

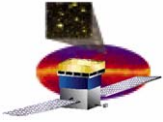
GLAST Large Area Telescope

LAT Flight Software System Checkout TRR

Current Status

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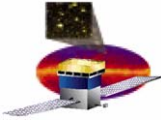
Current Status

- **RFAs**
- **Development status**
- **Open JIRA Items**
- **Test Environment (NCR)**
- **Procedure/Script Status (dry runs)**



RFA Status

- **6 Flight Unit Peer Review RFAs**
 - **Closed: 1**
 - **Responses submitted and awaiting closure: 5**
- **Action Plan**
 - **Ensure all RFAs closed prior to FSW System Test TRR**



Development Status

- **Current status**
 - **Known liens**
 - **Implementation of output to the Science Data Interface**
 - **Command/control/telemetry/mode interface to event data (LPA)**
- **Action plan**
 - **Build 0-5-0 will include event filtering plus implementation of subset of output across SDI to enable completion of a subset of test scripts**
 - **Subsequent build 0-5-1 will provide all remaining functions**



FSW in QT Build

Layer	FSW Packages in QT Build						
Basic Services	ATT	CMX	CCSDS	CDM	LEM		
	EFC	EMP	IMM	LATC	MEM		
	MON	MSG	PBC	PBI	PBS	MDB	
	PIG	RAD750	SBC	SIB	THS	VXW	ZLIB
Driver	CTDB		LCBD				
Services	ITC		LCS				
	CTS		EDS				
Applications	LFS/FILE		LHK	LCI	LCM	LIM	
	LMC		LSM	LTC	LPA		
Software Config Files (CDM)	CAL_DB		CPU_DB		CTS_DB		
	FILE_DB		LCI_DB		LCM_DB		
	LCS_DB		LHK_DB		LIM_DB		
	LSM_DB		LTC_DB		MEM_DB		
	MON_DB		MSG_DB		PBC_DB	PIG_DB	



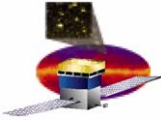
Open JIRA Items

JIRA					
Key	Components	Summary	Status	Description	Tests affected
FSW-232	LEM	The TFE DAC registers are bit inverted; LEM needs to be modified to present a logical, rather than physical, interface.	Open	Problem : The two seven bit DAC registers of the TFE are bit inverted. That is to say that to set the DAC to 0x01, the value 0x40 must be loaded into the register. This is illogical and creates a problem within LCI, where the DAC values are iterated over. Proposed resolution : The LEM macros that create the commands to load and read this register will invert the field before loading and after reading, to present a logical interface to users.	All FECALB
FSW-215	LTC	Remove LTC Snsrs Configuration File Support	In Progress	Currently, the LTC package supports the ability to generate a Sensors Mapping file from XML input. A ground tool converts this to a binary format file, which can be loaded and then parsed by the ltc flight software. Opinion is that this is overkill since the content of this configuration mapping file is not likely to change. As a compromise, the following changes will be made: 1. The sensor mapping table will be located in two places: a built-in copy and a copy in the LTC_DB database. If the LTC_DB lookup fails, the built-in version will be used. 2. The "LTC_Snsrs" tool will be removed. This is one less tool to support. If the mapping table needs to be changed in the future, the changes will be made directly to the C structure contained in the LTC_DB file. 3. All references to a LTC "Snsrs" file will be removed where appropriate. This affects some of the LTC telecommand parameters and master configuration file format.	THRMCS_001



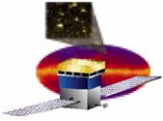
Open JIRA Items (2)

FSW-216	LTC_DB	Added LTC sensor mapping table to database	In Progress	With the removal of the LTC Snsrs mapping table configuration file support, a place is needed to put the mapping table values that is not too difficult to change. The LTC sensors mapping table structure will be added to the LTC_DB database.	THRMCS_001
FSW-217	THS	Create a fswFlags mask to indicate when THS simulates Timetone or PPS	Open	Create a fswFlags mask to indicate when THS simulates Timetone or PPS. THS will create a fswFlags value will following bit definitions Bit 0 - indicated no timetone detected so THS simulated timetone Bit 1 - indicated no PPS CPU interrupt detected so THS simulated PPS Bit 2 - indicated no PPS detected on GEM (the GEM strobe clock is not incrementing) so number of missing PPS is stored in top 13 bits of fswFLags Bit 3-15 - estimated number of PPS missed in the NoPpsInGem condition (Bit 2 above) The fswFlags value can be rtrived thru the THS_timetoneFromEvent() or THS_prevTimetoneFromEvent() as the bottom 16bits of the flags parameter. The top 16 bits are the flags from the spacecraft. The fswFlag will also be added to the SsrOut timetone message.	TIMPRC_001
FSW-163	LSM	Magic7 tele-commands need to be put into outgoing telemetry	Open	Magic7 tele-commands coming into LSM task need to be put into outgoing telemetry	TIMPRC_001 IPCFCNC_001
FSW-167	LTC	LTC telemetry packets contain one 16-bit word that contains both the status and the raw value instead of two words	Open	On behalf of ISOC: LTC telemetry packets contain one 16-bit word that contains both the status and the raw value instead of two words (4-bit status and 12-bit raw).	THRMCS_001



Open JIRA Items (3)

FSW-188	LHK	Add LIM mode status to regular housekeeping packet	Open	On behalf of ISOC: The packet with LIM data (783/0x30F) is a diagnostic packet, however ISOC needs to know the operating mode (currently LIMTOPMODE) in order to reconcile the state of the instrument with the expected commanded state, for realtime ops. This information needs to be in a regular housekeeping packet.	NBTLMV_001
FSW-114	LFS	File dump data can't be sent to the SSR	Open	At the application level, file dump data is sent as a sequence of one or more diagnostic telemetry packets to the CTDB interface. There is no mechanism in place to direct the file dump data to the SSR instead.	FILMGT_001
FSW-108	MEM	Memory dump data can't be sent to the SSR	Open	At the application level, memory dump data is sent as a sequence of one or more diagnostic telemetry packets. There is no mechanism in place to direct memory dump data to the SSR instead.	MEMMGT_001



Test Environment Status

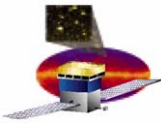
- **Current status**
 - **VSC science data decoder SW**
- **Action plan**
 - **Complete ASAP**



Procedure/Script Status

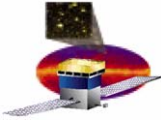
- All test procedure documents baselined:
 - Most likely need update depending on status
- Test script development nearing completion:
 - Many scripts have been run to completion and are ready for QT
 - Some scripts have related FSW liens, but will be ready for QT once the liens are satisfied

Test	Script Status	FSW Liens
Primary boot (nominal)		
FSWINI_001: SIU primary boot	Successfully Run to Completion	N/A
FSWINI_009: boot status on discretes, boot HSK	Does Not Yet Run to Completion	N/A
FSWINI_005: EPU prim. Boot	Successfully Run to Completion	N/A
CMDFNC_001: soft reset command	Successfully Run to Completion	N/A



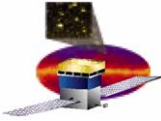
Script Status (2)

Test	Script Status	FSW Liens
Secondary boot (nominal)		
FSWINI_010: SIU and EPU secondary boot	Does Not Yet Run to Completion	N/A
NBTLMV_001: HSK, low rate science tlm	Does Not Yet Run to Completion	• JIRA FSW-168
Configuration (nominal)		
SIUCFG_001: LAT subsystem data collection	Runs to Completion (Need to Incorporate Development Liens)	<ul style="list-style-type: none"> • VSC science data processing • Science data formatting • SSR output path
SIUCFG_002: LAT subsystem configuration	Runs to Completion (Need to Incorporate Development Liens)	<ul style="list-style-type: none"> • VSC science data processing • Science data formatting • SSR output path
FILMGT_001: File management	Does Not Yet Run to Completion	• JIRA FSW-114
Mode Control		
OPMODE_001: Mode control	Runs to Completion (Need to Incorporate Development Liens)	• VSC science data processing



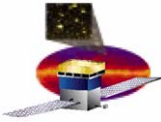
Script Status (3)

Test	Script Status	FSW Liens
Charge Injection		
FECALB_001: TOT measurements	Runs to Completion (Need to Incorporate Development Liens)	<ul style="list-style-type: none"> •VSC science data processing •Science data formatting •SSR output path •JIRA FSW-232
FECALB_002: TKR threshold & charge scans	Runs to Completion (Need to Incorporate Development Liens)	<ul style="list-style-type: none"> •VSC science data processing •Science data formatting •SSR output path •JIRA FSW-232
FECALB_003: TKR trigger check	Runs to Completion (Need to Incorporate Development Liens)	<ul style="list-style-type: none"> •VSC science data processing •Science data formatting •SSR output path •JIRA FSW-232
FECALB_004: ACD calibration	Runs to Completion (Need to Incorporate Development Liens)	<ul style="list-style-type: none"> •VSC science data processing •Science data formatting •SSR output path •JIRA FSW-232
FECALB_005: CAL calibration	Runs to Completion (Need to Incorporate Development Liens)	<ul style="list-style-type: none"> •VSC science data processing •Science data formatting •SSR output path •JIRA FSW-232



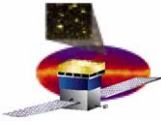
Script Status (4)

Test	Script Status	FSW Liens
Diagnostic Functions		
DCMODE_001, 002, 003 (ACD, CAL, and TKR diagnostics)	Run to Completion (Need to Incorporate Development Liens)	<ul style="list-style-type: none"> •VSC science data processing •Science data formatting •SSR output path
EVTPMO_001: Deadtime	Runs to Completion (Need to Incorporate Development Liens)	<ul style="list-style-type: none"> •VSC science data processing •Science data formatting •SSR output path
EVTPMO_002: GEM VETO rates	Runs to Completion (Need to Incorporate Development Liens)	<ul style="list-style-type: none"> •VSC science data processing •Science data formatting •SSR output path
EVTPMO_003: L1 Trigger Rates	Runs to Completion (Need to Incorporate Development Liens)	<ul style="list-style-type: none"> •VSC science data processing •Science data formatting •SSR output path
EVTPMO_004: Monitor CNO Rates	Runs to Completion (Need to Incorporate Development Liens)	<ul style="list-style-type: none"> •VSC science data processing •Science data formatting •SSR output path



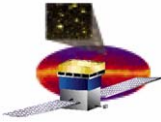
Script Status (5)

Test	Script Status	FSW Liens
Filter		
EVTFIL_001: Interface from EBM	Runs to Completion (Need to Incorporate Development Liens)	<ul style="list-style-type: none"> •VSC science data processing •Science data formatting •SSR output path
EVTFIL_002: Rates and capacity	Runs to Completion (Need to Incorporate Development Liens)	<ul style="list-style-type: none"> •VSC science data processing •Science data formatting •SSR output path
EVTFIL_003: Filter reprogram	Runs to Completion (Need to Incorporate Development Liens)	<ul style="list-style-type: none"> •VSC science data processing •Science data formatting •SSR output path
EVTFIL_004: Filter bypass	Runs to Completion (Need to Incorporate Development Liens)	<ul style="list-style-type: none"> •VSC science data processing •Science data formatting •SSR output path
WBTLMV_001: Sci. data format and volume	Runs to Completion (Need to Incorporate Development Liens)	<ul style="list-style-type: none"> •VSC science data processing •Science data formatting •SSR output path



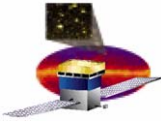
Script Status (6)

Test	Script Status	FSW Liens
Primary boot (non-nominal)		
FSWINI_002: Boot self-test FSWINI_003: Multiple boot images FSWINI_004: Reboot on discrete signal	Do Not Yet Run to Completion	N/A
FSWINI_007: Retrieve SIU primary boot error log FSWINI_006: Reset source	Successfully Run to Completion	N/A
FSWINI_008: Retrieve EPU primary boot error log	Does Not Yet Run to Completion	N/A
FSWINI_012: SEU protection FSWINI_013: Memory scrubbing FSWINI_014: Watchdog management	Do Not Yet Run to Completion	N/A



Script Status (7)

Test	Script Status	FSW Liens
Secondary boot (non-nominal)		
FSWINI_011: SIU and EPU secondary boot error mitigation	Does Not Yet Run to Completion	N/A
CMDFNC_003: 1553 interface and command functional verification	Does Not Yet Run to Completion	N/A
Configuration (non-nominal)		
MEMMGT_001: Memory management	Successfully Run to Completion	• JIRA FSW-108
MEMMGT_002: Memory load data	Does Not Yet Run to Completion	N/A
Other non-nominal		
NBTLMV_003: ACD HSK Anomaly	Does Not Yet Run to Completion	N/A
TIMPRC_001: Time services	Runs to Completion (Need to Incorporate Development Liens)	<ul style="list-style-type: none"> • VSC science data processing • Science data formatting • SSR output • Magic 7 in SSR telemetry • JIRA FSW-217, 163



Script Status (8)

Test	Script Status	FSW Liens
Interface Formats		
NBTLMV_002: Diagnostic telemetry	Successfully Run to Completion	N/A
IPCFNC_001: Inter-processor communications	Runs to Completion (Need to Incorporate Development Liens)	<ul style="list-style-type: none">• VSC science data processing• Science data formatting• SSR output• Magic 7 in SSR telmetry• JIRA FSW-163
VSGIFV_001: Discrete signal interfaces	Does Not Yet Run to Completion	N/A
Thermal Control		
THRMCS_001: Thermal control system	Does Not Yet Run to Completion	<ul style="list-style-type: none">• JIRA FSW-215• JIRA FSW-216• JIRA FSW-167