StellarisWare Release Notes

Literature Number: SW-RLN-4781
June 30, 2009

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Texas Instruments
108 Wild Basin, Suite 350
Austin, TX 78746
Main: +1-512-279-8800
Fax: +1-512-279-8879
http://www.luminarymicro.com

Revision Information

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1.1 New Features in Stellaris Peripheral Driver Library

1.1.1 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.

1.1.2 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.

1.2 Bug Fixes in Stellaris Peripheral Driver Library

1.2.1 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.

1.2.2 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.

1.2.3 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.

1.3 Bug Fixes in Stellaris Graphics Library

1.3.1 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.

1.3.2 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.

1.4 New Features in DK-LM3S9B96 Firmware Package

1.4.1 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.

1.5 New Features in EK-LM3S3748 Firmware Package

1.5.1 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.

1.6 New Features in EK-LM3S9B90 Firmware Package

1.6.1 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.

1.7 New Features in EK-LM3S9B92 Firmware Package

1.7.1 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.

1.8 Bug Fixes in RDK-IDM Firmware Package

1.8.1 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.

1.8.2 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 request to update the firmware was received from the Ethernet controller.

1.9 Bug Fixes in RDK-IDM-SBC Firmware Package

1.9.1 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.

1.10 Bug Fixes in Stellaris Firmware Development Package

1.10.1 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.

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2.1 New Features in Stellaris Graphics Library

2.1.1 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).

2.2 New Features in Stellaris USB Library

2.2.1 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.

2.3 Bug Fixes in DK-LM3S9B96 Firmware Package

2.3.1 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.

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3.1 Bug Fixes in Stellaris Boot Loader Library

3.1.1 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.

3.2 New Features in Stellaris Peripheral Driver Library

3.2.1 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.

3.2.2 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.

3.2.3 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.

3.3 Bug Fixes in Stellaris Graphics Library

3.3.1 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.

3.3.2 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.

3.4 New Features in Stellaris Host Tools Library

3.4.1 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.

3.4.2 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.

3.4.3 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.

3.5 Bug Fixes in Stellaris Host Tools Library

3.5.1 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 ‘-’, ‘+’.

3.5.2 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).

3.5.3 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.

3.6 Bug Fixes in Stellaris USB Library

3.6.1 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().

3.6.2 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.

3.7 New Features in Stellaris Utility Library

3.7.1 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.

3.8 Bug Fixes in Stellaris Utility Library

3.8.1 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.

3.9 New Features in Stellaris Third Party Libraries

3.9.1 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.

3.10 Bug Fixes in Stellaris Third Party Libraries

3.10.1 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.

3.10.2 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".

3.11 New Features in DK-LM3S9B96 Firmware Package

3.11.1 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.

3.12 Bug Fixes in DK-LM3S9B96 Firmware Package

3.12.1 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.

3.12.2 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.

3.12.3 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.

3.13 New Features in EK-LM3S3748 Firmware Package

3.13.1 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.

3.14 Bug Fixes in EK-LM3S3748 Firmware Package

3.14.1 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.

3.14.2 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.

3.14.3 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.

3.15 Bug Fixes in EK-LM3S6965 Rev A Firmware Package

3.15.1 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).

3.15.2 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.

3.16 Bug Fixes in EK-LM3S6965 Firmware Package

3.16.1 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).

3.16.2 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.

3.17 Bug Fixes in EK-LM3S8962 Firmware Package

3.17.1 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).

3.17.2 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.

3.18 New Features in EK-LM3S9B90 Firmware Package

3.18.1 Added applications for new evaluation board (Reference 9348)

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

3.18.2 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.

3.19 Bug Fixes in EK-LM3S9B90 Firmware Package

3.19.1 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.

3.20 New Features in EK-LM3S9B92 Firmware Package

3.20.1 Added applications for new evaluation board (Reference 9348)

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

3.20.2 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.

3.21 Bug Fixes in EK-LM3S9B92 Firmware Package

3.21.1 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.

3.22 Bug Fixes in RDK-BLDC Firmware Package

3.22.1 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.

3.23 Bug Fixes in RDK-IDM Firmware Package

3.23.1 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.

3.23.2 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.

3.24 Bug Fixes in RDK-IDM-SBC Firmware Package

3.24.1 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.

3.24.2 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.

3.25 Bug Fixes in RDK-S2E Firmware Package

3.25.1 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.

3.26 New Features in Stellaris Firmware Development Package

3.26.1 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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