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| DocCoverBackground | CORE FLIGHT EXECUTIVE  BUILD 6.6.0  FLIGHT SOFTWARE BUILD VERIFICATON  TEST REPORT  Flight Software Branch – Code 582  Version 1.0 |

Signatures

Submitted by:



Approved by:



Plan Update History

| Version | Date | Description | Affected Pages |
| --- | --- | --- | --- |
| 1.0 |  | cFE build 6.6.0.0 verification test report | all |
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Table of Contents

1 Introduction 1

1.1 Document Purpose 1

1.2 Applicable Documents 1

1.3 Document Organization 1

1.4 Definitions 2

2 OVERVIEW 3

2.1 Flight Data System Context 3

2.2 Test History 3

2.3 Testing Overview 4

3 Build Verification Test Preparation 6

3.1 Scenerio Development 6

3.2 Procedure Development and Execution 6

3.3 Test Products 6

4 Build Verification Test Execution 7

4.1 Testbed Overview 7

4.2 Requirements Verification Matrix 8

4.3 Requirements Partially Tested 8

4.4 Requirements Deferred 8

5 Build Verficiaton Test Results 9

5.1 Executive Services (ES) 9

5.1.1 Overall Assessment 9

5.1.2 Procedure Description 9

5.1.3 Untestable Requirements 11

5.1.4 Analysis Requirements Verification 12

5.1.5 DCRs/Trac Tickets 16

5.1.6 Notes 16

5.2 Time Services (TIME) 17

5.2.1 Overall Assessment 17

5.2.2 Procedure Description 17

5.2.3 Analysis Requirements Verification 18

5.2.4 DCRs/Trac Tickets 18

5.2.5 Notes 18

5.3 Event Services (EVS) 18

5.3.1 Overall Assessment 18

5.3.2 Procedure Description 18

5.3.3 Analysis Requirements Verification 20

5.3.4 DCRs/Trac Tickets 21

5.3.5 Notes 21

5.4 Software Bus Services (SB) 22

5.4.1 Overall Assessment 22

5.4.2 Procedure Description 22

5.4.3 Analysis Requirements Verification 22

5.4.4 DCRs/Trac Tickets 23

5.4.5 Notes 23

5.5 Table Services (TBL) 23

5.5.1 Overall Assessment 23

5.5.2 Procedure Description 23

5.5.3 Analysis Requirements Verification 24

5.5.4 DCRs/Trac Tickets 24

5.5.5 Notes 24

5.6 DCRs/Trac Tickets verified 25

5.6.1 Outstanding DCRs/Trac Tickets 28

RTTM 32

Appendix A - Command, Telemetry, and Events Verification Matrix 33

Appendix B - Test Status Matrix 52

# Introduction

## Document Purpose

This Test Report describes the test results from the core Flight Executive (cFE) Flight Software (FSW) Test Team build 6.6.0.0 verification testing. It is used to verify that the cFE FSW has been tested in a manner that validates that it satisfies the functional and performance requirements defined within the cFE FSW Requirements Specification and all Discrepancy/Change Request (DCR)/Trac Ticket fixes and code updates assigned to build 6.6.0.0. This Test Report summarizes the FSW test history, the build verification process, the build test configuration, and the test execution and results

## Applicable Documents

Unless otherwise stated, these documents refer to the latest version.

**Parent Documents** (Mission and FSW)

* 582-2000-012 FSB Flight Software TestBed Requirements Guidelines

**Reference Documents**

All of the references below can be found on the Code 582 internal website at <https://fsb.gsfc.nasa.gov/>

* 582-2003-001 FSB FSW Test Plan Template
* 582-2004-001 FSB FSW Test Description Template
* 582-2004-002 FSB FSW Test Scenario Template
* 582-2004-003 FSB FSW Test Procedure Template
* 582-2004-004 FSB FSW Test Execution Summary Template
* 582-2004-005 FSB Test Product Peer Review Form
* 582-2000-002 FSB FSW Unit Test Standard
* 582-2007-040 FSB Test Analysis Summary Template
* 582-2008-006 FSB Testbed Validation Description

## Document Organization

Section 1 of this document presents some introductory material.

Section 2 provides a flight software overview and context along with the test history and testing overview.

Section 3 describes the build verification process including procedure development and execution and test products produced.

Section 4 describes the build test configuration which includes an overview of the testbed and the requirements verification matrix.

Section 5 describes the test execution and results by subsystem.

5.6.1 provides the Requirements Traceability Matrix

Appendix A - provides the Command, Telemetry, and Events Verification Matrix

## Definitions

There were 3 verifications methods used during build verification testing. They were:

* Demonstration: Show compliance with system requirement by exhibiting the required capability (e.g. by demonstrating interactive capability, display capability, print capability, etc.
* Inspection: Show compliance with a system requirement by visual verification of the software (e.g. verifying preparation for delivery, proper interfacing)
* Analysis: Perform detailed analysis of code, generated data (both intermediate data and final output data), etc., to determine compliance with system requirements.

The fields in the Requirements Verification Matrix in Section 4.3 are defined as follows:

* Requirements Tested Passed: Requirement was fully tested in a build test procedure and passed all tests.
* Requirements Tested Failed: Requirement was fully tested in a build test procedure and failed one or more aspect of the testing.
* Requirements Tested Partially: Requirement was tested partially in a build test procedure. To be fully tested, the partially tested requirement is either tested additionally in one or more other test procedures within the same build **and/or** other aspects of the requirement must be tested in a later build, due to capabilities not present in the current build
* Total Tested: Total number of requirements fully tested in a build test procedure. Includes total passed and total failed, but does **not** include requirements tested partially, **unless** (included as a separate entry) testing in multiple procedures within the same build constitutes total testing of a particular requirement. Total Requirements Tested is computed this way in order to avoid multiple counting of individual requirements that are tested partially in more than one procedure.
* Deferred: Number of requirements that were planned to be tested in current build, but were not tested due to some FSW capability or necessary system component not being present.
* Total: Total Requirements Tested + Number of Requirements Deferred

In each software test section in Section 5 there is a table of DCR’s. The state definitions are as follows:

* Opened: The DCR is currently being addressed
* Assigned: The DCR was accepted and the modification is being addressed
* InTest: The DCR was corrected and is currently in test
* Validated: The DCR was corrected and tested and have been validated, needs to have a CCB to close the DCR
* Closed: The DCR is closed and have been resolved and tested to satisfaction
* Closed with Defect: The DCR is closed and the defect is most likely assigned a differed DCR number associated with another subsystem.

# OVERVIEW

## Flight Data System Context

Build verification was performed using cFE in a single flight processor context, as depicted in Figure 2-1. The ground system interfaces with the lab Applications Command Ingest (CI), Scheduler (SCH), and Telemetry Output (TO) and not directly with the cFE. Spacecraft operators send Commands and Files to the cFE and receive Files, Events, and Telemetry from the cFE. Note that this context is relative to the cFE and does not show ground communications with other Applications. For example, a typical spacecraft has a Stored Command (SC) Application that receives stored command loads from the ground and sends stored command dumps to the ground.

**Ground**

**System**

(User Interface)

Flight System

cFE

Test

App

CI

TO

Commands

Events

Telemetry

SCH

files

**Figure 2-1 cFE Single Flight Processor Context**

## Test History

cFE 3.3 – Build Verification Testing completed 9/2006 by Walt Moleski

cFE 4.0.0 – Regression Testing completed 12/2006 by Walt Moleski

cFE 4.0.0 – Build Verification Testing completed 3/2007 by Walt Moleski

cFE 4.0.1 – Build Verification Testing completed 4/2007 by Walt Moleski

cFE 4.1.0 – Build Verification Testing completed 7/6/2007 by Walt Moleski

cFE 4.2.0 - Build Verification Testing completed 8/16/2007 by Walt Moleski

cFE 4.2.1 - Build Verification Testing completed 9/24/2007 by Walt Moleski

cFE 5.0.0 - Build Verification Testing completed 11/7/2007 by Walt Moleski

cFE 5.2.0 - Build Verification Testing completed 10/6/2008 by Walt Moleski

cFE 6.0.0 – Build Verification Testing completed 8/18/2009 by Walt Moleski

cFE 6.1.1.0 – Build Verification Testing completed 11/30/2010 by Walt Moleski

cFE 6.2.2.0 – Build Verification Testing completed 10/3/2011 by Walt Moleski

cFE 6.3.1.0 – Build Verification Testing completed 2/21/12 by Walt Moleski

cFE 6.3.2.0 – Build Verification Testing completed 5/1/12 by Walt Moleski

cFE 6.4.0.0 – Build Verification Testing completed 9/24/14 by Walt Moleski

cFE 6.4.1.0 – Build Verification Testing completed 12/4/14 by Walt Moleski

cFE 6.4.2.0 – Build Verification Testing completed 6/16/15 by Walt Moleski

cFE 6.5.0.0 – Build Verification Testing completed 5/26/16 by Walt Moleski

cFE 6.6.0.0 – Build Verification Testing completed 11/20/17 by Walt Moleski

## Testing Overview

There are 5 cFE core subsystems that are tested during Build Verification testing. There are a total of 20 test procedures that could be executed. cFE 6.6.0.0 executed all of these test procedures. Refer to the tables below for these procedures for more information on what they test. These test procedures are modified to test any new capabilities developed in a build as well as DCR fixes that were contained in a build.

For each build prior to cFE 6.0.0, a new test account was created for the testers to use. As of cFE 6.0.0, a single test account is used. This account runs the Advanced Spacecraft Integration and System Test (ASIST) software and is setup to contain all the files needed to test the cFE. These files are extracted from MKS, the source repository tool. Included in these files are test utilities. These utilities can be located in 2 places depending upon whether they are “local” or “global” utilities. The local utilities are extracted into the working prc directory ($WORK/prc). The global utilities are pointed to by ASIST in the global area defined on the test system. Additional tools utilized by the test procedures are located in the $TOOLS directory.

The following utilities were used during testing:

|  |  |
| --- | --- |
| Name | Description |
| scx\_cpu1\_check\_sb\_msgcnt | Checks if the change in the message count per msg id is as expected. |
| scx\_cpu1\_print\_sb\_pipes | Prints the status of all the test app pipes. |
| scx\_cpu1\_print\_all\_pipes | Prints the SB routing table. |
| CFE\_startup | Directive combines the "start\_data\_center", "open\_tlm", and "open cmd <cpu>" ASIST startup commands. |
| CFE\_shutdown | Directive combines the "close\_data\_center" and "exit" ASIST shutdown commands. |
| create\_tbl\_file\_from\_cvt | Procedure that creates a load file from the specified arguments and cvt |
| evs\_app\_unreg | Procedure that request the generation of one event message which is registered for filtering and one which is not. |
| evs\_ctr\_check | To verify application evt msg sent counter EVS msg sent counter and App bin filter ctr. |
| evs\_fltrinfo | To output evt msg filter info. |
| evs\_gen\_dis\_ty | To request generation of event messages while all Evt Msg Tupes are DISABLED |
| evs\_gen\_evts | To request generation of evt msgs when requirement cEVS3103 is fully met |
| evs\_gen\_no\_evts | To request generation of evt msgs while Event Message Generation is DISABLED |
| evs\_mskd\_evt | To request generation of evt msgs after change of binary filter mask from 0 to ffff (always filter) for the event message registered for filtering |
| evs\_test\_app\_info | To provide test application information |
| ftp\_file | To ftp a file to/from the FSW/GSW. |
| get\_file\_to\_cvt | Procedure to write some specified FSW data to a file and then FTP the file from the FSW hardware to ASIST hardware and load file to the CVT. |
| get\_tbl\_to\_cvt | Procedure that dumps the specified table from the processor and loads it into the cvt |
| load\_start\_app | Procedure to load and start a user application from the /s/opr/accounts/cfebx/apps/cpux directory. |
| load\_table | Procedure that takes the specified file and transfers the file to the specified processor and then issues a TBL\_LOAD command using the file. |
| tst\_tbl\_apps\_start | Procedure that checks if the TST\_TBL and TST\_TBL2 applications are running and starts them if they are not. |
| ut\_pfindicate | Directive to print the pass fail status of a particular requirement number. |
| ut\_runproc | Directive to formally run the procedure and capture the log file. |
| ut\_sendcmd | Directive to send EVS commands Verifies command processed and command error counters. |
| ut\_sendrawcmd | Send raw commands to the spacecraft. Verifies command processed and command error counters. |
| ut\_setrequirements | A directive to set the status of the cFE requirements array. |
| ut\_setupevents | Directive to look for multiple events and increment a value for each event to indicate receipt. |
| ut\_tlmupdate | Procedure to wait for a specified telemetry point to update. |
| ut\_tlmwait | Directive that waits for the specified telemetry condition to be met |

# Build Verification Test Preparation

## Scenerio Development

There were no new scenarios developed for build verification test 6.6.0.0. All scenarios are stored on the MKS server, in cfe-project test-and-ground directory within the test-review-packages subdirectory in the Scenarios folder.

## Procedure Development and Execution

This build test was completed by running 20 test procedures, 3 for Executive Services (ES), 2 for Time Services (TIME), 5 for Event Services (EVS), 4 for Software Bus (SB), 3 for Table Services (TBL), and 3 procedures that required the cFE Core software to be modified. All test procedures were written using the Spacecraft Test and Operations Language (STOL). The naming convention for files output from these test procedures was: scx\_cpu<#>\_<procedure name>\_GMT.<ext>.

## Test Products

Five log files were generated for every procedure that was run. They are defined as follows:

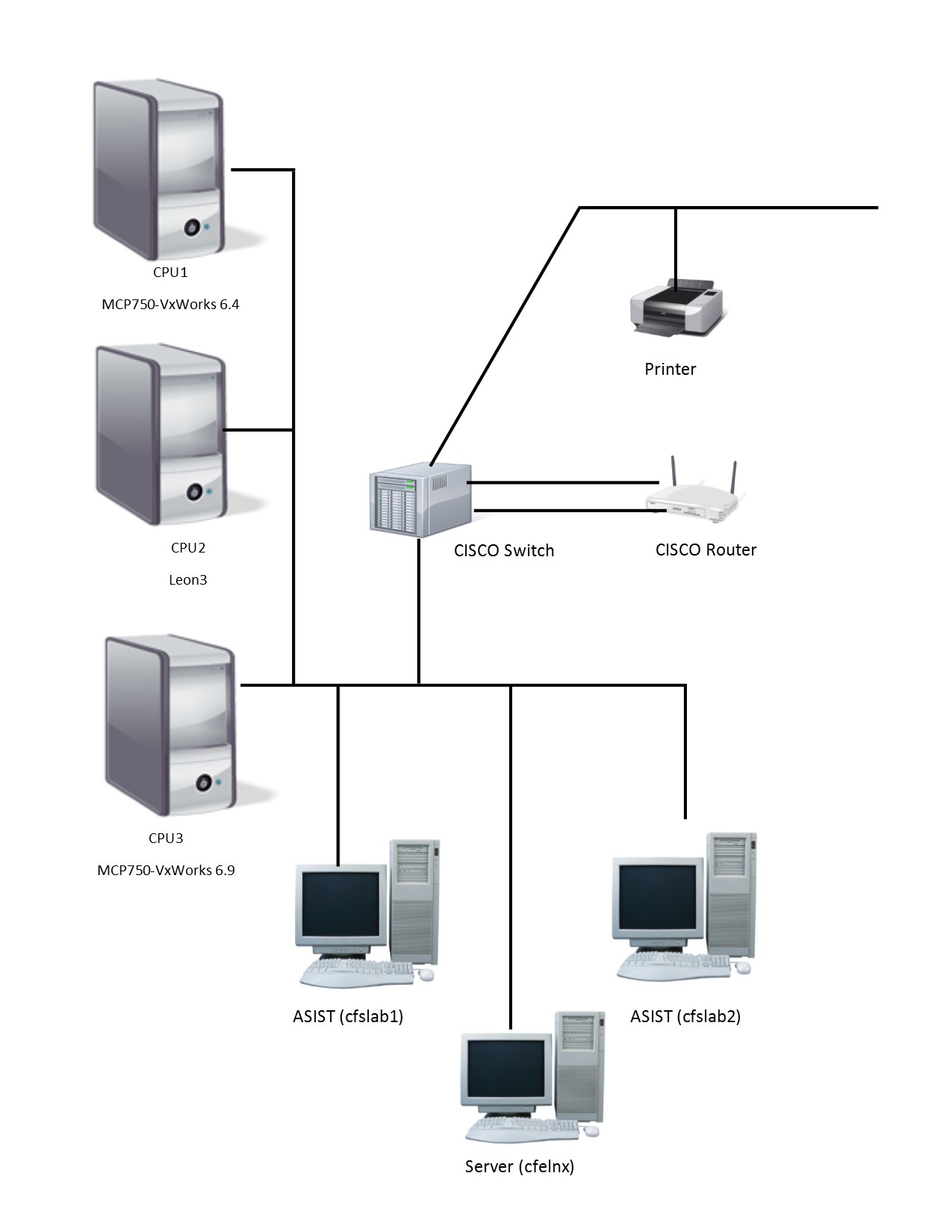
* Logs with the .loge extension list all events sent by the flight software
* Logs with the .logr extension list all requirements that passed validation by demonstration
* Logs with the .logp extension lists all prints that are generated by the test procedure
* Logs with the .logf extension lists everything from the other logs along with the steps in the test procedure
* Logs with the .logs extension lists the Standard Formatted Data Unit (SFDU) information (if applicable) contained in the full log.

A Test Report is developed by the tester after build testing is completed. The log files are stored on the test machine in the $WORK/test\_logs/cFE6.6.0 folder. The data files generated are stored in the $WORK/image folder. All test products are maintained on MKS in the cfe-project test-and-ground directory.

# Build Verification Test Execution

## Testbed Overview

The cFE build verification testbed consists of two ASIST workstations running ASIST version 20.2 and two MPC750 CPU boards running VxWorks 6.4 and VxWorks 6.9. CPU1 was primarily used for the development and build verification testing of the older cFE releases. CPU2 is currently under development and is not being used. CPU3 was used for cFE 6.6.0 build verification testing. Figure 4-1 depicts the testbed.



**Figure 4-1: cFE Build Verification Testbed**

## Requirements Verification Matrix

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Subsystem** | **Requirements**  **Tested**  **Passed** | **Requirements**  **Tested**  **Failed** | **Requirements**  **Tested**  **Partially** | **Total**  **Tested** | **Deferred** | **Total** |
| Executive Services (ES) | 135 | 0 | 4 - Untestable | 139 | 7 | 146 |
| Time Services (TIME) | 33 | 0 | 0 | 33 | 6 | 39 |
| Event Services (EVS) | 65 | 0 | 0 | 65 | 0 | 65 |
| Software Bus (SB) | 35 | 0 | 0 | 35 | 0 | 35 |
| Tables (TBL) | 51 | 0 | 0 | 51 | 0 | 51 |

## Requirements Partially Tested

No requirements were partially tested.

## Requirements Deferred

The rational for why these requirements are deferred is contained in the Requirements to Test Traceability Matrix (RTTM). Please refer to that document for additional information.

|  |  |
| --- | --- |
| **Requirement** | **Description** |
| cES1324 | Upon receipt of a Request, the cFE shall load and initialize a hardware device driver and connect it with the specified hardware handshaking and device processing code. |
| cES1325 | Upon receipt of a Request, the cFE shall unload a specified hardware device driver and de-allocate all previously allocated resources used by the driver. |
| cES1326 | Upon receipt of a Request, the cFE shall disable a specified hardware device driver. |
| cES1326.1 | If the specified hardware device driver is not loaded, then the cFE shall record the error in the System Log, and return an error code. |
| cES1327 | Upon receipt of a Request, the cFE shall re-enable a specified hardware device driver. |
| cES1327.1 | If the specified hardware device driver is not loaded, then the cFE shall record the error in the System Log, and return an error code. |
| cES1508.3 | The cFE shall create and initialize cFE Device Drivers according to the entry in the cFE Startup File. |
| cTIME2012.1 | The cFE shall ignore Time Updates while in Flywheel state. |
| cTIME2013 | Upon receipt of Command the cFE shall adjust the spacecraft time by adding the Command specified value (seconds and subseconds) to spacecraft time |
| cTIME2014 | Upon receipt of Command the cFE shall adjust the spacecraft time by subtracting the Command specified value (seconds and subseconds) from spacecraft time |
| cTIME2701 | The cFE Time Services Server shall send a "time at the tone" Software Bus message within a <MISSION\_DEFINED> period of time preceding or following the tone. |
| cTIME2702 | The cFE Time Services Server shall update its MET using the timer hardware interface defined in the cFE Application Developer's Guide. |
| cTIME2703 | The cFE shall define a MET with a <MISSION\_DEFINED> resolution. |

# Build Verficiaton Test Results

## Executive Services (ES)

### Overall Assessment

During this build test of the ES subsystem:

* 111 requirements passed demonstration
* 26 requirements were validated by analysis.
* 4 requirements were untestable.
* 7 requirements were deferred for Mission testing
* No new DCRs/Trac Tickets were generated during testing

### Procedure Description

| **Procedure** | **Description** | **Requirements tested** |
| --- | --- | --- |
| es\_appctrl | The purpose of this test is to verify the cFE Executive Services (ES) software meets the requirements defined in the SRS for the de/fined Executive Services logs (System, Exception and Reset, and Logic Analyzer Capture). | cES1005, cES1005.1, cES1005.2, cES1005.3, cES1005.4, cES1006, cES1006.1, cES1007, cES1007.1, cES1007.2, cES1007.3, cES1008, cES1008.1, cES1008.2, cES1008.3, cES1011, cES1012, cES1012.1, cES1013, cES1013.1, cES1026, cES1027, cES1300, cES1302, cES1303, cES1304, cES1305, cES1306, cES1307, cES1309, cES1309.1, cES1310, cES1310.1, cES1310.2, cES1310.3, cES1311, cES1311.1, cES1311.2, cES1312, cES1312.1, cES1313, cES1314, cES1314.1, cES1315, cES1315.1, cES1315.2, cES1316, cES1316.1, cES1316.2, cES1319, cES1320, cES1320.1, cES1320.2, cES1321, cES1321.1, cES1321.2, cES1321.3, cES1322, cES1322.1, cES1323, cES1328, cES1328.1, cES1328.2, cES1700, cES1708 |
| es\_logging | The purpose of this test is to verify the cFE Executive Services (ES) software meets the requirements defined in the SRS for the defined Executive Services logs (System, Exception and Reset, and Logic Analyzer Capture). | cES1005, cES1005.1, cES1009, cES1010, cES1014, cES1014.1, cES1014.2, cES1014.2.1, cES1014.2.2, cES1015, cES1016, cES1016.1, cES1017, cES1018, cES1019, cES1021, cES1022, cES1022.1, cES1022.2, cES1023, cES1023.1, cES1024, cES1025, cES1028, cES1509, cES1510, cES1511, cES1512, cES1520, cES1522, cES1702, cES1702.1, cES1702.2, cES1703, cES1703.1, cES1703.2, cES1706, cES1707, cES1709 |
| es\_reset | The purpose of this test is to verify the cFE Executive Services (ES) software meets the requirements defined in the SRS for power-on and processor resets. | cES1000, cES1001, cES1002, cES1003, cES1004, cES1005, cES1005.1, cES1009, cES1010, cES1012, cES1016, cES1016.1, cES1017, cES1019, cES1301, cES1301.1, cES1317, cES1318, cES1500, cES1501, cES1502, cES1503, cES1504, cES1505, cES1506, cES1507, cES1508, cES1508.1, cES1508.2, cES1509, cES1510, cES1511, cES1512, cES1513, cES1514, cES1515, cES1516, cES1517, cES1518, cES1518.1, cES1518.2, cES1519, cES1519.1, cES1519.2, cES1520, cES1521 |
| CFE\_AltImage | The purpose of this test is to verify four (4) cFE requirements that require a modification to the cFE Core software. The following changes were made to the fsw:   * cfe\_es\_start.c - Modified CFE\_ES\_InitializeFileSystems to force the failure of the volatile file system. * cfe\_es\_task.c - Modified the CFE\_ES\_NoopCmd function to perform a floating point divide by zero in order to cause an exception to be generated in the CORE FSW. * cfe\_time\_utils.c - Modified the CFE\_TIME\_QueryResetVars function to set the DataStoreStatus for the reset area to BAD. | cES1517.1, cES1702.3, cES1703.3, cTIME2502.1 |
| CFE\_OSObjFailure | The purpose of this test is to verify cFE requirement ES1515.1. In order to verify this requirement, the cFE Core software requires a modification. The modification was to the cfe\_es\_objtab.c file to have an OS Object creation failure. The modification made was to change the stack size of a CFE Core task entry from what was specified to 1024. This is a size that is smaller than the minimum (8192) size specified. | cES1515.1 |
| CFE\_MyEH | The purpose of this test is to verify that cFE requirements ES1702.3 and ES1703.3 allow a user-defined exception handler to be created and used when exceptions occur. | cES1702.3; cES1703.3 |

### Untestable Requirements

The following requirements were identified during cFE build 6.6.0.0 verification testing as untestable. Additional untestable requirements are listed in Section 4.4, [Requirements Deferred](#_Requirements_Deferred).

| **Requirement** | **Description** | **Reason for Untestable status** |
| --- | --- | --- |
| cES1702.2 | If the CPU exception was caused by a cFE Application, the cFE shall restart the cFE Application that caused the exception. | The CPU resets rather than just restarting the application. The reason why this requirement is marked untestable is due to the VxWorks 6.9 kernel configuration on the platform being used to test and verify cFE 6.6.0. The unexpected behavior of performing a processor reset (rather than a task suspension) following a CPU exception was reproduced via a simple test function performing a divide by zero. This test function was loaded and run independently from the cFE core.  Note: This requirement was tested and verified producing passing results on the older mcp750/VxWorks6.4 platform. See [Figure 4-1: cFE Build Verification Testbed.](#Figure4_1) |
| cES1702.3 | If the CPU exception was caused by the Operating System or cFE Core then the cFE shall initiate a <PLATFORM\_DEFINED> response. | The <PLATFORM\_DEFINED> exception handler did not get called. The PSP implementation used for testing cFE 6.6.0 was updated to provide an exception hook function that calls the <PLATFORM\_DEFINED> exception handler. However, the VxWorks operating system is initiating a CPU Reset before the PSP exception hook is being called. Thus, making this requirement untestable with the test platform.  Note: This requirement was tested and verified producing passing results on the older mcp750/VxWorks6.4 platform. See [Figure 4-1: cFE Build Verification Testbed.](#Figure4_1) |
| cES1703.2 | If the Floating Point exception was caused by a cFE Application, the cFE shall restart the cFE Application that caused the exception. | The CPU resets rather than just restarting the application. The reason why this requirement is marked untestable is due to the VxWorks 6.9 kernel configuration on the platform being used to test and verify cFE 6.6.0. The unexpected behavior of performing a processor reset (rather than a task suspension) following a Floating Point exception was reproduced via a simple test function using floats to perform a divide by zero. This test function was loaded and run independently from the cFE core.  Note: This requirement was tested and verified producing passing results on the older mcp750/VxWorks6.4 platform. See [Figure 4-1: cFE Build Verification Testbed.](#Figure4_1) |
| cES1703.3 | If the Floating Point exception was caused by the OS or cFE Core then the cFE shall initiate a <PLATFORM\_DEFINED> response. | The <PLATFORM\_DEFINED> exception handler did not get called. The PSP implementation used for testing cFE 6.6.0 was updated to provide an exception hook function that calls the <PLATFORM\_DEFINED> exception handler. However, the VxWorks operating system is initiating a CPU Reset before the PSP exception hook is being called. Thus, making this requirement untestable with the test platform.  Note: This requirement was tested and verified producing passing results on the older mcp750/VxWorks6.4 platform. See [Figure 4-1: cFE Build Verification Testbed.](#Figure4_1) |

### Analysis Requirements Verification

The following ES requirements were verified using analysis.

| **Requirement** | **Description** | **Status** | **Justification** |
| --- | --- | --- | --- |
| cES1014.1 | Each entry in the Executive Services System Log shall be time tagged with the time that the event happened. | Pass | There are several system log files dumped to the ground that can verify this requirement. The scx\_cpu1\_es\_syslog15.log was viewed and it contained time-stamped entries. |
| cES1014.2 | The cFE shall calculate the number of bytes used and number of entries in Executive Services System Log | Pass | The ES Housekeeping display page in ASIST contains this information. Steps 1.11 of the ES\_Logging test procedure attempt to fill the ES System Log and utilize the bytes used and print the number of entries contained in the System Log. |
| cES1014.2.1 | If the Executive Services System Log is full and the System Log Mode is set to OVERWRITE then the cFE shall write all new entries from the top of the log | Pass | The system log dump file scx\_cpu1\_es\_syslog1117.log verifies this requirement by showing a new entry in the system log at the top of the file. |
| cES1014.2.2 | If the Executive Services System Log is full and the System Log Mode is set to DISCARD then the cFE shall discard all new entries | Pass | Step 1.11.4 writes a system log message when the mode is DISCARD. The files scx\_cpu1\_es\_syslog1113.log and scx\_cpu1\_es\_syslog1115.log were viewed. Both logs contained the same entries and the entry written in Step 1.11.4 was not contained in the scx\_cpu1\_es\_syslog1115.log file. |
| cES1017 | The cFE shall maintain an Executive Services Exception and Reset Log which will log critical system data for exceptions and resets including:   * A time stamp * Processor Context information * Critical system variables * ASCII string stating the reason for the reset | Pass | The Exception and Reset Log contained the stated components. This was verified by viewing the ASIST display page after transferring the scx\_cpu1\_er13.log file to the ground. |
| cES1022.1 | The cFE shall store a timestamp along with the specified Logic Analyzer Capture Tag. | Pass | There are 2 performance log files generated by the ES\_Logging test procedure. Viewing these files in the Software Timing Analyzer tool verified that each entry contained a timestamp. |
| cES1022.2 | If the Logic Analyzer Capture Log is full, then the cFE shall write all new entries from the top of the log | Pass | The imported performance analysis file scx\_cpu1\_perf37.dat file indicates that the starting point is non-zero. This means that the file has overlapped data contained in it. |
| cES1311.2 | In the event a child task attempts to create another child task, the cFE shall record the error in the System Log, and return an error code. | Pass | Step 3.4 of the es\_appctrl procedure starts a child task that attempts to start another child task. The required system log messages were included in the scx\_cpu1\_es\_app33syslog.log file indicating that a child cannot start a child task. |
| cES1314 | Upon receipt of a Request, the cFE shall end execution of the calling cFE Child Task. | Pass | Step 3.8 of the es\_appctrl procedure tests this requirement. The uart dump was captured and it contained the required message to verify that the child task has ended. |
| cES1314.1 | If the calling task is the cFE Application Main Task, the cFE shall record the error in the System Log, and return an error code. | Pass | Step 3.7 of the es\_appctrl procedure tests this requirement. The scx\_cpu1\_es\_app36syslog.log file clearly contains the appropriate message indicating that a main task cannot be stopped with the CFE\_ES\_ExitChildTask API. |
| cES1321.2 | If the specified Memory Pool identifier is invalid then the cFE shall record the error in the System Log, and return an error code. | Pass | Step 4.8 of the es\_appctrl procedure tests this requirement by trying to allocate a memory block for a non-existing memory pool. The scx\_cpu1\_es\_app48syslog.log file contains the required system log entry to verify this requirement. |
| cES1501 | Upon a Power-On Reset, the cFE shall clear the Executive Services System Log. | Pass | Step 4.5 in the ES\_Reset test procedure dumps the system log to the scx\_cpu1\_es\_syslog45.log after performing a Power-On reset. This log contained the system startup information. |
| cES1502 | Upon a Power-On Reset, the cFE shall clear the Executive Services Exception and Reset Log. | Pass | Step 4.5 of the ES\_Reset test procedure dumps the Exception and Reset log to the scx\_cpu1\_es\_erlog45.log file after a Power-On reset. This file contains a single entry for the Power-On reset. |
| cES1505 | Upon a Power-on Reset, the cFE shall create all operating system objects required by the cFE. | Pass | There are two system log files dumped by the ES\_Reset test procedure that verify this requirement. The files scx\_cpu1\_es\_syslog145.log and scx\_cpu1\_es\_syslog45.log contain an entry indicating that the system objects were created. |
| cES1508.2 | The cFE shall create and initialize cFE Shared Libraries according to the entry in the cFE Startup File. | Pass | The scx\_cpu1\_es\_syslog145.log file contains an entry indicating that the cFE Test Library was initialized. This is the library contained in the startup script used when the system is started or reset. |
| cES1511 | Upon a Processor Reset, the cFE shall preserve the Executive Services System Log. | Pass | The scx\_cpu1\_es\_syslog1.log is dumped by the ES\_Reset test procedure when a Processor Reset occurs. This file contained the previous entries and thus was preserved. |
| cES1512 | Upon a Processor Reset, the cFE shall preserve the Executive Services Exception and Reset Log. | Pass | The Exception and Reset log was dumped after performing two Processor Resets in the ES\_Reset test procedure. The files scx\_cpu1\_es\_erlog35.log and scx\_cpu1\_es\_erlog55.log contained the previous entries and thus were preserved. |
| cES1515 | Upon a Processor Reset, the cFE shall create all operating system objects required by the cFE. | Pass | The scx\_cpu1\_es\_syslog1.log file generated by the ES\_Reset test procedure when a Processor Reset occurs contains an entry indicating that the system objects were created. |
| cES1515.1 | If the creation of the operating system object fails, the cFE shall perform a power on reset. | Pass | The CPU reset and then halted. The cFE66\_objFailure.uart file documents this failure. |
| cES1518.2 | The cFE shall create and initialize Shared Libraries according to the entry in the cFE Startup File. | Pass | Step 3.5 in the ES\_Reset test procedure dumps the System Log to the scx\_cpu1\_es\_syslog1.log file. This file contains and entry indicating that the cFE shared Library was initialized. |
| cES1519.2 | The cFE shall create and initialize Shared Libraries according to the entry in the cFE Startup File. | Pass | Step 5.5 of the ES\_Reset test procedure dumps the System log to scx\_cpu1\_es\_syslog1.log. This file contained an entry indicating the cFE shared library was initialized. |
| cES1520 | Upon a Processor Reset, the cFE shall make an entry in the Executive Services Exception and Reset Log recording the Processor Reset. | Pass | The ES\_Logging test procedure dumps the Exception and Reset log to files after a Processor Reset occurs. The scx\_cpu1\_er110.log and scx\_cpu1\_er25.log files contain entries indicating the Processor Reset occurred. |
| cES1702.1 | Upon detection of a CPU exception, the cFE shall add an entry in the Executive Services Exception And Reset Log. | Pass | The ES\_Logging test procedure generates an exception using a test application in Step 2.3. The exception added an entry into the Exception and Reset log and can be verified with the scx\_cpu1\_er23.log file. |
| cES1703.1 | Upon detection of an unmasked Floating Point exception, the cFE shall add an entry in the Executive Services Exception and Reset Log. | Pass | The ES\_Logging test procedure generates an exception using a test application in Step 2.3. The exception added an entry into the Exception and Reset log and can be verified with the scx\_cpu1\_er23.log file. |
| cES1704 | The cFE shall support a <PLATFORM\_DEFINED,TBD>  byte volatile file system. | Pass | This requirement was tested manually from the ASIST console by uploading a large file to the volatile file system and then attempting to generate another file. When the file system is full, the additional file creation command fails. I then removed the large file and issued the command again. This time the command passed and created the file. Although the uart output was not captured, the errors as well as the successful writes were contained in the uart. |
| cES1705 | The cFE shall support a <PLATFORM\_DEFINED,TBD>  byte non-volatile file system. | Pass | The non-volatile file system was inspected and verified on the test CPU. |

### DCRs/Trac Tickets

No DCRs/Trac Tickets were generated during build testing.

### Notes

Other than the untestable requirements mentioned above, there were no significant findings and/or anomalies reported during testing.

## Time Services (TIME)

### Overall Assessment

During this build test of the TIME subsystem:

* 32 requirements passed demonstration
* 1 requirement was validated by analysis
* 6 requirements were deferred for later testing
* No new DCRs/Trac Tickets were generated during testing

### Procedure Description

|  |  |  |
| --- | --- | --- |
| **Procedure** | **Description** | **Requirements tested** |
| time\_command\_server\_tai | The purpose of this test is to verify the Core Flight Executive (cFE) Time Services (TIME) common subsystem commands, time adjustment commands, clock selection commands, current time access requests, and time utility requests. | cTIME2000, cTIME2001, cTIME2002, cTIME2003, cTIME2004, cTIME2005, cTIME2006, cTIME2007, cTIME2008, cTIME2009, cTIME2010, cTIME2011, cTIME2012, cTIME2012.1, cTIME2013, cTIME2014, cTIME2300, cTIME2301, cTIME2302, cTIME2303, cTIME2304, cTIME2305, cTIME2306, cTIME2307, cTIME2309, cTIME2310, cTIME2311, cTIME2312, cTIME2313, cTIME2314 |
| time\_resets\_server\_tai | The purpose of this test is to verify the Core Flight Executive (cFE) Time Services (TIME) processor reset requirements. | cTIME2005, cTIME2006, cTIME2012, cTIME2306, cTIME2307, cTIME2308, cTIME2500, cTIME2501, cTIME2502, cTIME2700 |
| CFE\_AltImage | The purpose of this test is to verify four (4) cFE requirements that require a modification to the cFE Core software. The following changes were made to the fsw:   * cfe\_es\_start.c - Modified CFE\_ES\_InitializeFileSystems to force the failure of the volatile file system. * cfe\_es\_task.c - Modified the CFE\_ES\_NoopCmd function to perform a floating point divide by zero in order to cause an exception to be generated in the CORE FSW. * cfe\_time\_utils.c - Modified the CFE\_TIME\_QueryResetVars function to set the DataStoreStatus for thereset area to BAD. | cES1517.1, cES1702.3, cES1703.3, cTIME2502.1 |

### Analysis Requirements Verification

The following TIME requirements were verified using analysis.

|  |  |  |  |
| --- | --- | --- | --- |
| **Requirement** | **Description** | **Status** | **Justification** |
| cTIME2314 | Upon receipt of a Request the cFE shall return the provided system time in the following format; yyyy-ddd-hh:mm:ss.xxxxx\0 | Pass | This requirement can be verified by looking at any ES System Log dump file generated by the cFE 6.6.0.0 test procedures. This was done and the time format was present in the system log. |

### DCRs/Trac Tickets

No DCRs/Trac Tickets were generated during build testing.

### Notes

There were no significant findings and/or anomalies reported during testing.

## Event Services (EVS)

### Overall Assessment

During this build testing of the EVS subsystem:

* 56 requirements were validated by demonstration
* 9 requirements were validated by analysis
* No new DCRs/Trac Tickets were generated during testing

### Procedure Description

| **Procedure** | **Description** | **Requirements tested** |
| --- | --- | --- |
| evs\_evt\_msg\_gen | The purpose of this test is to verify the functionality of the cFE Event Message generation software for Events Messages that are registered for filtering as well as Event Messages that are not registered for filtering. | cEVS3004, cEVS3007, cEVS3008, cEVS3012, cEVS3018, cEVS3100, cEVS3100.1, cEVS3100.2, cEVS3100.3, cEVS3101, cEVS3102, cEVS3103, cEVS3103.1, cEVS3103.2, cEVS3103.3, cEVS3103.4.1, cEVS3103.6, cEVS3103.7, cEVS3104, cEVS3105, cEVS3109 |
| evs\_cmds | The purpose of this test is to verify the CFE\_EVS Command functionality for the Event Service (CFE\_EVS) function of the Core Flight Executive (cFE). The operation of all CFE\_EVS commands will be verified for valid and invalid commands. | cEVS3000, cEVS3002, cEVS3003, cEVS3004, cEVS3004.1, cEVS3005,cEVS3006, cEVS3007, cEVS3008, cEVS3009, cEVS3010, cEVS3011, cEVS3017, cEVS3018, cEVS3300 |
| evs\_log | The purpose of this test is to verify the EVS log requirements for the Event Service (EVS) function of the Core Flight Executive (cFE) software.    The operation of EVS Log will be verified in both the Overwrite and Discard modes. The Local Event Log Full flag, Local Event Log Overflow Counter, Event Logging Mode flag, and Event Format flag will be examined for proper value(s) during the execution of the test scenario. The contents of the Event Log will be periodically dumped from the FSW to the ASIST box for examination using telemetry pages and off-line analysis.  The TST\_EVS test application will be used to send multiple event messages. The supplied event text / event time will serve to uniquely identify each event message. | cEVS3001, cEVS3013, cEVS3014, cEVS3015, cEVS3015.1, cEVS3016, cEVS3018, cEVS3103.4, cEVS3103.5, cEVS3108, cEVS3108.1, cEVS3108.2, cEVS3108.3, cEVS3301 |
| evs\_bin\_fltr | The purpose of bin\_fltr test is to verify the correct functionality of the Binary Filter Process in the cFE FSW. | cEVS3003, cEVS3004, cEVS3009, cEVS3010, cEVS3011, cEVS3012, cEVS3019, cEVS3019.1, cEVS3019.2, cEVS3020, cEVS3020.1, cEVS3100, cEVS3100.1, cEVS3103, cEVS3013.3, cEVS3013.3.1, cEVS3104, cEVS3104.1, cEVS3105, cEVS3105.1, cEVS3106, cEVS3107, cEVS3302 |
| evs\_reset | The purpose of evs\_reset is to verify Event Message Services EVS behavior upon Power on and Processor Reset. | cEVS3017, cEVS3104, cEVS3110, cEVS3200, cEVS3201, cEVS3202, cEVS3203, cEVS3207, cEVS3208, cEVS3209, cEVS3210 |

### Analysis Requirements Verification

The following EVS requirements were verified using analysis.

| **Requirement** | **Description** | **Status** | **Justification** |
| --- | --- | --- | --- |
| cEVS3015 | <OPTIONAL> Upon receipt of Command, the cFE shall write the contents of the Local Event Log to the Command specified file. | Pass | Steps 4.5.1 and 4.5.2 of the evs\_log test procedure sent commands specifying a filename and using the default filename for writing the contents of the Local Event Log. These files were transferred to the ground and displayed in the EVS\_LOG ASIST display page. Both commands displayed the contents of the files. |
| cEVS3015.1 | If a file is not specified, the cFE shall use the <PLATFORM\_DEFINED> filename. | Pass | Steps 4.5.1 and 4.5.2 of the evs\_log test procedure sent commands specifying a filename and using the default filename for writing the contents of the Local Event Log. These files were transferred to the ground and displayed in the EVS\_LOG ASIST display page. Both commands displayed the contents of the files. |
| cEVS3016 | <OPTIONAL> The cFE shall write each Event Message from the earliest logged message to the most recently logged message. | Pass | Step 7.5.1 of the evs\_log test procedure verifies this requirement. The step dumps the local event log and then prints it in the procedure log file. The entries of the log were in earliest to latest order. |
| cEVS3100 | Upon receipt of Request, the cFE shall register an Application for event service, enabling the Application Event Service Enable Status and storing the following request specified Application data:   Application Event IDs (for events to be filtered)   Application Binary Filter Masks (one per registered Event ID) | Pass | The EVS Housekeeping, EVS\_App\_Data\_Main and EVS\_App\_Data display pages were used to verify this requirement. All the listed applications in this display page were registered for event services. The event filter masks and messages were viewed in the EVS\_App\_Data display page. |
| cEVS3103.6 | The requester shall be able to specify the Application ID to be used in the Event Message | Pass | This requirement was verified by viewing the log file and verifying that the event message contained the specified item. |
| cEVS3103.7 | The requester shall be able to specify the time to be used in the Event Message. | Pass | This requirement was verified by viewing the log file and verifying that the event message contained the specified item. |
| cEVS3108.3 | <OPTIONAL> If the Local Event Log is full, the cFE shall either (1) overwrite the oldest Event Message if the Event Logging Mode is overwrite, or (2) discard the Event Message if the Event Logging Mode is discard. | Pass | Steps 3.3.3, 3.4.1 and 4.2.1 of the evs\_log test procedure verify this requirement. The local event log is written and displayed in the EVS\_Log window as well as printed in the procedure log file. The analysis verifies that in the first two steps the log messages were overwritten and the last step verifies that the log remained the same. |
| cEVS3109 | For each created Event Message, the cFE shall route the Event Message, formatted as an ASCII text string, to each enabled Event Message Output Port. | Pass | The uart window displayed multiple messages for a single event when multiple output ports were enabled. The vFE66\_evs.uart log file contains thee messages and verifies this requirement. |
| cEVS3207 | <OPTIONAL> Upon a Processor Reset, the cFE shall preserve or overwrite the contents of the Local Event Log based upon the setting of the Event Logging Mode configuration parameter. | Pass | Step 3.1 of the evs\_reset test procedure dumps and displays the local EVS log both before and after a Processor Reset. The file rst\_284.log file is the contents before the reset and the rst\_301.log is the contents after the reset. Verification of these files finds that the information was preserved after the reset since the configuration parameter was set to DISCARD. |

### DCRs/Trac Tickets

No DCRs/Trac Tickets were generated during build testing.

### Notes

There were no significant findings and/or anomalies reported during testing.

## Software Bus Services (SB)

### Overall Assessment

During SB build verification testing

* 33 requirements were validated by demonstration
* 2 requirements were validated by analysis
* No new DCRs/Trac Tickets were generated

### Procedure Description

|  |  |  |
| --- | --- | --- |
| **Procedure** | **Description** | **Requirements tested** |
| sb\_enapipes | The purpose of this test is to verify that the flight software satisfies the requirements relating to enabling pipes. | cSB4000, cSB4003, cSB4004, cSB4005, cSB4007, cSB4007.1, cSB4300, cSB4301, cSB4302, cSB4303, cSB4304, cSB4305, cSB4305.5, cSB4305.6, cSB4306, cSB4307, cSB4308, cSB4309, cSB4701, cSB4704, cSB4705 |
| sb\_dispipes | The purpose of this test is to verify that the flight software satisfies the requirements relating to disabling pipes. | cSB4001, cSB4002, cSB4003, cSB4003.1, cSB4005, cSB4008, cSB4008.1, cSB4301, cSB4303, cSB4305.1, cSB4305.3, cSB4305.4, cSB4500, cSB4700, cSB4705, cSB4706 |
| sb\_cmds\_err | The purpose of this test is to verify that the flight software will reject SB commands with bad data in the command fields. | cSB4004, cSB4005, cSB4305.6, cSB4701 |
| sb\_reset | The purpose of this test is to verify that the SB flight software handles a Power-On and Processor reset according to the requirements. | cSB4303, cSB4303.1, cSB4310, cSB4500, cSB4501 |

### Analysis Requirements Verification

The following SB requirements were verified using analysis.

|  |  |  |  |
| --- | --- | --- | --- |
| **Requirement** | **Description** | **Status** | **Justification** |
| cSB4300 | The cFE shall provide a zero-copy message transfer mode for intra-processor communication. | Pass | Step 11.0 of the sb\_enapipes procedure tests this requirement. The TST\_SB application generates an event message that prints the pointer of the SB zero copy message being sent and also generates an event message when the zero copy message is received. The pointers were identical. |
| cSB4310 | Upon receipt of Request the cFE shall free resources allocation for the specified Application | Pass | Step 7.2 of the SB\_Reset test procedure sends a command to stop the TST\_SB application. When this command executes, there are numerous events generated and contained in the log file indicating that the TST\_SB resources were "freed". |

### DCRs/Trac Tickets

No DCRs/Trac Tickets were generated during build testing.

### Notes

There were no significant findings and/or anomalies reported during testing.

## Table Services (TBL)

### Overall Assessment

During this build testing of the TB subsystem:

* 49 requirements were validated by demonstration
* 2 requirements were validated by analysis
* No new DCRs/Trac Tickets were generated during testing

### Procedure Description

|  |  |  |
| --- | --- | --- |
| **Procedure** | **Description** | **Requirements tested** |
| tbl\_func | The purpose of this test is to verify the functionality of the cFE Table Services commands. | cTBL6000, cTBL6000.5, cTBL6001, cTBL6002, cTBL6002.1, cTBL6002.2, cTBL6003, cTBL6003.1, cTBL6003.1.1, cTBL6003.1.2, cTBL6005, cTBL6005.1, cTBL6006, cTBL6011, cTBL6012, cTBL6012.1, cTBL6012.2, cTBL6012.3, cTBL6300, cTBL6300.1, cTBL6301, cTBL6302, cTBL6302.1, cTBL6302.2, cTBL6303, cTBL6304, cTBL6305, cTBL6305.1, cTBL6305.2, cTBL6306, cTBL6308, cTBL6308.1, cTBL6309, cTBL6310, cTBL6311, cTBL6311.1, cTBL6311.2, cTBL6312, cTBL6700, cTBL6701 |
| tbl\_cmding | The purpose of this test is to verify the Table Services commands. | cTBL6000, cTBL6000.1, cTBL6000.2, cTBL6000.3, cTBL6000.4, cTBL6001, cTBL6003, cTBL6007, cTBL6008, cTBL6009, cTBL6010, cTBL6011 |
| tbl\_reset | The purpose of this test is to verify that the cFE Table Services (TBL) software meets the requirements defined in the SRS for Power-On and Processor Resets | cTBL6500, cTBL6501, cTBL6501.1 |

### Analysis Requirements Verification

The following TBL requirements were verified using analysis.

|  |  |  |  |
| --- | --- | --- | --- |
| **Requirement** | **Description** | **Status** | **Justification** |
| cTBL6308.1 | If a Table is locked when an update Request is made, an appropriate error code shall be returned to the calling Application and the update shall not occur. | Pass | The cFE66\_tblFunc.uart file contained an error indicating that the table was locked. Once the lock was removed, the table was updated appropriately. |
| cTBL6311.1 | Upon providing a calling Application with the addresses of a Tables' data, the cFE shall lock the contents of the Tables to prevent modification. | Pass | Step 18.2 of the tbl\_func test procedure attempts to update a table that is shared by another application. The error message displayed indicating that the table did not have any working buffers available to perform the update. |

### DCRs/Trac Tickets

No DCRs/Trac Tickets were generated during build testing.

### Notes

There were no significant findings and/or anomalies reported during testing.

## DCRs/Trac Tickets verified

The following DCRs/Trac Tickets were explicitly tested and/or verified during cFE 6.6.0.0 Build Verification testing. Build test procedures were not adequate for testing/verifying the DCRs/Trac Tickets whose test method indicates Demonstration, Analysis or Inspection and in some cases N/A.

| **DCR/**  **Ticket #** | **High Level Description of Functionality/Bug Report** | **Test Method** | **Test Approach** |
| --- | --- | --- | --- |
| #12 | External CFE message definitions should not depend on values from the cfe\_platform\_cfg.h or osconfig.h | Demonstration | All the rdl files and test procedures were modified to use the newly named macros. |
| #15 | SMP: CFE\_TIME\_GetReference() has insufficient protection against update while reading | N/A | Code changes run through standard build test procedures. |
| #30 | Review use of CFE\_PSP\_MemCpy/CFE\_PSP\_MemSet | Inspection | CFE\_PSP calls were replaced by native memory calls. |
| #39 | Enforce Strict ASCII | Inspection | All files containing non-ascii characters were updated to use strictly ASCII characters. |
| #43 | SMP: CFE TIME uses OSAL IntLock/IntUnlock for mutual exclusion | N/A | Code changes run through standard build test procedures. |
| #44 | SMP: CFE\_ES\_WriteToSyslog() is not multi-thread safe | N/A | Code changes run through standard build test procedures. |
| #46 | Application Startup Race Conditions (GSFC DCR 22819) | N/A | cFE 6.6.0 appeared to startup properly. |
| #64 | Suspicious implementation of SHORT\_FORMAT mode in EVS\_SendPacket(). The length of the short event packet does not differ from the long event packet. | Demonstration | A new telemetry packet was added and captured by the GSE to verify this change. Step 6.4 of the evs\_log test procedure verifies this packet was received. |
| #83 | Default Configuration Setting for CFE\_ES\_STARTUP\_SCRIPT\_TIMEOUT\_MSEC is Too Big | Inspection | The specified macro was set to 1 second. |
| #86 | Correction of an infinite loop in cfe\_sb\_task.c | Inspection | The code change described in this ticket was found in cfe\_sb\_task.c. |
| #100 | Update CFE\_ES\_SYSTEM\_LOG\_SIZE Verify to Allow Larger Sys Log Files (GSFC DCR 22684) | Inspection | The cfe\_es\_verify.h file was updated to use a system macro (UINT32\_MAX) vs. a hard-coded value of 16384. |
| #107 | SB - Duplicate Pipe Creation Causes Failure to Delete Pipe (GSFC DCR 22934) | N/A | Unit testing verified this ticket. |
| #111 | Naming convention for macros in cfe\_mission\_cfg and cfe\_platform\_cfg | Demonstration | All the rdl files and test procedures were modified to use the newly named macros. |
| #115 | Standardize Version Numbering (in CFE) | Inspection | Documentation changes to address standard version numbering updated. |
| #117 | CFE\_ES\_GetAppName() undefined output when failure occurs | N/A | Unit testing verified this ticket. |
| #133 | CFE\_ES\_AppCreate does not unload an object file if the entry point is not found | N/A | Unit testing verified this ticket. |
| #135 | SB: "cfe\_sb.h" should not depend on cfe\_platform\_cfg.h | Inspection |  |
| #137 | Possible buffer overrun in format strings used for scanf | N/A | Code changes run through standard build test procedures. |
| #140 | EDS: The ES "LoadLibrary()" call - avoid duplicates and pass ID | N/A | Code changes run through standard build test procedures. |
| #143 | ES does not check target file existence before attempting to reload an application | Demonstration | The es\_appctrl test procedure verifies this ticket in Step 1.19 by attempting to reload an application with a non-existent file. |
| #144 | SMP: Thread safety issues in CFE\_TIME around the Sync Callbacks | N/A | Code changes run through standard build test procedures. |
| #156 | Incorrect leap seconds in docs | Inspection | The correct value is now documented |
| #164 | cFE cES1702.3 and cES1703.3 Requirement Failures | Inspection and N/A | Comments were changed in 6.6.0 and verified. However, the action still cannot be tested in the cFS Lab environment. |
| #165 | Misleading cFE Doxygen: CFE\_SB\_DeletePipe | Inspection | Comments were changed in cfe\_sb.h to address this issue. |
| #167 | Additional CFE start up state for application sync | Inspection | The additional state was verified via an output of an additional message in the UART window. |
| #169 | cFE Cmake Does Not Build Out-of-the-Box | N/A | Did not use Cmake |
| #170 | Doxygen generator code had gotten stale | N/A | References Cmake system which was not used. |
| #175 | CCSDS APID Name Space Expansion | N/A | Unable to test in the cFS Lab environment. GSE changes required to use CCSDS V2 format. |
| #176 | CCSDS Electronic Data Sheet (EDS) integration | N/A | Did not use EDS. |
| #177 | Remove all MKS $log comments in file header prologs | Inspection | All the files that were inspected did not contain the MKS $log comment. |
| #180 | 'printf': Mismatch between the type expected by the conversion specifier %x and the type of the argument. | Analysis | During the cFE 6.6.0 compile process, there were no warnings related to this issue. |
| #183 | ES Shell Command Telemetry Timing is Hardcoded | Inspection | The hardcoded value was replaced by a macro. |
| #184 | cFE Performance IDs are Private Definitions | Inspection | Macro name changed to “MISSION” |
| #190 | option to not receive messages I send? | N/A |  |
| #193 | CFE\_SB\_CreatePipe should avoid nesting locks | Inspection | Verified the stated change was contained in the source code. |
| #194 | Add "Maximum EID" Comment to the Top of All cFE events.h Files | Inspection | All the event.h files contained this change. |
| #197 | ES - Incorrect Use of CFE\_SB\_MessageStringGet Function in CFE\_ES\_ShellOutputCommand | Inspection | Verified the stated change was contained in the source code. |
| #198 | Build failure when using std=c99 | Analysis | The cFE core built successfully with this option set for the cFS Lab environment. |
| #199 | CFE\_ES mempool returns buffers that are not aligned | N/A | Code changes run through standard build test procedures. |
| #202 | Clean up build warnings for CFE 6.6 | Analysis | No build warnings were found in the compiler output for the cFS Lab environment. |
| #203 | CMake script cleanup | N/A |  |
| #204 | CFE SB and TIME components missing length verification on incoming messages | Demonstration | Added tests for all cFE subsystems to test invalid command length. |
| #215 | Table services sometimes copies buffers to itself | N/A | Code changes run through standard build test procedures. |
| #216 | Table Services Task Pipe Function Incorrectly Handling Commands | Demonstration | Verified by sending CFE\_TBL commands successfully. |
| #217 | Fix EDS discrepancies after #175 merge | N/A | Code changes run through standard build test procedures. |
| #219 | ES - Memory Pool Size No Longer Requires 32-bit Alignment | Demonstration | Verified in es\_logging test procedure. Step x.x requests a memory pool of size 1023 bytes which is successfully allocated. |
| #223 | SB Remove PrintMsgHdr Function | Inspection | The function was not found in the source. |
| #225 | Improve doxygen for CFE SB MsgId wrappers | Inspection | Changes made to doxygen comments in cfe\_sb.h |

### Outstanding DCRs/Trac Tickets

Information on currently open Trac tickets is available at:

<https://babelfish.arc.nasa.gov/trac/cfs_cfe/>

Note this is a restricted website that require a server account. Additional Trac Tickets may have been submitted after preparation of this report. A cFE DCR and/or Trac Ticket report containing a listing of open DCRs and/or Track Tickets is available on request for customers who do not have access to the babelfish server. Please contact Susanne Strege, [susie.strege@nasa.gov](mailto:susie.strege@nasa.gov) for detailed information on currently open Trac tickets if access to the babelfish server is restricted.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **No.** | **Trac Ticket #** | **Description** | **Component** | **Status** | **Planned Delivery** | **Type** | **Priority** |
| 1 | #14 | CFE\_TIME\_GetTime() should not return a structure | other | new | Not Determined | enhancement | minor |
| 2 | #25 | Consolidate CDS and generic/ram mempool code into single implementation | es | on\_hold | Not Determined | enhancement | minor |
| 3 | #38 | Update CFE\_FS\_InitHeader to to Handle Error/Invalid Length Conditions | fs | new | Not Determined | enhancement | major |
| 4 | #45 | CFE\_ES\_ProcessCoreException() is not interrupt-safe | other | review | Not Determined | defect | major |
| 5 | #47 | CFE TIME fails to build when CFE\_TIME\_CFG\_SIGNAL set to TRUE | time | review | Not Determined | defect | minor |
| 6 | #49 | Extend CMake app search path | build | new | Not Determined | enhancement | minor |
| 7 | #53 | File operations in CFE\_ES\_ShellOutputCommand() need cleanup | es | review | Not Determined | defect | minor |
| 8 | #54 | Pre-CMake fallback build script needs updating. | build | in\_work | Not Determined | task | minor |
| 9 | #58 | Exiting an Application Creates an Application with an Unknown State (GSFC DCR 23035) | es | new | Not Determined | defect | major |
| 10 | #61 | CFE\_SB\_GetMsgTime() and CFE\_SB\_TimeStampMsg() do not handle byte-swapping on \_EL platforms | sb | new | Not Determined | defect | major |
| 11 | #62 | Clean up EVS\_SendViaPorts() function | evs | new | Not Determined | enhancement | minor |
| 12 | #63 | EVS "output ports" should be a function of the PSP | evs | review | Not Determined | enhancement | minor |
| 13 | #69 | SB Pipes are not protected. | sb | review | Not Determined | defect | major |
| 14 | #70 | SB Only Increments Message Sequence Count Where There are Subscribers | other | new | Not Determined | defect | major |
| 15 | #78 | cFE TIME unit tests break when different configuration options are used | time | new | Not Determined | defect | major |
| 16 | #85 | Add UT assert stubs to CFE | test | on\_hold | Not Determined | enhancement | major |
| 17 | #89 | ES Does Not Check CFE\_PSP\_MemRead8 Return Code | es | new | Not Determined | defect | major |
| 18 | #90 | ES - Invalid Memory Handle When Restarting/Deleting an Application with Tables (GSFC DCR 14483) | tbl | new | Not Determined | defect | major |
| 19 | #92 | cFE Time subsystem has calls to OS functions that do not exist | time | new | Not Determined | defect | major |
| 20 | #93 | Executive Services always creates tasks with floating point enabled (GSFC DCR 21293) | es | new | Not Determined | defect | major |
| 21 | #94 | ES - Add Ability to Recreate the RAM Disk via Command (GSFC DCR 21594) | es | new | Not Determined | defect | major |
| 22 | #95 | ES - RegisteredTasks Counter Does Not Decrement When Child Tasks are Exited (GSFC DCR 21771) | es | new | Not Determined | defect | major |
| 23 | #96 | Add support to allow SBN to pass sender information across the network (GSFC DCR 22063) | other | new | Not Determined | defect | major |
| 24 | #97 | EVS - Add Configuration To Output Events Upon Command Message vs. Function Call (GSFC DCR 22080) | evs | new | Not Determined | defect | major |
| 25 | #98 | SB - Add Last Pipe ID and Msg ID to Routine Telemetry for Diagnosing Message Limit Error and Buffer Overrun Errors (GSFC DCR 22081) | sb | new | Not Determined | defect | major |
| 26 | #99 | TBL - Update Table Services to Send Messages to Notify Applications of Pending Table Updates (GSFC DCR 22622) | tbl | new | Not Determined | defect | major |
| 27 | #101 | Table Services Name Buffer Overflow | tbl | new | Not Determined | defect | major |
| 28 | #102 | ES Creates Redundant Sys Log Entries When Creating ER Log Entries (GSFC DCR 22768) | es | new | Not Determined | defect | major |
| 29 | #104 | MMS-IVV-013 (OBS-1238) - Static Code Analysis: Possible Buffer Underrun in cfe\_fs\_decompress.c (GSFC DCR 22838) | fs | new | Not Determined | defect | major |
| 30 | #108 | TBL - Dump Table Registry Data Command Can Hog CPU (GSFC DCR 23031) | tbl | new | Not Determined | defect | major |
| 31 | #110 | ES - Recursive Exit Application Error Message | es | new | Not Determined | defect | major |
| 32 | #112 | Simplify Function Pointer Manipulations | other | new | Not Determined | task | minor |
| 33 | #116 | printf format specs need to be cleaned up | other | new | Not Determined | defect | minor |
| 34 | #118 | Improve cppcheck configuration for CFE | cppcheck | new | Not Determined | enhancement | major |
| 35 | #138 | FS - ExtractFilenameFromPath Function Needs Revision | other | new | cfe\_next | enhancement | major |
| 36 | #141 | Macro Parameters need Parens | common | new | cfe\_next | defect | minor |
| 37 | #142 | Refactor CFE\_ES\_AppCreate and CFE\_ES\_LoadLibrary | es | new | cfe\_next | enhancement | minor |
| 38 | #145 | use the OSAL configuration file loader library | es | new | cfe\_next | enhancement | minor |
| 39 | #147 | ES - CreateChildTask API Function Does Not Use "Flags" Input Parameter | es | new | Not Determined | defect | major |
| 40 | #152 | Redundant Assignments and Unread Variables | other | new | Not Determined | defect | minor |
| 41 | #158 | EVS Unit Test Code Coverage Incomplete in Task.c (GSFC DCR 8492) | evs | new | Not Determined | enhancement | minor |
| 42 | #159 | ES Unit Test Code Coverage Incomplete in apps.c | es | new | Not Determined | enhancement | minor |
| 43 | #161 | CFE\_ES\_DeleteChildTask SysLog Message/Comments are Misleading | es | new | cfe\_next | defect | minor |
| 44 | #168 | cFE cES1515.1 Requirement Failure | es | new | cfe\_next | defect | major |
| 45 | #171 | cFE Application Developers Guide Should be Doxygen/Markdown Based | docs | new | cfe\_next | enhancement | minor |
| 46 | #173 | Add Compile -Time Assert to Ensure 8-Bit Char Type | other | redispatch | cfe\_next | enhancement | minor |
| 47 | #174 | Scrub All Verify.h Files | other | redispatch | Not Determined | defect | major |
| 48 | #179 | no way to find an existing pipe ID by name | sb | in\_work | Not Determined | enhancement | minor |
| 49 | #181 | Add Software Bus Structures Reference Diagram to Doxygen Users Guide | other | redispatch | cfe\_next | defect | major |
| 50 | #185 | SB - expose an API to increment/decrement the UseCount of the buffer | sb | new | Not Determined | enhancement | minor |
| 51 | #186 | sb: compile-time option for routing table as a hash | sb | new | Not Determined | enhancement | minor |
| 52 | #187 | have an option to set the timestamp in CFE\_SB\_SendMsg | sb | new | Not Determined | enhancement | minor |
| 53 | #188 | add timestamps to EVS logging to stdout | evs | redispatch | cfe\_next | enhancement | minor |
| 54 | #189 | compile-time option to have CFE\_SB\_SendMsgFull() set timestamp | sb | review | cfe\_next | enhancement | minor |
| 55 | #195 | checking return codes in CFE | sb | new | Not Determined | defect | minor |
| 56 | #196 | Add Option for MEDIUM\_FORMAT Mode in EVS | other | new | Not Determined | defect | minor |
| 57 | #201 | SB - Add "promiscuous" pipe option | sb | new | Not Determined | enhancement | minor |
| 58 | #205 | Clean up unit tests to fully use new UT assert | test | assigned | cfe\_next | enhancement | major |
| 59 | #206 | Event messages generated during library init get dropped | evs | new | Not Determined | defect | major |
| 60 | #208 | expose SB UseCount | sb | new | Not Determined | enhancement | minor |
| 61 | #209 | remove MESSAGE\_FORMAT\_IS\_CCSDS ifdefs from CFS code | other | new | Not Determined | defect | major |
| 62 | #212 | Continuation of EDS integration for CFE | other | new | cfe\_next | enhancement | major |
| 63 | #214 | type safety | other | new | cfe\_next | enhancement | major |
| 64 | #218 | Please provide va\_list variants of variadic functions | common | new | Not Determined | enhancement | major |
| 65 | #226 | Enforce Strict ASCII in sample Makefile | other | in\_work | Not Determined | defect | minor |
| 66 | #227 | Enforce Strict ASCII in Document Files | other | new | cfe\_next | defect | minor |

RTTM

The cFE 6.6.0.0 RTTM can be found in the “test-and-ground” directory Results folder.

1. Command, Telemetry, and Events Verification Matrix

| **Command** | **Test Procedure(s)** | **Notes/Comments** |
| --- | --- | --- |
| ES\_NOOP | ES\_Reset |  |
| ES\_ResetCtrs | ES\_Reset |  |
| ES\_ProcessorReset | ES\_Logging, ES\_Reset |  |
| ES\_PowerOnReset | ES\_Logging, ES\_Reset, ES\_App\_Ctrl |  |
| ES\_Shell | ES\_App\_Ctrl |  |
| ES\_StartApp | ES\_Logging, ES\_Reset, ES\_App\_Ctrl |  |
| ES\_DeleteApp | ES\_App\_Ctrl |  |
| ES\_RestartApp | ES\_App\_Ctrl |  |
| Es\_ReloadApp | ES\_App\_Ctrl |  |
| ES\_QueryApp | ES\_App\_Ctrl |  |
| ES\_WriteAppInfo2File | ES\_App\_Ctrl |  |
| ES\_ClearSysLog | ES\_Logging |  |
| ES\_WriteSysLog2File | ES\_Logging, ES\_Reset |  |
| ES\_ClearERLog | ES\_Logging |  |
| ES\_WriteERLog2File | ES\_Logging, ES\_Reset |  |
| ES\_StartPerf | ES\_Logging |  |
| ES\_StopPerf | ES\_Logging |  |
| ES\_PerfFltrMask | ES\_Logging |  |
| ES\_PerfTrigMask | ES\_Logging |  |
| ES\_OverwriteSysLogMode | ES\_App\_Ctrl |  |
| ES\_ResetPRCnt | ES\_Logging |  |
| ES\_SetMAXPRCnt | ES\_Logging |  |
| ES\_DeleteCDS | ES\_App\_Ctrl |  |
| ES\_PoolStats | ES\_App\_Ctrl |  |
| ES\_WriteCDS2File | ES\_App\_Ctrl |  |
| ES\_WriteTaskInfo2File | ES\_App\_Ctrl |  |
| EVS\_NOOP | EVS\_BinFilter, EVS\_Cmd, EVS\_Reset |  |
| EVS\_ResetCtrs | EVS\_Cmd |  |
| EVS\_EnaEventType | ES\_App\_Ctrl, ES\_Logging, ES\_Reset. EVS\_BinFilter, EVS\_Cmd, EVS\_Reset, EVS\_EvtGen, SB\_DisablePipe, SB\_EnablePipe, SB\_Reset, TBL\_Cmd, TBL\_Reset, TBL\_Functionality, TIME\_CmdTlm |  |
| EVS\_EnaEventTypeMask | EVS\_Cmd, TIME\_CmdTlm |  |
| EVS\_DisEventType | EVS\_Cmd, EVS\_Reset |  |
| EVS\_DisEventTypeMask | EVS\_Cmd |  |
| EVS\_SetEvtFmt | EVS\_Log, EVS\_Reset |  |
| EVS\_EnaAppEvtType | EVS\_BinFilter, EVS\_Cmd, EVS\_EvtGen |  |
| EVS\_EnaAppEvtTypeMask | EVS\_Cmd |  |
| EVS\_DisAppEvtType | EVS\_BinFilter, EVS\_Cmd, EVS\_EvtGen |  |
| EVS\_DisAppEvtTypeMask | EVS\_Cmd |  |
| EVS\_EnaAppEvGen | EVS\_Cmd, EVS\_EvtGen |  |
| EVS\_DisAppEvGen | EVS\_Cmd, EVS\_EvtGen, EVS\_Reset |  |
| EVS\_RstAppCtrs | EVS\_BinFilter, EVS\_Cmd |  |
| EVS\_SetBinFltrMask | EVS\_BinFilter, EVS\_Cmd, EVS\_EvtGen |  |
| EVS\_EnaPort | EVS\_Cmd, EVS\_Reset |  |
| EVS\_EnaPortMask | EVS\_Cmd |  |
| EVS\_DisPort | EVS\_Cmd, EVS\_Reset |  |
| EVS\_DisPortMask | EVS\_Cmd |  |
| EVS\_RstBinFltrCtr | EVS\_BinFilter, EVS\_Cmd |  |
| EVS\_RstAllFltrs | EVS\_BinFilter, EVS\_Cmd |  |
| EVS\_AddEvtFltr | EVS\_BinFilter |  |
| EVS\_DelEvtFltr | EVS\_BinFilter |  |
| EVS\_WriteAppData2File | EVS\_BinFilter, EVS\_Cmd, EVS\_EvtGen, EVS\_Reset |  |
| EVS\_WriteLog2File | EVS\_EvtGen, EVS\_Log, EVS\_Reset |  |
| EVS\_SetLogMode | EVS\_Log, EVS\_Reset |  |
| EVS\_ClrLog | EVS\_Log |  |
| SB\_NOOP | SB\_EnablePipe |  |
| SB\_ResetCtrs | SB\_DisablePipe |  |
| SB\_DumpStats | SB\_DisablePipe |  |
| SB\_WriteRouting2File | SB\_Reset, SB\_DisablePipe, SB\_EnablePipe |  |
| SB\_EnaRoute | SB\_CmdsErr, SB\_Reset, SB\_DisablePipe, SB\_EnablePipe |  |
| SB\_DisRoute | SB\_CmdsErr, SB\_DisablePipe, SB\_EnablePipe |  |
| SB\_DumpNetwork | SB\_DisablePipe |  |
| SB\_WritePipe2File | SB\_EnablePipe |  |
| SB\_WriteMap2File | SB\_DisablePipe |  |
| SB\_EnaSubRptg |  |  |
| SB\_DisSubRptg |  |  |
| SB\_SendPrevSubs |  |  |
| TBL\_NOOP | TBL\_CMD |  |
| TBL\_ResetCtrs | TBL\_CMD |  |
| TBL\_Load | TBL\_CMD, TBL\_Reset, TBL\_Functionality |  |
| TBL\_Dump | TBL\_CMD, TBL\_Reset, TBL\_Functionality |  |
| TBL\_Validate | TBL\_CMD, TBL\_Reset, TBL\_Functionality |  |
| TBL\_Activate | TBL\_CMD, TBL\_Reset, TBL\_Functionality |  |
| TBL\_WriteReg2File | TBL\_CMD, TBL\_Reset, TBL\_Functionality |  |
| TBL\_TLMReg | TBL\_Functionality |  |
| TBL\_DeleteCDS | TBL\_Reset |  |
| TBL\_LoadAbort | TBL\_CMD, TBL\_Functionality |  |
| TIME\_NOOP | TIME\_CmdTlm |  |
| TIME\_ResetCtrs | TIME\_CmdTlm |  |
| TIME\_RequestDiag | TIME\_Reset |  |
| TIME\_SetSource | TIME\_CmdTlm |  |
| TIME\_SetState | TIME\_CmdTlm, TIME\_Reset |  |
| TIME\_AddClockLat | TIME\_CmdTlm |  |
| TIME\_SubClockLat | TIME\_CmdTlm |  |
| TIME\_SetClock | TIME\_CmdTlm |  |
| TIME\_SetClockMET | TIME\_CmdTlm |  |
| TIME\_SetClockSTCF | TIME\_CmdTlm, TIME\_Reset |  |
| TIME\_SetClockLeap | TIME\_CmdTlm, TIME\_Reset |  |
| TIME\_AddSTCFAdj | TIME\_CmdTlm |  |
| TIME\_SubSTCFAdj | TIME\_CmdTlm |  |
| TIME\_Add1HzSTCF | TIME\_CmdTlm |  |
| TIME\_Sub1HzSTCF | TIME\_CmdTlm |  |
| TIME\_StopAdd1Hz | TIME\_CmdTlm |  |
| TIME\_StopSub1Hz | TIME\_CmdTlm |  |
| TIME\_SetSignal | TIME\_CmdTlm |  |

| **Telemetry** | **Test Procedure(s)** | **Notes/Comments** |
| --- | --- | --- |
| ES\_CMDPC | ES\_App\_Ctrl, ES\_Logging, ES\_Reset |  |
| ES\_CMDEC | ES\_App\_Ctrl, ES\_Logging, ES\_Reset |  |
| ES\_CKSUM | ut\_runproc |  |
| ES\_CFEMAJORVER | ut\_runproc |  |
| ES\_CFEMINORVER | ut\_runproc |  |
| ES\_CFEREVISION | ut\_runproc |  |
| ES\_CFEMSNREV | ut\_runproc |  |
| ES\_OSMAJORVER | ut\_runproc |  |
| ES\_OSMINORVER | ut\_runproc |  |
| ES\_OSREVISION | ut\_runproc |  |
| ES\_OSMISSIONREV | ut\_runproc |  |
| ES\_SYSLOGBYTEUSED | ES\_Logging, ES\_Reset |  |
| ES\_SYSLOGSIZE | ES\_Logging |  |
| ES\_SYSLOGENTRIES | ES\_Logging, ES\_Reset |  |
| ES\_SYSLOGMODE | ES\_Logging |  |
| ES\_ERLOGINDEX | ES\_Logging |  |
| ES\_ERLOGENTRIES | ES\_Logging |  |
| ES\_RegCoreApps | ES\_Reset, ES\_App\_Ctrl |  |
| ES\_RegExtApps | ES\_Reset, ES\_App\_Ctrl |  |
| ES\_RegTasks | ES\_Reset |  |
| ES\_RegLibs | ES\_Reset |  |
| ES\_ResetType | ES\_Logging; ES\_Reset |  |
| ES\_ResetSubtype | ES\_Logging; ES\_Reset |  |
| ES\_ProcResetCnt | ES\_Logging; ES\_Reset |  |
| ES\_MaxProcResets | ES\_Logging |  |
| ES\_BootSource | ES\_Reset |  |
| ES\_PerfState | ES\_Logging |  |
| ES\_PerfMode |  |  |
| ES\_PerfTrigCnt |  |  |
| ES\_PerfFltrMask | ES\_Logging |  |
| ES\_PerfTrigMask | ES\_Logging |  |
| ES\_PerfDataStart |  |  |
| ES\_PerfDataEnd |  |  |
| ES\_PerfDataCnt | ES\_Logging |  |
| ES\_PerfData2Write |  |  |
| ES\_HeapBytesFree |  |  |
| ES\_HeapBlocksFree |  |  |
| ES\_HeapMaxBlkSize |  |  |
| ES\_AppID | ES\_App\_Ctrl |  |
| ES\_AppType | ES\_App\_Ctrl |  |
| ES\_AppName | ES\_App\_Ctrl |  |
| ES\_AppEntryPt | ES\_App\_Ctrl |  |
| ES\_AppFilename | ES\_App\_Ctrl |  |
| ES\_StackSize | ES\_App\_Ctrl |  |
| ES\_ModuleID | ES\_App\_Ctrl |  |
| ES\_AddrsValid | ES\_App\_Ctrl |  |
| ES\_CodeAddress | ES\_App\_Ctrl |  |
| ES\_CodeSize | ES\_App\_Ctrl |  |
| ES\_DataAddress | ES\_App\_Ctrl |  |
| ES\_DataSize | ES\_App\_Ctrl |  |
| ES\_BSSAddress | ES\_App\_Ctrl |  |
| ES\_BSSSize | ES\_App\_Ctrl |  |
| ES\_StartAddr | ES\_App\_Ctrl |  |
| ES\_ExceptnActn | ES\_App\_Ctrl |  |
| ES\_Priority | ES\_App\_Ctrl |  |
| ES\_MainTaskId | ES\_App\_Ctrl |  |
| ES\_ExecutionCtr | ES\_App\_Ctrl |  |
| ES\_MainTaskName | ES\_App\_Ctrl |  |
| ES\_ChildTasks | ES\_App\_Ctrl |  |
| ES\_PooHandle | ES\_App\_Ctrl |  |
| ES\_PoolSize | ES\_App\_Ctrl |  |
| ES\_BlksREQ | ES\_App\_Ctrl |  |
| ES\_BlkErrCTR | ES\_App\_Ctrl |  |
| ES\_FreeBytes | ES\_App\_Ctrl |  |
| ES\_BlockStats.BlockSize | ES\_App\_Ctrl |  |
| ES\_BlockStats.BlocksCreated | ES\_App\_Ctrl |  |
| ES\_BlockStats.BlocksFree | ES\_App\_Ctrl |  |
| EVS\_APPNAME | pseudo tlm |  |
| EVS\_EVENTID | pseudo tlm |  |
| EVS\_EVENTTYPE | pseudo tlm |  |
| EVS\_SCID | pseudo tlm |  |
| EVS\_PROCESSORID | pseudo tlm |  |
| EVS\_EVENT | pseudo tlm |  |
| EVS\_CMDPC | EVS\_BinFltr; EVS\_Cmds |  |
| EVS\_CMDEC | EVS\_BinFltr; EVS\_Cmds |  |
| EVS\_MSGFMTMODE | EVS\_BinFltr; EVS\_Log; EVS\_Reset |  |
| EVS\_MSGTRUNC | EVS\_Cmds; EVS\_EvtGen |  |
| EVS\_UNREGAPPC | EVS\_Cmds; EVS\_EvtGen |  |
| EVS\_OUTPUTPORT | EVS\_Cmds; EVS\_Reset |  |
| EVS\_LOGFULL | EVS\_Log; EVS\_Reset |  |
| EVS\_LOGMODE | EVS\_BinFltr; EVS\_Log; EVS\_Reset |  |
| EVS\_MSGSENTC | EVS\_BinFltr; EVS\_Cmds; EVS\_EvtGen; EVS\_Reset |  |
| EVS\_LOGOVERFLOWC | EVS\_Log; EVS\_Reset |  |
| EVS\_LogState |  |  |
| EVS\_APP.APPID | EVS\_Reset |  |
| EVS\_APP.APPMSGSENTC | EVS\_BinFltr; EVS\_Reset |  |
| EVS\_APP.APPENASTAT | EVS\_BinFltr; EVS\_EvtGen; EVS\_Reset |  |
| SB\_CMDPC | SB\_DisablePipe; SB\_Reset |  |
| SB\_CMDEC | SB\_DisablePipe; SB\_Reset |  |
| SB\_NoSubEC | SB\_DisablePipe; SB\_EnablePipe; SB\_Reset |  |
| SB\_MsgSndEC | SB\_DisablePipe; SB\_EnablePipe |  |
| SB\_MsgRecEC | SB\_DisablePipe; SB\_Reset |  |
| SB\_InternalEC |  |  |
| SB\_NewPipeEC | SB\_DisablePipe |  |
| SB\_SubscrEC | SB\_Reset |  |
| SB\_DupSubCnt | SB\_Reset |  |
| SB\_PipeOvrEC | SB\_DisablePipe |  |
| SB\_MsgLimEC | SB\_DisablePipe |  |
| SB\_MemPoolHdl |  |  |
| SB\_MemInUse |  |  |
| SB\_UnmarkedMem |  |  |
| SB\_Stat.SB\_SMMIDIU | SB\_DisablePipe |  |
| SB\_Stat.SB\_SMPMIDIU | SB\_DisablePipe |  |
| SB\_Stat.SB\_SMMMIDALW | SB\_DisablePipe |  |
| SB\_Stat.SB\_SMPIU | SB\_DisablePipe |  |
| SB\_Stat.SB\_SMPPIU | SB\_DisablePipe |  |
| SB\_Stat.SB\_SMMPALW | SB\_DisablePipe |  |
| SB\_Stat.SB\_SMBMIU | SB\_DisablePipe |  |
| SB\_Stat.SB\_SMPBMIU | SB\_DisablePipe |  |
| SB\_Stat.SB\_SMMBMALW | SB\_DisablePipe |  |
| SB\_Stat.SB\_SMSIU | SB\_DisablePipe |  |
| SB\_Stat.SB\_SMPSIU | SB\_DisablePipe |  |
| SB\_Stat.SB\_SMMSALW | SB\_DisablePipe |  |
| SB\_Stat.SB\_SMSBBIU | SB\_DisablePipe |  |
| SB\_Stat.SB\_SMPSBBIU | SB\_DisablePipe |  |
| SB\_Stat.SB\_SMMPDALW | SB\_DisablePipe |  |
| SB\_Stat.SB\_SMPDS.SB\_PDPIPEID | SB\_DisablePipe |  |
| SB\_Stat.SB\_SMPDS.SB\_PDDEPTH | SB\_DisablePipe |  |
| SB\_Stat.SB\_SMPDS.SB\_PDINUSE | SB\_DisablePipe |  |
| SB\_Stat.SB\_SMPDS.SB\_PDPKINUSE | SB\_DisablePipe |  |
| TBL\_CMDPC | TBL\_CMD, TBL\_Reset, TBL\_Functionality |  |
| TBL\_CMDEC | TBL\_CMD, TBL\_Reset, TBL\_Functionality |  |
| TBL\_NumTables | TBL\_CMD, TBL\_Reset, TBL\_Functionality |  |
| TBL\_NumUpdatesPend |  | No real way to test this |
| TBL\_ValCompltdCtr | TBL\_CMD |  |
| TBL\_LastValCRC | TBL\_Functionality |  |
| TBL\_LastValS | TBL\_Reset, TBL\_Functionality |  |
| TBL\_LastValBuf | TBL\_CMD, TBL\_Functionality |  |
| TBL\_LastValTblName | TBL\_Functionality |  |
| TBL\_ValSuccessCtr | TBL\_CMD |  |
| TBL\_ValFailedCtr | TBL\_CMD |  |
| TBL\_ValReqCtr | TBL\_CMD |  |
| TBL\_NumFreeShrBuf | TBL\_CMD, TBL\_Reset, TBL\_Functionality |  |
| TBL\_MemPoolHdl |  |  |
| TBL\_LastUpdTime.TBL\_Seconds | TBL\_CMD, TBL\_Functionality |  |
| TBL\_LastUpdTime.TBL\_SubSeconds | TBL\_CMD, TBL\_Functionality |  |
| TBL\_LastUpdTblName | TBL\_CMD, TBL\_Functionality |  |
| TBL\_LastFileLoaded | TBL\_CMD, TBL\_Functionality |  |
| TBL\_LastFileDumped | TBL\_CMD, TBL\_Functionality |  |
| TBL\_Size | TBL\_Functionality, TBL\_Reset |  |
| TBL\_CRC |  |  |
| TBL\_ActBufAdd | TBL\_Functionality |  |
| TBL\_IActBufAdd | TBL\_Functionality |  |
| TBL\_ValFuncPtr | TBL\_Functionality |  |
| TBL\_TimeLastUpd.TBL\_TLUSeconds | TBL\_Functionality |  |
| TBL\_TimeLastUpd.TBL\_TLUSubSeconds | TBL\_Functionality |  |
| TBL\_FILECSECONDS | TBL\_Functionality |  |
| TBL\_FILECSUBSECONDS | TBL\_Functionality |  |
| TBL\_LoadedOnce | TBL\_Functionality |  |
| TBL\_UpdatePending | TBL\_Functionality |  |
| TBL\_DumpOnly | TBL\_Reset, TBL\_Functionality |  |
| TBL\_DblBuffered | TBL\_Functionality |  |
| TBL\_Name | TBL\_CMD, TBL\_Reset, TBL\_Functionality |  |
| TBL\_LastFileUpd | TBL\_CMD, TBL\_Reset, TBL\_Functionality |  |
| TBL\_OwnerApp | TBL\_Functionality |  |
| TBL\_CritFlag | TBL\_Functionality |  |
| TIME\_CMDPC | TIME\_CmdTlm |  |
| TIME\_CMDEC | TIME\_CmdTlm |  |
| TIME\_FlagSet | TIME\_Reset |  |
| TIME\_FlagFly | TIME\_CmdTlm; TIME\_Reset |  |
| TIME\_FlagSrc |  |  |
| TIME\_FlagPri | cFE\_AltImage |  |
| TIME\_FlagSfly | TIME\_Reset |  |
| TIME\_FlagCfly | TIME\_CmdTlm; TIME\_Reset |  |
| TIME\_FlagAdjd |  |  |
| TIME\_Flag1Hzd | TIME\_CmdTlm |  |
| TIME\_FlagClat |  |  |
| TIME\_FlagSorC |  |  |
| TIME\_APIState | TIME\_Reset |  |
| TIME\_LeapSecs | TIME\_CmdTlm; TIME\_Reset |  |
| TIME\_METSecs | TIME\_CmdTlm |  |
| TIME\_METSubsecs | TIME\_CmdTlm |  |
| TIME\_STCFSecs | TIME\_Reset |  |
| TIME\_STCFSubsecs | TIME\_Reset |  |
| TIME\_1HzAdjSecs | TIME\_CmdTlm |  |
| TIME\_1HzAdjSSecs | TIME\_CmdTlm |  |
| TIME\_DTMETS | TIME\_CmdTlm |  |
| TIME\_DTMETSs |  |  |
| TIME\_DSTCFS | TIME\_CmdTlm; TIME\_Reset |  |
| TIME\_DSTCFSS | TIME\_CmdTlm; TIME\_Reset |  |
| TIME\_DLatentS | TIME\_Reset |  |
| TIME\_DLatentSs | TIME\_Reset |  |
| TIME\_DTValidS |  |  |
| TIME\_DTValidSs |  |  |
| TIME\_DLeapS | TIME\_CmdTlm; TIME\_Reset |  |
| TIME\_DAPIState | TIME\_Reset |  |
| TIME\_DElapsedS |  |  |
| TIME\_DElapsedSS |  |  |
| TIME\_DLocalS |  |  |
| TIME\_DLocalSS |  |  |
| TIME\_DMETS | TIME\_CmdTlm; TIME\_Reset |  |
| TIME\_DMETSS | TIME\_CmdTlm; TIME\_Reset |  |
| TIME\_DTAIS | TIME\_CmdTlm |  |
| TIME\_DTAISS | TIME\_CmdTlm |  |
| TIME\_DUTCS | TIME\_CmdTlm |  |
| TIME\_DUTCSS | TIME\_CmdTlm |  |
| TIME\_DValid |  |  |
| TIME\_DFlywheel |  |  |
| TIME\_Dsource |  |  |
| TIME\_Dsignal |  |  |
| TIME\_DSrvFly |  |  |
| TIME\_DCMD2Fly |  |  |
| TIME\_DFlagSet | TIME\_Reset |  |
| TIME\_DFlagFly | TIME\_CmdTlm; TIME\_Reset |  |
| TIME\_DFlagSrc | TIME\_CmdTlm |  |
| TIME\_DFlagPri | TIME\_CmdTlm; TIME\_Reset |  |
| TIME\_DFlagSfly | TIME\_Reset |  |
| TIME\_DFlagCfly | TIME\_CmdTlm; TIME\_Reset |  |
| TIME\_DFlagAdjd |  |  |
| TIME\_DFlag1Hzd |  |  |
| TIME\_DFlagClat |  |  |
| TIME\_DFlagSorC |  |  |
| TIME\_DAdjustDir | TIME\_CmdTlm |  |
| TIME\_D1HzAdjDir | TIME\_CmdTlm |  |
| Time\_DLatentDir |  |  |
| Time\_DAdjustS | TIME\_CmdTlm |  |
| Time\_DAdjustSS | TIME\_CmdTlm |  |
| Time\_D1HzAdjS | TIME\_CmdTlm |  |
| Time\_D1HzAdjSS | TIME\_CmdTlm |  |
| TIME\_DTTS |  |  |
| TIME\_DTTSS |  |  |
| TIME\_DTDS |  |  |
| TIME\_DTDSS |  |  |
| Time\_DVerifyCNT | TIME\_CmdTlm |  |
| Time\_DVerifyER | TIME\_CmdTlm |  |
| Time\_DTSDetCNT | TIME\_CmdTlm |  |
| Time\_DTatTCNT | TIME\_CmdTlm |  |
| Time\_DTsISRCNT |  |  |
| Time\_DTsISRERR |  |  |
| Time\_DTsTaskCNT | TIME\_CmdTlm |  |
| Time\_DVersionCNT | TIME\_CmdTlm |  |
| Time\_D1HzISRCNT | TIME\_CmdTlm |  |
| Time\_D1HzTaskCNT | TIME\_CmdTlm |  |
| Time\_DLogicalMET |  |  |
| Time\_DMinWindow |  |  |
| Time\_DMaxWindow |  |  |
| Time\_DWrapS |  |  |
| Time\_DWrapSS |  |  |
| Time\_DMaxSS |  |  |
| Time\_DMinSS |  |  |
| Time\_DataStStat |  |  |

| **File Telemetry** | **Test Procedure(s)** | **Notes/Comments** |
| --- | --- | --- |
| RF.TBL\_Size | TBL\_Functionality |  |
| RF.TBL\_SysTime.TBL\_ST\_Seconds | TBL\_CMD, TBL\_Functionality |  |
| RF.TBL\_SysTime.TBL\_ST\_Subseconds | TBL\_CMD, TBL\_Functionality |  |
| RF.TBL\_NumUsers | TBL\_Functionality |  |
| RF.TBL\_LoadBufferID | TBL\_CMD, TBL\_Reset, TBL\_Functionality |  |
| RF.TBL\_FileCreateSeconds |  |  |
| RF.TBL\_FileCreateSubseconds |  |  |
| RF.TBL\_RegCRC |  |  |
| RF.TBL\_ValFuncPresent | TBL\_Functionality |  |
| RF.TBL\_LoadedOnce | TBL\_Functionality |  |
| RF.TBL\_UpdatePndng | TBL\_Functionality |  |
| RF.TBL\_DumpOnly | TBL\_Reset, TBL\_Functionality |  |
| RF.TBL\_DblBuffered | TBL\_Functionality |  |
| RF.TBL\_Name | TBL\_CMD, TBL\_Reset, TBL\_Functionality |  |
| RF.TBL\_LastFileUpd | TBL\_CMD, TBL\_Reset, TBL\_Functionality |  |
| RF.TBL\_OwnerAppName |  |  |
| RF.TBL\_Critical | TBL\_Functionality |  |
| SB\_RouteEntry.SB\_MsgId | SB\_DisablePipe; SB\_EnablePipe; SB\_Reset |  |
| SB\_RouteEntry.SB\_PipeId | SB\_DisablePipe; SB\_EnablePipe; SB\_Reset |  |
| SB\_RouteEntry.SB\_State | SB\_EnablePipe; SB\_Reset |  |
| SB\_RouteEntry.SB\_MsgCnt | SB\_DisablePipe; SB\_EnablePipe; |  |
| SB\_RouteEntry.SB\_AppName | SB\_Reset |  |
| SB\_RouteEntry.SB\_PipeName | SB\_DisablePipe; SB\_EnablePipe; SB\_Reset |  |
| PE.SBPF\_InUse |  |  |
| PE.SBPF\_PipeID |  |  |
| PE.SBPF\_PipeName | SB\_EnablePipe |  |
| PE.SBPF\_AppName |  |  |
| PE.SBPF\_TaskId |  |  |
| PE.SBPF\_SysQId |  |  |
| PE.SBPF\_LastSender |  |  |
| PE.SBPF\_Qdepth |  |  |
| PE.SBPF\_SendErrs |  |  |
| PE.SBPF\_Buffer |  |  |
| SB\_MsgMapEntry.SB\_MM\_MID |  |  |
| SB\_MsgMapEntry.SB\_MM\_INDEX |  |  |
| EVS\_LOG.EvtLogEntry.AppName | EVS\_Log |  |
| EVS\_LOG.EvtLogEntry.EvtId | EVS\_Log |  |
| EVS\_LOG.EvtLogEntry.EvtType | EVS\_Log |  |
| EVS\_LOG.EvtLogEntry.ScId | EVS\_Log |  |
| EVS\_LOG.EvtLogEntry.PrcId | EVS\_Log |  |
| EVS\_Log.EvtMsg | EVS\_Log |  |
| EVS\_AppData.AppName | EVS\_BinFltr; EVS\_Cmds; EVS\_EvtGen; EVS\_Reset |  |
| EVS\_AppData.ActiveFlag | EVS\_Cmds; EVS\_EvtGen; EVS\_Reset |  |
| EVS\_AppData.EvtTypeAF | EVS\_BinFltr; EVS\_Cmds; EVS\_EvtGen; EVS\_Reset |  |
| EVS\_AppData.EventCounter | EVS\_Cmds; EVS\_EvtGen |  |
| EVS\_AppData.BinFltr.EvtId | EVS\_BinFltr; EVS\_Cmds; EVS\_EvtGen; EVS\_Reset |  |
| EVS\_AppData.BinFltr.Msk | EVS\_BinFltr; EVS\_Cmds; EVS\_EvtGen; EVS\_Reset |  |
| EVS\_AppData.BinFltr.Ctr | EVS\_BinFltr; EVS\_Cmds; EVS\_EvtGen; EVS\_Reset |  |
| ES\_ERLE.ERLog\_EntryType |  |  |
| ES\_ERLE.ERLog\_ResetType | ES\_Reset |  |
| ES\_ERLE.ERLog\_ResetSubType | ES\_Reset |  |
| ES\_ERLE.ERLog\_BootSource |  |  |
| ES\_ERLE.ERLog\_ProcessorResetCnt |  |  |
| ES\_ERLE.ERLog\_MaxProcResetCnt |  |  |
| ES\_ERLE.ERLog\_DebugFlag |  |  |
| ES\_ERLE.ERLog\_WatchDogWriteFlag |  |  |
| ES\_ERLE.ERLog\_PrintfEnabledFlag |  |  |
| ES\_ERLE.ERLog\_LastAppID |  |  |
| ES\_ERLE.ERLog\_Seconds |  |  |
| ES\_ERLE.ERLog\_Subseconds |  |  |
| ES\_ERLE.ERLog\_Description |  |  |
| ES\_ERLE.ERLog\_ContextPresent |  |  |
| ES\_ERLE.ERLog\_AppID |  |  |
| ES\_ERLE.ERLog\_Context |  |  |
| ES\_ALE.ES\_AL\_AppId | ES\_Logging, ES\_Reset, ES\_App\_Ctrl |  |
| ES\_ALE.ES\_AL\_AppType | ES\_App\_Ctrl |  |
| ES\_ALE.ES\_AL\_AppName | ES\_Logging, ES\_Reset, ES\_App\_Ctrl |  |
| ES\_ALE.ES\_AL\_EntryPoint | ES\_App\_Ctrl |  |
| ES\_ALE.ES\_AL\_FileName | ES\_App\_Ctrl |  |
| ES\_ALE.ES\_AL\_StackSize | ES\_App\_Ctrl |  |
| ES\_ALE.ES\_AL\_ModuleID | ES\_App\_Ctrl |  |
| ES\_ALE.ES\_AL\_AddrsValid | ES\_App\_Ctrl |  |
| ES\_ALE.ES\_AL\_CodeAddr | ES\_App\_Ctrl |  |
| ES\_ALE.ES\_AL\_CodeSize | ES\_App\_Ctrl |  |
| ES\_ALE.ES\_AL\_DataAddr | ES\_App\_Ctrl |  |
| ES\_ALE.ES\_AL\_DataSize | ES\_App\_Ctrl |  |
| ES\_ALE.ES\_AL\_BSSAddr | ES\_App\_Ctrl |  |
| ES\_ALE.ES\_AL\_BSSSize | ES\_App\_Ctrl |  |
| ES\_ALE.ES\_AL\_StartAddr | ES\_App\_Ctrl |  |
| ES\_ALE.ES\_AL\_ExceptionAction | ES\_App\_Ctrl |  |
| ES\_ALE.ES\_AL\_Priority | ES\_App\_Ctrl |  |
| ES\_ALE.ES\_AL\_TaskId | ES\_Logging, ES\_Reset, ES\_App\_Ctrl |  |
| ES\_ALE.ES\_AL\_ExecutionCtr | ES\_App\_Ctrl |  |
| ES\_ALE.ES\_AL\_TaskName | ES\_Logging, ES\_Reset, ES\_App\_Ctrl |  |
| ES\_ALE.ES\_AL\_ChildTasks | ES\_Reset |  |
| ES\_CDSReg.CDSHandle |  |  |
| ES\_CDSReg.CDSSize | ES\_App\_Ctrl |  |
| ES\_CDSReg.CriticalTBL | ES\_Reset; TBL\_Reset |  |
| ES\_CDSReg.CDSName | ES\_App\_Ctrl: TBL\_Reset |  |
| ES\_TL.TaskId | ES\_App\_Ctrl |  |
| ES\_TL.ExecutionCtr |  |  |
| ES\_TL.TaskName | ES\_App\_Ctrl |  |
| ES\_TL.AppId | ES\_App\_Ctrl |  |
| ES\_TL.AppName | ES\_App\_Ctrl |  |

| **Id** | **Event Message** | **Test Procedure(s)** | **Notes/Comments** |
| --- | --- | --- | --- |
| 1 | CFE\_ES\_INIT\_INF\_EID | Generated at cFE Startup |  |
| 2 | CFE\_ES\_INITSTATS\_INF\_EID | Generated at cFE Startup |  |
| 3 | CFE\_ES\_NOOP\_INF\_EID | ES\_Reset; EVS\_BinFltr; EVS\_Cmds; EVS\_EvtGen; EVS\_Reset |  |
| 4 | CFE\_ES\_RESET\_INF\_EID | ES\_Reset |  |
| 5 | CFE\_ES\_SHELL\_INF\_EID | ES\_AppCtrl |  |
| 6 | CFE\_ES\_START\_INF\_EID | ES\_AppCtrl; ES\_Logging; ES\_Reset; EVS\_BinFltr; EVS\_Cmds; EVS\_EvtGen; EVS\_Log; EVS\_Reset; SB\_DisablePipe; SB\_EnablePipe; SB\_Reset; TBL\_Cmd; TBL\_Functionality; TBL\_Reset; TIME\_CmdTlm; TIME\_Reset |  |
| 7 | CFE\_ES\_STOP\_DBG\_EID | ES\_AppCtrl; ES\_Logging; TBL\_Functionality; TBL\_Reset; |  |
| 8 | CFE\_ES\_STOP\_INF\_EID | ES\_AppCtrl; ES\_Logging; TBL\_Functionality; TBL\_Reset; |  |
| 9 | CFE\_ES\_RESTART\_APP\_DBG\_EID | ES\_AppCtrl |  |
| 10 | CFE\_ES\_RESTART\_APP\_INF\_EID | ES\_AppCtrl; ES\_Logging; |  |
| 11 | CFE\_ES\_RELOAD\_APP\_DBG\_EID | ES\_AppCtrl |  |
| 12 | CFE\_ES\_RELOAD\_APP\_INF\_EID | ES\_AppCtrl |  |
| 13 | CFE\_ES\_EXIT\_APP\_INF\_EID |  |  |
| 14 | CFE\_ES\_ERREXIT\_APP\_INF\_EID |  |  |
| 15 | CFE\_ES\_ONE\_APP\_EID | ES\_AppCtrl |  |
| 16 | CFE\_ES\_ALL\_APPS\_EID | ES\_AppCtrl; ES\_Logging; ES\_Reset; EVS\_Cmds; EVS\_EvtGen; SB\_Reset; TBL\_Cmd; TBL\_Functionality; TBL\_Reset; |  |
| 17 | CFE\_ES\_SYSLOG1\_INF\_EID | ES\_Logging |  |
| 18 | CFE\_ES\_SYSLOG2\_EID | ES\_AppCtrl, ES\_Logging, ES\_Reset |  |
| 19 | CFE\_ES\_ERLOG1\_INF\_EID | ES\_Logging |  |
| 20 | CFE\_ES\_ERLOG2\_EID | ES\_Logging, ES\_Reset; cFE\_AltImage |  |
| 21 | CFE\_ES\_MID\_ERR\_EID |  |  |
| 22 | CFE\_ES\_CC1\_ERR\_EID | ES\_Reset; EVS\_Cmds; EVS\_EvtGen; |  |
| 23 | CFE\_ES\_LEN\_ERR\_EID |  |  |
| 24 | CFE\_ES\_BOOT\_ERR\_EID |  |  |
| 25 | CFE\_ES\_SHELL\_ERR\_EID |  |  |
| 26 | CFE\_ES\_START\_ERR\_EID | ES\_AppCtrl |  |
| 27 | CFE\_ES\_START\_INVALID\_FILENAME\_ERR\_EID | ES\_AppCtrl |  |
| 28 | CFE\_ES\_START\_INVALID\_ENTRY\_POINT\_ERR\_EID |  |  |
| 29 | CFE\_ES\_START\_NULL\_APP\_NAME\_ERR\_EID |  |  |
| 30 | CFE\_ES\_START\_STACK\_ERR\_EID | ES\_AppCtrl |  |
| 31 | CFE\_ES\_START\_PRIORITY\_ERR\_EID |  |  |
| 32 | CFE\_ES\_START\_EXC\_ACTION\_ERR\_EID |  |  |
| 33 | CFE\_ES\_ERREXIT\_APP\_ERR\_EID |  |  |
| 35 | CFE\_ES\_STOP\_ERR1\_EID | ES\_AppCtrl |  |
| 36 | CFE\_ES\_STOP\_ERR2\_EID | ES\_AppCtrl |  |
| 37 | CFE\_ES\_STOP\_ERR3\_EID |  |  |
| 38 | CFE\_ES\_RESTART\_APP\_ERR1\_EID | ES\_AppCtrl |  |
| 39 | CFE\_ES\_RESTART\_APP\_ERR2\_EID | ES\_AppCtrl |  |
| 40 | CFE\_ES\_RESTART\_APP\_ERR3\_EID | ES\_AppCtrl |  |
| 41 | CFE\_ES\_RESTART\_APP\_ERR4\_EID |  |  |
| 42 | CFE\_ES\_RELOAD\_APP\_ERR1\_EID | ES\_AppCtrl |  |
| 43 | CFE\_ES\_RELOAD\_APP\_ERR2\_EID | ES\_AppCtrl |  |
| 44 | CFE\_ES\_RELOAD\_APP\_ERR3\_EID | ES\_AppCtrl |  |
| 45 | CFE\_ES\_RELOAD\_APP\_ERR4\_EID |  |  |
| 46 | CFE\_ES\_EXIT\_APP\_ERR\_EID |  |  |
| 47 | CFE\_ES\_PCR\_ERR1\_EID |  |  |
| 48 | CFE\_ES\_PCR\_ERR2\_EID |  |  |
| 49 | CFE\_ES\_ONE\_ERR\_EID |  |  |
| 50 | CFE\_ES\_ONE\_APPID\_ERR\_EID | ES\_AppCtrl |  |
| 51 | CFE\_ES\_OSCREATE\_ERR\_EID | ES\_AppCtrl |  |
| 52 | CFE\_ES\_WRHDR\_ERR\_EID |  |  |
| 53 | CFE\_ES\_TASKWR\_ERR\_EID |  |  |
| 55 | CFE\_ES\_SYSLOG2\_ERR\_EID | ES\_Logging; |  |
| 56 | CFE\_ES\_ERLOG2\_ERR\_EID | ES\_Logging; |  |
| 57 | CFE\_ES\_PERF\_STARTCMD\_EID | ES\_Logging; |  |
| 58 | CFE\_ES\_PERF\_STARTCMD\_ERR\_EID |  |  |
| 59 | CFE\_ES\_PERF\_STARTCMD\_TRIG\_ERR\_EID |  |  |
| 60 | CFE\_ES\_PERF\_STOPCMD\_EID | ES\_Logging; |  |
| 61 | CFE\_ES\_PERF\_STOPCMD\_ERR1\_EID |  |  |
| 62 | CFE\_ES\_PERF\_STOPCMD\_ERR2\_EID |  |  |
| 63 | CFE\_ES\_PERF\_FILTMSKCMD\_EID | ES\_Logging; |  |
| 64 | CFE\_ES\_PERF\_FILTMSKERR\_EID |  |  |
| 65 | CFE\_ES\_PERF\_TRIGMSKCMD\_EID | ES\_Logging; |  |
| 66 | CFE\_ES\_PERF\_TRIGMSKERR\_EID |  |  |
| 67 | CFE\_ES\_PERF\_LOG\_ERR\_EID | ES\_Logging; |  |
| 68 | CFE\_ES\_PERF\_DATAWRITTEN\_EID | ES\_Logging; |  |
| 69 | CFE\_ES\_CDS\_REGISTER\_ERR\_EID |  |  |
| 70 | CFE\_ES\_SYSLOGMODE\_EID | ES\_AppCtrl; ES\_Logging; |  |
| 71 | CFE\_ES\_ERR\_SYSLOGMODE\_EID |  |  |
| 72 | CFE\_ES\_RESET\_PR\_COUNT\_EID | ES\_Logging; |  |
| 73 | CFE\_ES\_SET\_MAX\_PR\_COUNT\_EID | ES\_Logging; |  |
| 74 | CFE\_ES\_FILEWRITE\_ERR\_EID |  |  |
| 75 | CFE\_ES\_RST\_ACCESS\_EID |  |  |
| 76 | CFE\_ES\_CDS\_DELETE\_ERR\_EID |  |  |
| 77 | CFE\_ES\_CDS\_NAME\_ERR\_EID | ES\_AppCtrl |  |
| 78 | CFE\_ES\_CDS\_DELETED\_INFO\_EID | ES\_AppCtrl |  |
| 79 | CFE\_ES\_CDS\_DELETE\_TBL\_ERR\_EID | ES\_AppCtrl |  |
| 80 | CFE\_ES\_CDS\_OWNER\_ACTIVE\_EID | ES\_AppCtrl |  |
| 81 | CFE\_ES\_TLM\_POOL\_STATS\_INFO\_EID | ES\_AppCtrl |  |
| 82 | CFE\_ES\_INVALID\_POOL\_HANDLE\_ERR\_EID | ES\_AppCtrl |  |
| 83 | CFE\_ES\_CDS\_REG\_DUMP\_INF\_EID | ES\_AppCtrl; TBL\_Reset; |  |
| 84 | CFE\_ES\_CDS\_DUMP\_ERR\_EID |  |  |
| 85 | CFE\_ES\_WRITE\_CFE\_HDR\_ERR\_EID |  |  |
| 86 | CFE\_ES\_CREATING\_CDS\_DUMP\_ERR\_EID | ES\_AppCtrl; |  |
| 87 | CFE\_ES\_TASKINFO\_EID | ES\_AppCtrl; |  |
| 88 | CFE\_ES\_TASKINFO\_OSCREATE\_ERR\_EID | ES\_AppCtrl; |  |
| 89 | CFE\_ES\_TASKINFO\_WRHDR\_ERR\_EID |  |  |
| 90 | CFE\_ES\_TASKINFO\_WR\_ERR\_EID |  |  |
| 0 | CFE\_EVS\_NOOP\_EID | EVS\_BinFltr; EVS\_Cmds; EVS\_EvtGen; EVS\_Reset |  |
| 1 | CFE\_EVS\_STARTUP\_EID |  |  |
| 2 | CFE\_EVS\_ERR\_WRLOGFILE\_EID |  |  |
| 3 | CFE\_EVS\_ERR\_CRLOGFILE\_EID | EVS\_Log |  |
| 5 | CFE\_EVS\_ERR\_MSGID\_EID |  |  |
| 6 | CFE\_EVS\_ERR\_EVTIDNOREGS\_EID | EVS\_BinFltr; EVS\_Cmds; EVS\_EvtGen; SB\_DisablePipe; SB\_Reset; |  |
| 7 | CFE\_EVS\_ERR\_APPNOREGS\_EID |  |  |
| 8 | CFE\_EVS\_ERR\_ILLAPPIDRANGE\_EID |  |  |
| 9 | CFE\_EVS\_ERR\_NOAPPIDFOUND\_EID | EVS\_Cmds; EVS\_EvtGen; |  |
| 10 | CFE\_EVS\_ERR\_ILLEGALFMTMOD\_EID |  |  |
| 11 | CFE\_EVS\_ERR\_MAXREGSFILTER\_EID | EVS\_BinFltr |  |
| 12 | CFE\_EVS\_ERR\_WRDATFILE\_EID |  |  |
| 13 | CFE\_EVS\_ERR\_CRDATFILE\_EID | EVS\_Cmds |  |
| 15 | CFE\_EVS\_ERR\_CC\_EID |  |  |
| 16 | CFE\_EVS\_RSTCNT\_EID |  |  |
| 17 | CFE\_EVS\_SETFILTERMSK\_EID | EVS\_BinFltr; EVS\_EvtGen |  |
| 18 | CFE\_EVS\_ENAPORT\_EID | EVS\_Cmds; EVS\_Reset; |  |
| 19 | CFE\_EVS\_DISPORT\_EID | EVS\_Cmds; EVS\_Reset; |  |
| 20 | CFE\_EVS\_ENAEVTTYPE\_EID | ES\_AppCtrl; ES\_Logging; ES\_Reset; EVS\_BinFltr; EVS\_Cmds; EVS\_EvtGen; EVS\_Reset; SB\_CmdsErr; SB\_DisablePipe; SB\_EnablePipe; SB\_Reset; TBL\_Cmd; TBL\_Functionality; TBL\_Reset; TIME\_CmdTlm; cFE\_AltImage |  |
| 21 | CFE\_EVS\_DISEVTTYPE\_EID | EVS\_Cmds; EVS\_Reset; |  |
| 22 | CFE\_EVS\_SETEVTFMTMOD\_EID | EVS\_Reset; |  |
| 23 | CFE\_EVS\_ENAAPPEVTTYPE\_EID | EVS\_BinFltr; EVS\_Cmds; EVS\_EvtGen; |  |
| 24 | CFE\_EVS\_DISAPPENTTYPE\_EID | EVS\_EvtGen; |  |
| 25 | CFE\_EVS\_ENAAPPEVT\_EID | EVS\_Cmds; EVS\_EvtGen; |  |
| 26 | CFE\_EVS\_DISAPPEVT\_EID | EVS\_EvtGen; |  |
| 27 | CFE\_EVS\_RSTEVTCNT\_EID | EVS\_Cmds; |  |
| 28 | CFE\_EVS\_RSTFILTER\_EID | EVS\_BinFltr; EVS\_Cmds; |  |
| 29 | CFE\_EVS\_RSTALLFILTER\_EID | EVS\_BinFltr |  |
| 30 | CFE\_EVS\_ADDFILTER\_EID | ES\_AppCtrl; ES\_Logging; EVS\_BinFltr; SB\_DisablePipe; SB\_EnablePipe; SB\_Reset; TBL\_Functionality; |  |
| 31 | CFE\_EVS\_DELFILTER\_EID | EVS\_BinFltr; SB\_DisablePipe; SB\_EnablePipe; SB\_Reset; |  |
| 32 | CFE\_EVS\_WRDAT\_EID | EVS\_BinFltr; EVS\_Cmds; EVS\_EvtGen; EVS\_Reset; SB\_EnablePipe; |  |
| 33 | CFE\_EVS\_WRLOG\_EID | ES\_Reset; EVS\_BinFltr; EVS\_Cmds; EVS\_EvtGen; EVS\_Reset; SB\_EnablePipe; |  |
| 34 | CFE\_EVS\_NO\_LOGSET\_EID |  |  |
| 35 | CFE\_EVS\_NO\_LOGCLR\_EID |  |  |
| 36 | CFE\_EVS\_NO\_LOGWR\_EID |  |  |
| 37 | CFE\_EVS\_EVT\_FILTERED\_EID | EVS\_BinFltr; SB\_DisablePipe; SB\_EnablePipe; |  |
| 38 | CFE\_EVS\_LOGMODE\_EID | EVS\_Reset; |  |
| 39 | CFE\_EVS\_ERR\_LOGMODE\_EID | EVS\_EvtGen; |  |
| 40 | CFE\_EVS\_ERR\_INVALID\_BITMASK\_EID | EVS\_Cmds; |  |
| 41 | CFE\_EVS\_ERR\_UNREGISTERED\_EVS\_APP | EVS\_Cmds; EVS\_EvtGen; |  |
| 42 | CFE\_EVS\_FILTER\_MAX\_EID | EVS\_BinFltr |  |
| 43 | CFE\_EVS\_LEN\_ERR\_EID | EVS\_Cmds |  |
| 1 | CFE\_SB\_INIT\_EID |  |  |
| 2 | CFE\_SB\_CR\_PIPE\_BAD\_ARG\_EID | SB\_DisablePipe; |  |
| 3 | CFE\_SB\_MAX\_PIPES\_MET\_EID | SB\_DisablePipe; SB\_EnablePipe; SB\_Reset; |  |
| 4 | CFE\_SB\_CR\_PIPE\_ERR\_EID | SB\_DisablePipe; SB\_EnablePipe; SB\_Reset |  |
| 5 | CFE\_SB\_PIPE\_ADDED\_EID | ES\_AppCtrl; ES\_Logging; ES\_Reset; EVS\_BinFltr; EVS\_Cmds; EVS\_EvtGen; EVS\_Reset; SB\_DisablePipe; SB\_EnablePipe; SB\_Reset; TBL\_Cmd; TBL\_Functionality; TBL\_Reset; |  |
| 6 | CFE\_SB\_SUB\_ARG\_ERR\_EID |  |  |
| 7 | CFE\_SB\_DUP\_SUBSCRIP\_EID | ES\_Logging; SB\_Reset; TBL\_Functionality; |  |
| 8 | CFE\_SB\_MAX\_MSGS\_MET\_EID | SB\_DisablePipe; |  |
| 9 | CFE\_SB\_MAX\_DESTS\_MET\_EID | ES\_AppCtrl; SB\_DisablePipe; SB\_EnablePipe; SB\_Reset; |  |
| 10 | CFE\_SB\_SUBSCRIPTION\_RCVD\_EID | ES\_AppCtrl; ES\_Logging; ES\_Reset; EVS\_BinFltr; EVS\_Cmds; EVS\_EvtGen; EVS\_Reset; SB\_DisablePipe; SB\_EnablePipe; SB\_Reset; TBL\_Cmd; TBL\_Functionality; TBL\_Reset; |  |
| 11 | CFE\_SB\_UNSUB\_ARG\_ERR\_EID |  |  |
| 12 | CFE\_SB\_UNSUB\_NO\_SUBS\_EID | SB\_Reset |  |
| 13 | CFE\_SB\_SEND\_BAD\_ARG\_EID |  |  |
| 14 | CFE\_SB\_SEND\_NO\_SUBS\_EID | ES\_AppCtrl; SB\_EnablePipe; SB\_CmdsErr; SB\_EnablePipe; SB\_Reset |  |
| 15 | CFE\_SB\_MSG\_TOO\_BIG\_EID | SB\_CmdsErr; SB\_DisablePipe; SB\_EnablePipe |  |
| 16 | CFE\_SB\_GET\_BUF\_ERR\_EID |  |  |
| 17 | CFE\_SB\_MSGID\_LIM\_ERR\_EID | ES\_AppCtrl; ES\_Logging; SB\_DisablePipe; SB\_EnablePipe |  |
| 18 | CFE\_SB\_RCV\_BAD\_ARG\_EID | SB\_DisablePipe; SB\_Reset; |  |
| 19 | CFE\_SB\_BAD\_PIPEID\_EID | SB\_EnablePipe; |  |
| 20 | CFE\_SB\_DEST\_BLK\_ERR\_EID |  |  |
| 21 | CFE\_SB\_SEND\_INV\_MSGID\_EID |  |  |
| 22 | CFE\_SB\_SUBSCRIPTION\_RPT\_EID |  |  |
| 24 | CFE\_SB\_UNSUBSCRIPTION\_RPT\_EID |  |  |
| 25 | CFE\_SB\_Q\_FULL\_ERR\_EID | SB\_DisablePipe |  |
| 26 | CFE\_SB\_Q\_WR\_ERR\_EID |  |  |
| 27 | CFE\_SB\_Q\_RD\_ERR\_EID |  |  |
| 28 | CFE\_SB\_CMD0\_RCVD\_EID | EVS\_BinFltr; EVS\_Cmds; EVS\_EvtGen; EVS\_Reset; SB\_CmdsErr; SB\_EnablePipe; |  |
| 29 | CFE\_SB\_CMD1\_RCVD\_EID | SB\_DisablePipe |  |
| 30 | CFE\_SB\_LSTSNDER\_ERR1\_EID |  |  |
| 31 | CFE\_SB\_LSTSNDER\_ERR2\_EID |  |  |
| 32 | CFE\_SB\_SND\_STATS\_EID | SB\_DisablePipe; SB\_EnablePipe |  |
| 33 | CFE\_SB\_ENBL\_RTE1\_EID | SB\_CmdsErr; SB\_EnablePipe |  |
| 34 | CFE\_SB\_ENBL\_RTE2\_EID | SB\_DisablePipe; SB\_EnablePipe |  |
| 35 | CFE\_SB\_ENBL\_RTE3\_EID | SB\_CmdsErr; SB\_Reset; |  |
| 36 | CFE\_SB\_DSBL\_RTE1\_EID | SB\_CmdsErr; SB\_EnablePipe |  |
| 37 | CFE\_SB\_DSBL\_RTE2\_EID | SB\_DisablePipe; SB\_EnablePipe |  |
| 38 | CFE\_SB\_DSBL\_RTE3\_EID | SB\_CmdsErr |  |
| 39 | CFE\_SB\_SND\_RTG\_EID | SB\_DisablePipe; SB\_EnablePipe; SB\_Reset; |  |
| 40 | CFE\_SB\_SND\_RTG\_ERR1\_EID | SB\_DisablePipe; SB\_EnablePipe |  |
| 41 | CFE\_SB\_GLS\_INV\_CALLER\_EID |  |  |
| 42 | CFE\_SB\_BAD\_CMD\_CODE\_EID | EVS\_Cmds; EVS\_EvtGen; SB\_CmdsErr; |  |
| 43 | CFE\_SB\_BAD\_MSGID\_EID |  |  |
| 44 | CFE\_SB\_FULL\_SUB\_PKT\_EID |  |  |
| 45 | CFE\_SB\_PART\_SUB\_PKT\_EID |  |  |
| 46 | CFE\_SB\_DEL\_PIPE\_ERR1\_EID |  |  |
| 47 | CFE\_SB\_PIPE\_DELETED\_EID | ES\_AppCtrl; ES\_Logging; SB\_EnablePipe; SB\_Reset; TBL\_Functionality; TBL\_Reset; |  |
| 48 | CFE\_SB\_SUBSCRIPTION\_REMOVED\_EID | ES\_AppCtrl; ES\_Logging; SB\_EnablePipe; SB\_Reset; TBL\_Functionality; TBL\_Reset; |  |
| 49 | CFE\_SB\_FILEWRITE\_ERR\_EID |  |  |
| 50 | CFE\_SB\_SUB\_INV\_PIPE\_EID | SB\_Reset; |  |
| 51 | CFE\_SB\_SUB\_INV\_CALLER\_EID |  |  |
| 52 | CFE\_SB\_UNSUB\_INV\_PIPE\_EID |  |  |
| 53 | CFE\_SB\_UNSUB\_INV\_CALLER\_EID |  |  |
| 54 | CFE\_SB\_DEL\_PIPE\_ERR2\_EID |  |  |
| 1 | CFE\_TBL\_INIT\_INF\_EID |  |  |
| 10 | CFE\_TBL\_NOOP\_INF\_EID | EVS\_BinFltr; EVS\_Cmds; EVS\_EvtGen; EVS\_Reset; TBL\_Cmd |  |
| 11 | CFE\_TBL\_RESET\_INF\_EID | TBL\_Cmd |  |
| 12 | CFE\_TBL\_FILE\_LOADED\_INF\_EID | TBL\_Cmd; TBL\_Functionality; TBL\_Reset |  |
| 13 | CFE\_TBL\_OVERWRITE\_DUMP\_INF\_EID | TBL\_Cmd; TBL\_Functionality; TBL\_Reset |  |
| 14 | CFE\_TBL\_WRITE\_DUMP\_INF\_EID | TBL\_Cmd; TBL\_Functionality; TBL\_Reset |  |
| 15 | CFE\_TBL\_OVERWRITE\_REG\_DUMP\_INF\_EID | TBL\_Cmd; TBL\_Functionality; TBL\_Reset |  |
| 16 | CFE\_TBL\_VAL\_REQ\_MADE\_INF\_EID | TBL\_Cmd: TBL\_Functionality; TBL\_Reset |  |
| 17 | CFE\_TBL\_LOAD\_PEND\_REQ\_INF\_EID | TBL\_Cmd: TBL\_Functionality; TBL\_Reset |  |
| 18 | CFE\_TBL\_TLM\_REG\_CMD\_INF\_EID | TBL\_Functionality |  |
| 21 | CFE\_TBL\_LOAD\_ABORT\_INF\_EID | TBL\_Cmd; TBL\_Functionality |  |
| 22 | CFE\_TBL\_WRITE\_REG\_DUMP\_INF\_EID | TBL\_Cmd; TBL\_Functionality; TBL\_Reset |  |
| 23 | CFE\_TBL\_ASSUMED\_VALID\_INF\_EID | TBL\_Functionality |  |
| 35 | CFE\_TBL\_LOAD\_SUCCESS\_INF\_EID | ES\_AppCtrl; TBL\_Cmd; TBL\_Functionality; TBL\_Reset; |  |
| 36 | CFE\_TBL\_VALIDATION\_INF\_EID | TBL\_Cmd; TBL\_Functionality; TBL\_Reset |  |
| 37 | CFE\_TBL\_UPDATE\_SUCCESS\_INF\_EID | TBL\_Cmd; TBL\_Functionality; TBL\_Reset |  |
| 38 | CFE\_TBL\_CDS\_DELETED\_INFO\_EID | TBL\_Reset; |  |
| 50 | CFE\_TBL\_MID\_ERR\_EID |  |  |
| 51 | CFE\_TBL\_CC1\_ERR\_EID | EVS\_EvtGen; EVS\_Cmds; TBL\_Cmd; |  |
| 52 | CFE\_TBL\_LEN\_ERR\_EID |  |  |
| 53 | CFE\_TBL\_FILE\_ACCESS\_ERR\_EID | TBL\_Cmd; TBL\_Functionality |  |
| 54 | CFE\_TBL\_FILE\_STD\_HDR\_ERR\_EID |  |  |
| 55 | CFE\_TBL\_FILE\_TBL\_HDR\_ERR\_EID |  |  |
| 56 | CFE\_TBL\_FAIL\_HK\_SEND\_ERR\_EID |  |  |
| 57 | CFE\_TBL\_NO\_SUCH\_TABLE\_ERR\_EID | TBL\_Functionality; TBL\_Reset |  |
| 58 | CFE\_TBL\_FILE\_TYPE\_ERR\_EID |  |  |
| 59 | CFE\_TBL\_FILE\_SUBTYPE\_ERR\_EID |  |  |
| 60 | CFE\_TBL\_NO\_WORK\_BUFFERS\_ERR\_EID | TBL\_Functionality |  |
| 61 | CFE\_TBL\_INTERNAL\_ERROR\_ERR\_EID |  |  |
| 62 | CFE\_TBL\_CREATING\_DUMP\_FILE\_ERR\_EID | TBL\_Functionality |  |
| 63 | CFE\_TBL\_WRITE\_CFE\_HDR\_ERR\_EID |  |  |
| 64 | CFE\_TBL\_WRITE\_TBL\_HDR\_ERR\_EID |  |  |
| 65 | CFE\_TBL\_WRITE\_TBL\_IMG\_ERR\_EID |  |  |
| 66 | CFE\_TBL\_NO\_INACTIVE\_BUFFER\_ERR\_EID | TBL\_Functionality |  |
| 67 | CFE\_TBL\_TOO\_MANY\_VALIDATIONS\_ERR\_EID |  |  |
| 68 | CFE\_TBL\_WRITE\_TBL\_REG\_ERR\_EID |  |  |
| 69 | CFE\_TBL\_LOAD\_ABORT\_ERR\_EID |  |  |
| 70 | CFE\_TBL\_ACTIVATE\_ERR\_EID | TBL\_Cmd; TBL\_Functionality |  |
| 71 | CFE\_TBL\_FILE\_INCOMPLETE\_ERR\_EID |  |  |
| 72 | CFE\_TBL\_LOAD\_EXCEEDS\_SIZE\_ERR\_EID | TBL\_Cmd; TBL\_Functionality |  |
| 73 | CFE\_TBL\_ZERO\_LENGTH\_LOAD\_ERR\_EID |  |  |
| 74 | CFE\_TBL\_PARTIAL\_LOAD\_ERR\_EID |  |  |
| 75 | CFE\_TBL\_FILE\_TOO\_BIG\_ERR\_EID | TBL\_Cmd |  |
| 76 | CFE\_TBL\_TOO\_MANY\_DUMPS\_ERR\_EID |  |  |
| 77 | CFE\_TBL\_DUMP\_PENDING\_ERR\_EID |  |  |
| 78 | CFE\_TBL\_ACTIVATE\_DUMP\_ONLY\_ERR\_EID | TBL\_Functionality |  |
| 79 | CFE\_TBL\_LOADING\_A\_DUMP\_ONLY\_ERR\_EID | TBL\_Functionality |  |
| 80 | CFE\_TBL\_ILLEGAL\_BUFF\_PARAM\_ERR\_EID | TBL\_Functionality; |  |
| 81 | CFE\_TBL\_UNVALIDATED\_ERR\_EID | TBL\_Functionality |  |
| 82 | CFE\_TBL\_IN\_REGISTRY\_ERR\_EID | TBL\_Reset |  |
| 83 | CFE\_TBL\_NOT\_CRITICAL\_TBL\_ERR\_EID |  |  |
| 84 | CFE\_TBL\_NOT\_IN\_CRIT\_REG\_ERR\_EID | TBL\_Reset |  |
| 85 | CFE\_TBL\_CDS\_NOT\_FOUND\_ERR\_EID |  |  |
| 86 | CFE\_TBL\_CDS\_DELETE\_ERR\_EID |  |  |
| 87 | CFE\_TBL\_CDS\_OWNER\_ACTIVE\_ERR\_EID | TBL\_Reset |  |
| 88 | CFE\_TBL\_LOADING\_PENDING\_ERR\_EID |  |  |
| 89 | CFE\_TBL\_FAIL\_NOTIFY\_SEND\_ERR\_EID |  |  |
| 90 | CFE\_TBL\_REGISTER\_ERR\_EID | TBL\_Functionality; TBL\_Reset |  |
| 91 | CFE\_TBL\_SHARE\_ERR\_EID |  |  |
| 92 | CFE\_TBL\_UNREGISTER\_ERR\_EID |  |  |
| 93 | CFE\_TBL\_LOAD\_ERR\_EID | TBL\_Functionality |  |
| 94 | CFE\_TBL\_LOAD\_TYPE\_ERR\_EID |  |  |
| 95 | CFE\_TBL\_UPDATE\_ERR\_EID |  |  |
| 96 | CFE\_TBL\_VALIDATION\_ERR\_EID | TBL\_Cmd; TBL\_Functionality; |  |
| 97 | CFE\_TBL\_SPACECRAFT\_ID\_ERR\_EID | TBL\_Validate |  |
| 98 | CFE\_TBL\_PROCESSOR\_ID\_ERR\_EID | TBL\_Validate |  |
| 1 | CFE\_TIME\_INIT\_EID |  |  |
| 4 | CFE\_TIME\_NOOP\_EID | EVS\_BinFltr; EVS\_Cmds; EVS\_EvtGen; EVS\_Reset; TIME\_CmdTlm |  |
| 5 | CFE\_TIME\_RESET\_EID | TIME\_CmdTlm |  |
| 6 | CFE\_TIME\_DIAG\_EID | TIME\_CmdTlm |  |
| 7 | CFE\_TIME\_STATE\_EID | TIME\_CmdTlm; TIME\_Reset |  |
| 8 | CFE\_TIME\_SOURCE\_EID |  |  |
| 9 | CFE\_TIME\_SIGNAL\_EID |  |  |
| 11 | CFE\_TIME\_DELAY\_EID |  |  |
| 12 | CFE\_TIME\_TIME\_EID | TIME\_CmdTlm |  |
| 13 | CFE\_TIME\_MET\_EID | TIME\_CmdTlm |  |
| 14 | CFE\_TIME\_STCF\_EID | TIME\_CmdTlm; TIME\_Reset |  |
| 15 | CFE\_TIME\_DELTA\_EID | EVS\_Log; TIME\_CmdTlm |  |
| 16 | CFE\_TIME\_1HZ\_EID | TIME\_CmdTlm; cFE\_AltImage; |  |
| 17 | CFE\_TIME\_LEAPS\_EID | TIME\_CmdTlm; TIME\_Reset |  |
| 20 | CFE\_TIME\_FLY\_ON\_EID |  |  |
| 21 | CFE\_TIME\_FLY\_OFF\_EID |  |  |
| 25 | CFE\_TIME\_EXIT\_ERR\_EID |  |  |
| 26 | CFE\_TIME\_ID\_ERR\_EID |  |  |
| 27 | CFE\_TIME\_CC\_ERR\_EID | EVS\_Cmds; EVS\_EvtGen; |  |
| 30 | CFE\_TIME\_STATE\_ERR\_EID |  |  |
| 31 | CFE\_TIME\_SOURCE\_ERR\_EID | TIME\_CmdTlm |  |
| 32 | CFE\_TIME\_SIGNAL\_ERR\_EID |  |  |
| 33 | CFE\_TIME\_DELAY\_ERR\_EID |  |  |
| 34 | CFE\_TIME\_TIME\_ERR\_EID |  |  |
| 35 | CFE\_TIME\_MET\_ERR\_EID |  |  |
| 36 | CFE\_TIME\_STCF\_ERR\_EID |  |  |
| 37 | CFE\_TIME\_DELTA\_ERR\_EID |  |  |
| 38 | CFE\_TIME\_1HZ\_ERR\_EID |  |  |
| 40 | CFE\_TIME\_SOURCE\_CFG\_EID | TIME\_CmdTlm |  |
| 41 | CFE\_TIME\_SIGNAL\_CFG\_EID | TIME\_CmdTlm |  |
| 42 | CFE\_TIME\_DELAY\_CFG\_EID | TIME\_CmdTlm |  |
| 43 | CFE\_TIME\_TIME\_CFG\_EID |  |  |
| 44 | CFE\_TIME\_MET\_CFG\_EID |  |  |
| 45 | CFE\_TIME\_STCF\_CFG\_EID |  |  |
| 46 | CFE\_TIME\_LEAPS\_CFG\_EID |  |  |
| 47 | CFE\_TIME\_DELTA\_CFG\_EID |  |  |
| 48 | CFE\_TIME\_1HZ\_CFG\_EID |  |  |

1. Test Status Matrix

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Test Name** | **Status** | **Date** | **Seconds** | **Minutes** | **Comments** |
| sb\_cmds\_err | Passed | 5/23/2016 | 134.068 | 2.23447 |  |
| sb\_dispipes | Passed | 5/23/2016 | 3175.84 | 52.9307 |  |
| sb\_enapipes | Passed | 5/24/2016 | 2880.84 | 48.0122 |  |
| sb\_\_reset | Passed | 5/24/2016 | 1130.29 | 18.8382 |  |
| tbl\_cmding | Passed | 5/23/2016 | 3222.55 | 52.7092 |  |
| tbl\_func | Passed | 5/23/2016 | 8029.45 | 133.824 |  |
| tbl\_reset | Passed | 5/23/2016 | 3810.68 | 63.5147 |  |
| time\_command\_server\_tai | Passed | 5/24/2016 | 1251.14 | 20.8523 |  |
| time\_resets\_server\_tai | Passed | 5/23/2016 | 353.749 | 5.89581 |  |
| evs\_log | Passed | 5/23/2016 | 978.78 | 16.313 |  |
| evs\_cmds | Passed | 5/24/2016 | 3356.74 | 55.9457 |  |
| evs\_evt\_msg\_gen | Passed | 5/23/2016 | 2070.73 | 34.5122 |  |
| evs\_reset | Passed | 5/23/2016 | 1267.09 | 21.1181 |  |
| evs\_bin\_fltr | Passed | 5/23/2016 | 13394.8 | 223.246 |  |
| es\_appctrl | Passed | 5/24/2016 | 1935.75 | 32.2625 |  |
| es\_logging | Failed | 5/24/2016 | 1770.5 | 29.5083 | CPU rebooted when RestartApp was expected |
| es\_reset | Passed | 5/23/2016 | 1748.41 | 29.1401 |  |
| cfe\_altimage | Passed | 5/23/2016 | 289.01 | 4.81684 |  |
| cfe\_myeh | Failed | 5/25/2016 | 280.364 | 4.67274 | User-defined exception did not get called |
| cfe\_osobjfailure | Failed | 5/26/2016 | 104.014 | 1.73357 | CPU did not reboot as expected on failure |
|  |  | **Total Time:** | 51184.685 | 853.078 |  |