnlock() and JPEGWidgetLock()/JPEGWidgetUnlock() macros were reversed. This has now been corrected.

26.4 New Features in Third Party Packages

26.4.1 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.

26.5 Bug Fixes in Third Party Packages

26.5.1 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.

26.5.2 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”.

26.6 New Features in Stellaris Host Tools

26.6.1 New board locater tool for Ethernet-based applications (Reference 9094)

A board locater tool has been created that will search the Ethernet network for Stellaris-based boards running code which utilizes Ethernet and the board locater 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.

26.6.2 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 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.

26.6.3 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.

26.7 Bug Fixes in Stellaris Host Tools

26.7.1 Makefsfile updated to prevent generation of invalid C code (Reference 8651)

The makefsfile 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 '-', '+'.

26.7.2 makefsfile tool now adds correct headers to XML files (Reference 9361)

The makefsfile 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).

26.7.3 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.

26.8 Bug Fixes in Stellaris USB Library

26.8.1 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().

26.8.2 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.

26.9 New Features in Stellaris Utility Library

26.9.1 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.

26.10 Bug Fixes in Stellaris Utility Library

26.10.1 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_ulIPMode, is now saved at the end of the function for all cases.

26.11 New Features in DK-LM3S9B96 Firmware Package

26.11.1 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.

26.12 Bug Fixes in DK-LM3S9B96 Firmware Package

26.12.1 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.

26.12.2 Corrected operation of Lock and Unlock macros for Slider and JPGWidget (Reference 9471)

In previous releases, the operation of the SliderLock()/SliderUnlock() and JPEGWidgetLock()/JPEGWidgetUnlock() macros were reversed. This has now been corrected.

26.12.3 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.

26.13 New Features in EK-LM3S3748 Firmware Package

26.13.1 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.

26.14 Bug Fixes in EK-LM3S3748 Firmware Package

26.14.1 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.

26.14.2 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.

26.14.3 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.

26.15 Bug Fixes in EK-LM3S6965 Rev A Firmware Package

26.15.1 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).

26.15.2 Replace use of strstr with ustrstr (Reference 9447)

To avoid potential runtime library issues that vary from toolchain to toolchain, replace the use of the strstr function with ustrstr, which is provided in the utils folder.

26.16 Bug Fixes in EK-LM3S6965 Firmware Package

26.16.1 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).

26.16.2 Replace use of strstr with ustrstr (Reference 9447)

To avoid potential runtime library issues that vary from toolchain to toolchain, replace the use of the strstr function with ustrstr, which is provided in the utils folder.

26.17 Bug Fixes in EK-LM3S8962 Firmware Package

26.17.1 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).

26.17.2 Replace use of strstr with ustrstr (Reference 9447)

To avoid potential runtime library issues that vary from toolchain to toolchain, replace the use of the strstr function with ustrstr, which is provided in the utils folder.

26.18 New Features in EK-LM3S9B90 Firmware Package

26.18.1 Added applications for new evaluation board (Reference 9348)

A suite of example applications has been added for the new evaluation board.

26.18.2 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.

26.19 Bug Fixes in EK-LM3S9B90 Firmware Package

26.19.1 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.

26.20 New Features in EK-LM3S9B92 Firmware Package

26.20.1 Added applications for new evaluation board (Reference 9348)

A suite of example applications has been added for the new evaluation board.

26.20.2 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.

26.21 Bug Fixes in EK-LM3S9B92 Firmware Package

26.21.1 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.

26.22 Bug Fixes in RDK-BLDC Firmware Package

26.22.1 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.

26.23 Bug Fixes in RDK-IDM-SBC Firmware Package

26.23.1 Corrected operation of Lock and Unlock macros for Slider and JPG-Widget (Reference 9471)

In previous releases, the operation of the SliderLock()/SliderUnlock() and JPEGWidget-Lock()/JPEGWidgetUnlock() macros were reversed. This has now been corrected.

26.23.2 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.

26.24 Bug Fixes in RDK-S2E Firmware Package

26.24.1 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.

26.25 New Features in Stellaris Firmware Development Package

26.25.1 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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