

Hercules™ Software Diagnostic Library CSP Without LDRA

Contents

1	New in this release	1
2	Folder Structure	1
3	Contents of CSP	2
4	Fixed in This Release	2
5	Known Issues	3

List of Tables

1	Fixed in This Release	2
2	Summary of Known Issues	3

Trademarks

Hercules is a trademark of Texas Instruments.

1 New in this release

The following outlines the defects resolved and enhancements done in this release:

- Updated CSP for Hercules Software Diagnostic Library to 2.4.0 release – static analysis of source code has been updated to 2.4.0 source code.

To re-run the unit tests using the included Test Automation Unit (TAU) software, customers are required to purchase and install LDRA Unit software from LDRA.

2 Folder Structure

The installer for this software installs by default to the C:\ti\Hercules folder. The folder structure is as shown below:

```

C:\ti\Hercules\SafeTI Diagnostic Library\ Installation Root folder
|
2.4.0 Product version number
|
+---build\ Project files for demo
| application (Device specific)
|
+---build_safeTILib Project file for building library
+---build_TPSPDriverLib Project file for building TPS Driver library
+---demo_app\ Demo application
| |
| +---common\ Source code
| \---HALCoGen\ HALCoGen configuration
| (Device specific)
|
+---docs Documentation.
+---hal Device hardware abstraction
+---libs Prebuilt libraries
+---safety_library Source code for Diagnostic
| Library
+---Test Test automation unit for testing the API.

```

\---TPS_driver

Source code for the TPS65381 Driver

3 Contents of CSP

- Quality Review Report - HIS Metrics
- Code Review Report - MISRA C compliance report
- Test results Report
- Traceability report
- Software user guides
- Software release Note
- Software safety requirements document
- Software architecture document
- Software design document
- Software safety manual

4 Fixed in This Release

Table 1. Fixed in This Release

References	Headline	Description
SDOCM00122361	Clearly document what was tested and what wasn't tested with a certain release.	Issue Details: Clearly document which of the following certain releases was tested: MCU's, Kit's, CCS/Compiler Version, IAR Version A matrix to see which combinations were tested and are supported would really help. Implementation Information: Updated user's guide and safety manual to document the devices tested against, and compiler tool chains with their versions.
SDOCM00122862	Static analysis shows errors for RM42x/TMS570LS04x/03x and RM46x/TMS570LS12x/11x devices.	Issue Details: Static analysis shows errors for RM42x/TMS570LS04x/03x and RM46x/TMS570LS12x/11x devices. Implementation Information: Upon running static analysis for these platforms, we get errors for RM42x/TMS570LS04x/03x and RM46x/TMS570LS12x/11x devices. For RM46x/TMS570LS12x/11x: These were because of code specific to these platforms not having appropriate justification. For RM42x/TMS570LS04x/03x: These were because of code not specific to these platforms is not disabled with compile time switches.

5 Known Issues

Table 2. Summary of Known Issues

Title	Page
HERCULES_SW-5194 —FLASH_ADDRESS_PARITY_SELF_TEST fails on LDRA unit testing for RM42x and TMS570LS04x platform.....	3
HERCULES_SW-5196 —SCI and LIN modules untested by LDRA unit testing	3
HERCULES_SW-5113 —TPS-Driver - Reset on enabling a ABIST and LBIST Run.....	3
HERCULES_SW-5126 —TPS_GetWatchdogFailureStatus giving failure status as TRUE when Watchdog fail count is 7 and Watchdog reset is not enabled.....	4
HERCULES_SW-5147 —MISRA-C violation detected incorrectly in TPS_Interface.c	4
1 —Test case with ID “VIM2A:10” in VIM_UT.xlsx fails.....	4
2 —Data-Abort-exception handler code causes test failure	4
3 —Test Report Consolidation script unavailable in CSP	5

HERCULES_SW-5194 *FLASH_ADDRESS_PARITY_SELF_TEST fails on LDRA unit testing for RM42x and TMS570LS04x platform.*

Issue details	FLASH_ADDRESS_PARITY_SELF_TEST fails on unit testing for diagnostic functionality on RM42x and TMS570LS04x platform.
Devices	All RM42x and TMS570LS04x device platforms
Workaround	<p>For the test case identified as “FLA4:1”, used to test SL_SelfTest_Flash() to execute properly, sys_startup.c in RM42x and TMS570LS04x SDL TAU should be updated with a code that updates memory region pointed by 'ulHighHandlerStartAddr' with contents from memory address given by 'ulHighHandlerLoadStart' with copy size as 'ulHighHandlerSize'.</p> <p>User can download the corrected sys_startup.c file from the following link and replace the existing file in CSP before testing with LDRA: http://www.ti.com/tool/SAFETI-HERCULES-DIAG-LIB-CSP.</p>

HERCULES_SW-5196 *SCI and LIN modules untested by LDRA unit testing*

Issue details	Software Diagnostic Library product version 2.4.0 does not have unit testing implemented for SCI and LIN module - Cannot test SCI/LIN as the SCI port is used as UART for sending LDRA data to the PC.
Devices	All device platforms
Workaround	None

HERCULES_SW-5113 *TPS-Driver - Reset on enabling a ABIST and LBIST Run.*

Issue details	Power reset is observed when enabling the ABIST/LBIST run by writing the LBIST_EN and ABIST_EN bits in the safety_bist_ctrl register of the TPS device.
Devices	All device platforms
Workaround	ABIST and LBIST must be run independently. Trying to run both ABIST and LBIST at the same time is not allowed.

HERCULES_SW-5126 — *TPS_GetWatchdogFailureStatus giving failure status as TRUE when Watchdog fail count is 7 and Watchdog reset is not enabled* www.ti.com

HERCULES_SW-5126 *TPS_GetWatchdogFailureStatus giving failure status as TRUE when Watchdog fail count is 7 and Watchdog reset is not enabled*

Issue details	The API TPS_GetWatchdogFailureStatus should return the failure status as true only when the watchdog failure count is 7 and the watchdog reset is enabled. But the failure status is returned as TRUE even when the watchdog failure count is 7 and watchdog reset is not enabled.
Devices	All device platforms
Workaround	The TPS65381A-Q1 datasheet has been updated to provide clarity on the working of the watchdog. When the fail counter reaches 7, device will not cause a RESET. The counter on reaching 7+1(or the next bad event after it has reached 7) will put the device to RESET state.

HERCULES_SW-5147 *MISRA-C violation detected incorrectly in TPS_Interface.c*

Release Note	Incorrect violations in TPS driver detected in LDRA
Devices	All device platforms
Workaround	None

1 *Test case with ID "VIM2A:10" in VIM_UT.xlsx fails*

Issue details	In SL_SelfTest_PBIST() in previous version of SDL, there was a if statement check for nERROR_Active status as TRUE and so a test case was specifically added to test this block of code. The nERROR_Active status check is removed from the code in latest version, and so the test case is no more valid but causes failure.
Devices	All device platforms
Workaround	<p>The test case, identified as "VIM2A:10", used to test SL_SelfTest_PBIST() should be removed from VIM_UT.xlsx before performing VIM Unit Test.</p> <p>User can download the corrected VIM_UT.xlsx file from the following link and replace the existing file in CSP before testing with LDRA: http://www.ti.com/tool/SAFETI-HERCULES-DIAG-LIB-CSP.</p>

2 *Data-Abort-exception handler code causes test failure*

Issue details	Test case fails due to _excpt_vec_abort_data() because of one missing condition check for FLASH_ADDRESS_ECC_SELF_TEST status, during Flash status checks.
Devices	All device platforms
Workaround	<p>Change the if-statement @ line 171 in exception_handlers.c from:</p> <pre>if (((TRUE == SL_FLAG_GET(FLASH_ECC_TEST_MODE_2BIT))) (TRUE == SL_FLAG_GET(FLASH_ECC_ADDR_TAG_REG_MODE)))</pre> <p>To:</p> <pre>if (((TRUE == SL_FLAG_GET(FLASH_ECC_TEST_MODE_2BIT))) (TRUE == SL_FLAG_GET(FLASH_ADDRESS_ECC_SELF_TEST))) (TRUE == SL_FLAG_GET(FLASH_ECC_ADDR_TAG_REG_MODE)))</pre> <p>User can download the corrected exceptions_handlers.c file from the following link and replace the existing file in CSP before testing with LDRA: http://www.ti.com/tool/SAFETI-HERCULES-DIAG-LIB-CSP.</p>

3	<i>Test Report Consolidation script unavailable in CSP</i>
Issue details	Batch Script file used to consolidate Test Reports is not added in CSP.
Devices	All device platforms
Workaround	<p>The Batch Script file is uploaded onto a TI web-page and the link to download the file is given below.</p> <p>User can download the Batch Script file from the following link and copy it in the installed CSP's directory in Test\Misc\Scripts: http://www.ti.com/tool/SAFETI-HERCULES-DIAG-LIB-CSP.</p>

IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements. These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you will fully indemnify TI and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI's products are provided subject to TI's Terms of Sale (www.ti.com/legal/termsofsale.html) or other applicable terms available either on ti.com or provided in conjunction with such TI products. TI's provision of these resources does not expand or otherwise alter TI's applicable warranties or warranty disclaimers for TI products.

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2020, Texas Instruments Incorporated