/IPB/20_Software/SCDD Library/LVDC DSP_C

SCDD_TstM

Software Component Detailed Design

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ID	Software Component Detailed Design
SCDD_TstM_1	1 **Software Component Design Description**
SCDD_TstM_2	1.1 **Introduction**
SCDD_TstM_3	This document describes the needed requirements for a SWC or BSWM.
SCDD_TstM_4	This is module is the Software Component Detail Description. It contains each SW component of each SW architecture. It is always structured in: External Interface Internal Design Requirements

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SCDD_TstM_5	[2] **Attributes**
SCDD_TstM_6	Agreed attributes for SWE.3 (ENG.6)
SCDD_TstM_137	**Delta_ObjectType:** Showing the type of the Object. Values: - • tbd (default) -> To Be Discussed. • heading -> Object Represent Head for a collection of objects belong to same logical group. • feature • information • requirement
SCDD_TstM_138	**Delta_SW_Construction_Status:** Showing the status of the implementation. Values: - • tbd (default) -> To Be Discussed. • ready for implementation -> Requirement is ready and can be implemented. • created -> internal design (inclusive design review) and source code is ready (inclusive code review). • finished -> module test (inclusive code review) done. • postponed -> requirement that is not part of the current release.
SCDD_TstM_139	**Delta_ReqStatus:** Showing the Implementation phase of the requirement. Values: - • In work (default) -> Requirement still in implementation phase. • ready for review -> Requirement is implemented and need to be reviewd. • point to clarify -> Requirement need clarifications. • Accepted by project -> Requirement is accepted and ready for implementation. • Discarded by project -> Requirement is rejected and won't implemented. • n/a -> Not Applicable for non requirements objects.
SCDD_TstM_140	**Delta_FuSa_Relevance:** Showing the ASIL level of requirement.
SCDD_TstM_141	**Delta_Testability:** Showing if requirement is testable.
SCDD_TstM_142	**Delta_TestCase:** Showing the Status of test case that cover this requirement. Values: - • tbd(default) -> Requirement still in implementation phase. • Implemented ->Test cases is implemented. • In Progress -> Test cases is still in implementation. • n/a -> Not Applicable for non requirements objects.

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SCDD_TstM_10	3 **Views**
SCDD_TstM_11	**Review View**: This view is used for SCDD edit and review.

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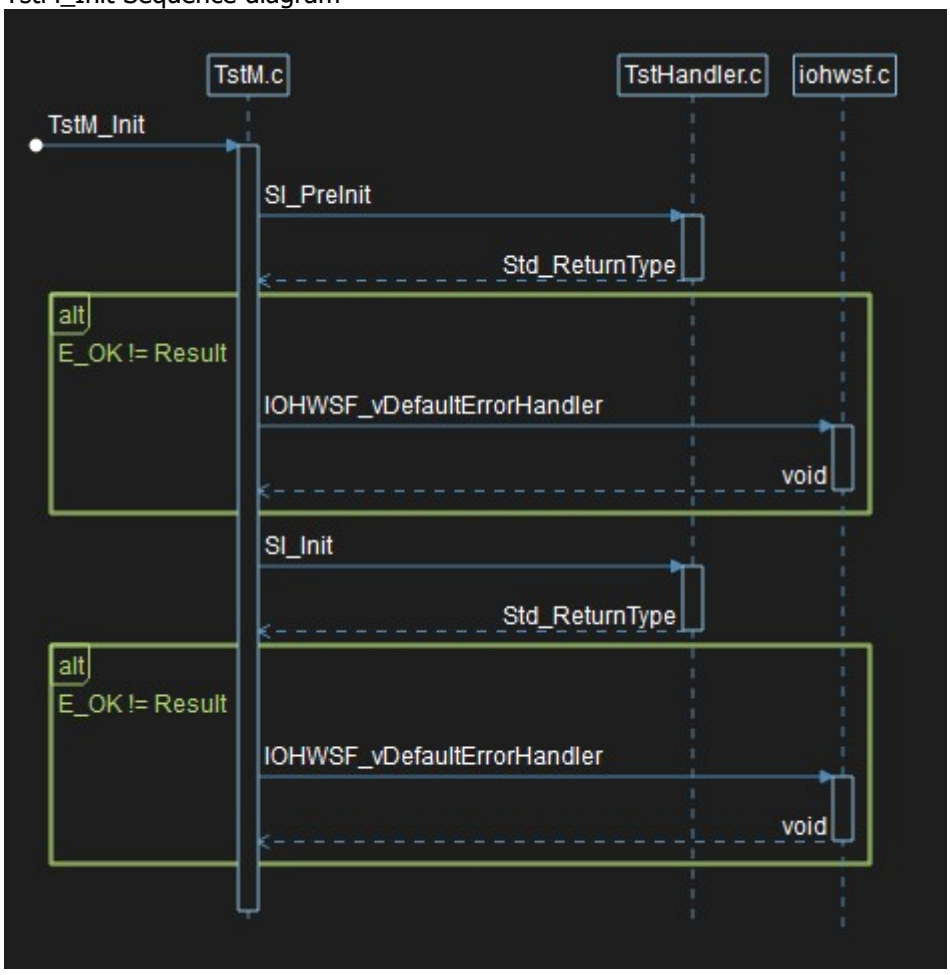
SCDD_TstM_13	# 4 TstM
SCDD_TstM_112	## 4.1 External Interfaces
SCDD_TstM_134	The function interface of this component are as following: TstM_Init TstM_PreRunTst TstM_InvalidateData TstM_Run
SCDD_TstM_129	## 4.2 Internal design
SCDD_TstM_165	TstM_Init Sequence diagram 
SCDD_TstM_167	TstM_PreRunTst Sequence diagram See Figure 1 on page 8.
SCDD_TstM_168	TstM_Run Sequence diagram See Figure 2 on page 9.

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SCDD_TstM_113	4.3 **Requirements**
SCDD_TstM_130	4.3.1 **ASIL**
SCDD_TstM_131	The TstM component is ASIL-B level.
SCDD_TstM_132	4.3.2 **Data Define**
SCDD_TstM_133	The C code of this component can be found in following link: https://desoeap16.delta.corp/svn/IPB_PPE_auto_porsche/trunk/20_Design/23_Software/2304_Implementation/10_APPL/40_DcDcController/4010_HSFB_LVDC_B1_MBD/30_Bsw/TstM
SCDD_TstM_135	4.3.3 **TstM functions**
SCDD_TstM_136	4.3.3.1 **ASIL Functions**
SCDD_TstM_114	4.3.3.1.1 **TstM_Init**
SCDD_TstM_144	**Function Name:** void TstM_Init(void) **Synchronization:** Synchronous **Reentrancy:** Non-Reentrant **Return:** None **Parameters(in):** None **Parameters(out):** None **Parameters(inout):** None **Description:** Initialization of the Test Manager global variables and invoke the initialization of SafeTlib. Error shall be reported through application callback **This function is calling :** Sl_PreInit Sl_Init IOHWSF_vDefaultErrorHandler
SCDD_TstM_143	This is TstM module Initialization function, It must be called in Init phase before any other TstM function
SCDD_TstM_145	This Function Initialize TstHandler Module for Early pre run and run phases through calling Sl_PreInit and Sl_Init functions and by configuration structure 'Sl_ConfigRoot[0]'

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SCDD_TstM_146	If initialization of TstHandler module failed in Early pre run or run phase init then this function will trigger reset with reason IOHWSF_E_SAFETLIB_PRE_INIT/IOHWSF_E_SAFETLIB_INIT
SCDD_TstM_119	4.3.3.1.2 **TstM_PreRunTst**
SCDD_TstM_147	**Function Name:** TstM_PreRunTst(uint8 GroupIndex) **Synchronization:** Synchronous **Reentrancy:** Non-Reentrant **Return:** None **Parameters(in):** GroupIndex: Configured Index of TstHandler Test Group **Parameters(out):** None **Parameters(inout):** None **Description:** Performs pre-run phase execution Error shall be reported through application callback **This function is calling :** IOHWSF_tPreRunPreHook IOHWSF_vDefaultErrorHandler Sl_ExecPreRunTst IOHWSF_tPreRunPostHook
SCDD_TstM_148	Function used to call user defined pre hook function for each SafetLib test group if defined, and if failed function trigger reset with reason IOHWSF_E_SAFETLIB_PRERUN_PREHOOK
SCDD_TstM_149	Function used to call user defined post hook function for each SafetLib test group if defined, and if failed function trigger reset with reason IOHWSF_E_SAFETLIB_PRERUN_POSTHOOK
SCDD_TstM_150	Function used to execute SafetLib pre run test group indicated by input parameter GroupIndex through calling TstHandler function Sl_ExecPreRunTst, and save execution results in TstM_TestResults, and if failed function trigger reset with reason IOHWSF_E_SAFETLIB_PRERUN_TEST_FAIL
SCDD_TstM_151	Function check tests signaturess for each test group and if there's any missmatch trigger reset with reason Of the Failed Test Name
SCDD_TstM_118	4.3.3.1.3 **TstM_Run**
SCDD_TstM_152	**Function Name:** void TstM_Run(void) **Synchronization:** Synchronous **Reentrancy:** Non-Reentrant **Return:** None

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SCDD_TstM_152	**Parameters(in):** None **Parameters(out):** None **Parameters(inout):** None **Description:** Invalidates seed, test results and test signatures **This function is calling :** Sl_ExecRunTst IOHWSF_vDefaultErrorHandler
SCDD_TstM_155	Function used to execute SafetLib run test group indicated by by input parameter GroupIndex through calling TstHandler function Sl_ExecRunTst, and save execution results in TstM_TestResults, and if failed function trigger reset with reason IOHWSF_E_SAFETLIB_RUN_TEST_FAIL
SCDD_TstM_156	Function check tests signaturess for each test group and if there's any missmatch trigger reset with reason IOHWSF_E_SAFETLIB_SIGNATURE_MISSMATCH_SFR_CMP_TST
SCDD_TstM_117	4.3.3.1.4 **TstM_InvalidateData**
SCDD_TstM_157	**Function Name:** void TstM_InvalidateData(void) **Synchronization:** Synchronous **Reentrancy:** Non-Reentrant **Return:** None **Parameters(in):** None **Parameters(out):** None **Parameters(inout):** None **Description:** The purpose of this API is to execute all tests in run-time phase groups for current cycle of diagnostic test interval. Before executing tests, it also invalidates seed, test results and test signatures corresponding last cycle. Incase of the master core, the following functionality is executed additionally: - During first call to this API, it makes transition to run-time phase. - During every call to this API, it gets the seed from SafeWDG Manager. - Error shall be reported through application callback **This function is calling :** None
SCDD_TstM_158	This function initialize TstM_TestResults and TstM_TestSignatures array used to hold test results and test signatures

Figure 1: From object 167 on page 4.

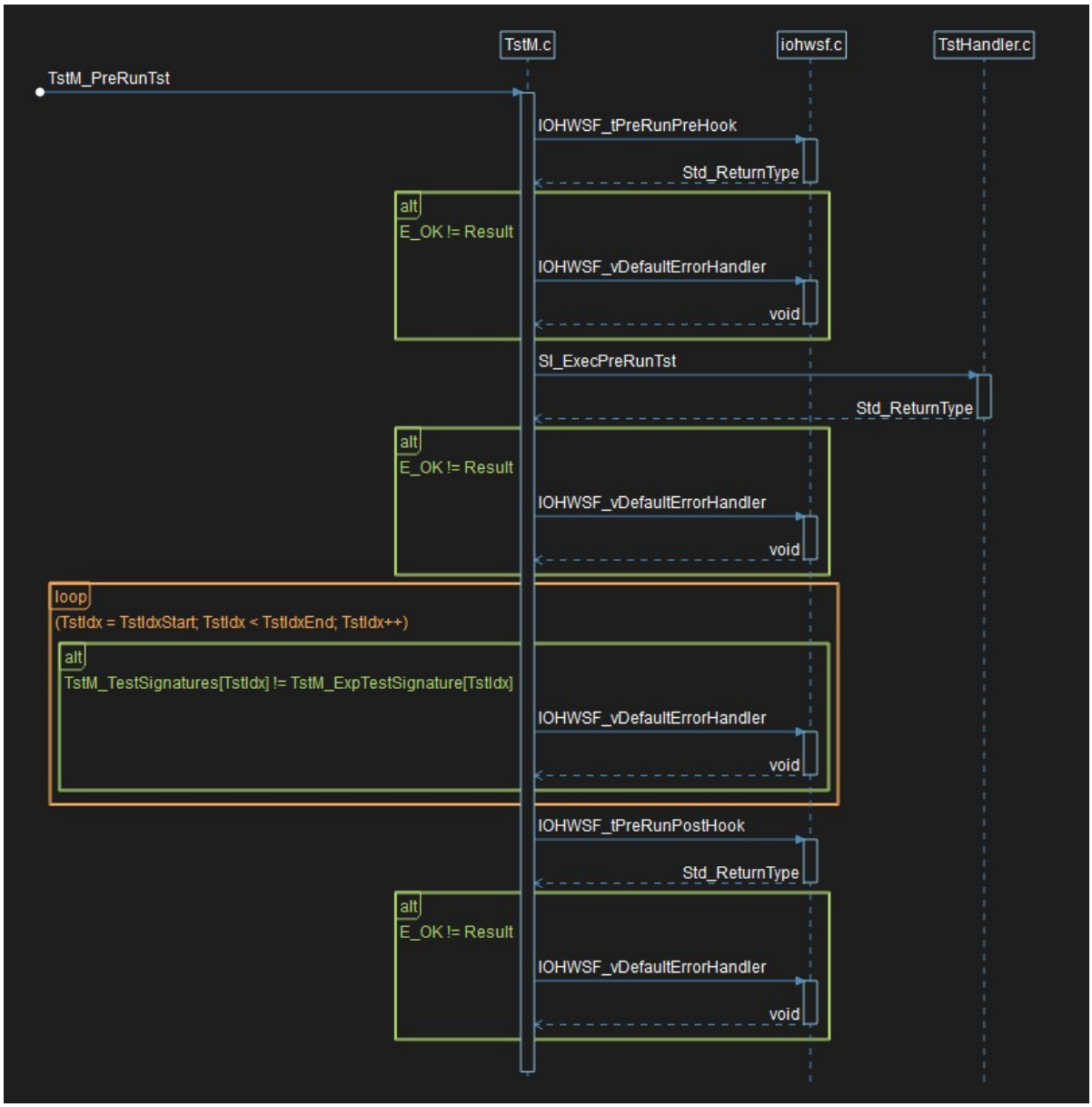

Figure 2: From object 168 on page 4.