GLAST Large Area Telescope:

FSW/Dataflow Status/ issues

Stanford Linear Accelerator Center

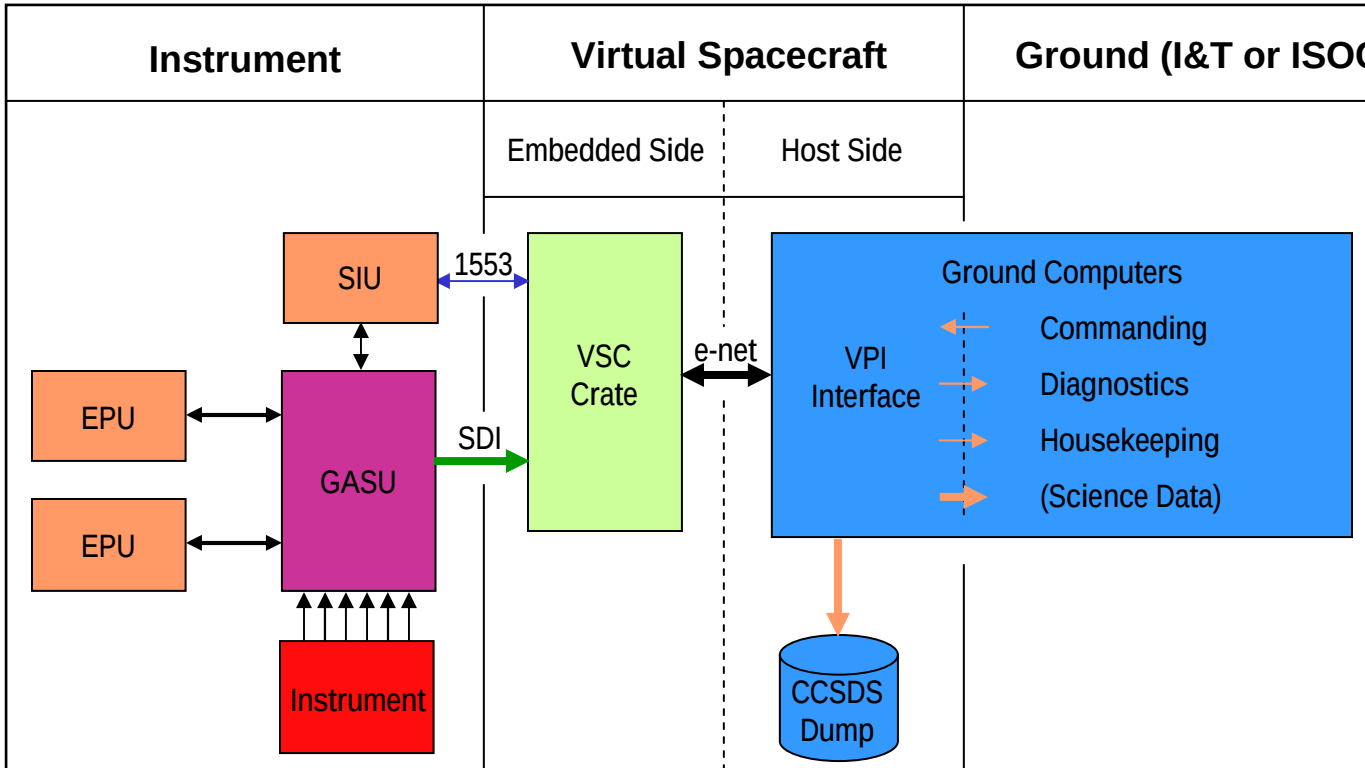
FSW to user data flow end game

- **Primary remaining core FSW functionality is LPA & LCI**
  - **LPA:**
  - – **Completion of command I/F and transport to SDI**
  - – **Sergio's priority – ECD 14 Oct**
  - **LCI:**
  - – **Output data context**
  - – **File Management I/F**
  - – **LCI Decoders for VPI**
  - – **James Priority - ECD 14 Oct**

- **Need to close the data flow path from FSW to users**
  - – **Ground side is remaining effort**
  - – **Data decode and representation to users (VPI)**

- **Other Key issues**
  - – **Rolling FSW out to User's – LICOS,VSC, I&T, ISOC**
    - **Users working with R5.0**
    - **Need to prioritize change requests for System C/O**
    - **Need some time with baseline in I&T before chasing ISOC/MOC requests**
    - **Focus on learning to use FSW in I&T environment**
  - – **FSW System level runtime – test bed & LAT**
    - **Need to get FSW into test environment to assess true maturity**
    - **System C/O FQT**
    - **Continued developer evaluation on test bed**
    - **Significant transition period in LAT operations**

FSW & Dataflow Responsibilities



	Instrument	Virtual Spacecraft		Ground (I&T or ISOC)
From FSW:	Everything (including science data encoders)		LCI/Science data decoder plug-ins	Command & Telemetry Database
From VSC:		Everything	Everything $\overline{\text{FSW}}$	
From I&T:				Everything $\overline{\text{FSW}}$

Dataflow Status

- VPI Dataflows Extant
  - 1553 Traffic
    - I&T have sent commands
    - I&T have read housekeeping
    - I&T have read diagnostics
  - Science Data Interface Traffic
    - Charge injection data sent from LAT (test-bed) to CCSDS dump
      - Verified for structural integrity
- VPI Dataflows To Come
  - Decode science/LCI data (using FSW plug-ins) through VPI to I&T
  - Realtime SDI Interface to Online (Need Huffer/VSC)
- Science Data Encoders/Decoders
  - Data formats defined
    - This is one layer lower than the CCSDS source packets
  - Overall infrastructure working
  - Simple encoders/decoders in test
  - More complex decoders to come (not needed immediately)

FSW Development closure plan via JIRA

- All FSW packages now under FSW CCB
  - All liens have been moved into JIRA
  - Priorities established
  - Time estimates for completion included
  - Target date for completion given priorities
  - Target build to be identified by CCB
- Priorities established by FSW CCB
  - Blocker: Required for next planned build. Other required items are dependent upon its completion.
  - Critical: Required for next planned build.
  - Major: Desired but not required for next planned build
  - Minor: Not required for next build. Work higher priority items first.
  - Trivial: Not yet approved. Deferred for now.

Critical Issues

Key	Components	Summary	Assignee	Status	Description	Pr
FSW-279	LCI FILE	Integrate LCI with FILE	James Swain	In Progress	LCI recovers files from the filesystem that are identified by a 32 bit integer, supplied as part of the calibration	Critical
FSW-250	LATC	LATC does not use the FILE package or the onboard filesystem	James Swain	In Progress	LATC binary files are identified by 32 bit integers. Currently these are treated as filenames in the pwd. They should be treated as file IDs and LATC should be integrated with FILE.	Critical
FSW-277	LCI	Write decode functions for the encoded LCI data	James Swain	In Progress	The QSEC package will contain the public interface between FSW and our clients for calibration event and context data. It will also provide functions to unpack the calibration datagrams. The development process for these functions will involve JJ and me agreeing on the "natural" event format.	Critical
FSW-276	LCI	Define the "public" interface to the LCI context data	James Swain	In Progress	The QSEC package will contain the interface between FSW and our clients for calibration events and context information. The structures holding the context data must be defined. Care is required to get this right first time, since once these structures are released into the wild it will be very difficult to change them (will require negotiation with our clients).	Critical
FSW-252	LATC PIG_DB	Some timing registers handled by PIG_DB should be handled	James Swain	In Progress	The trigger timing registers are not all exposed via LATC so they can be set by the trigger timing team. The	Critical
FSW-281	LPA	Command and control of LPA	Sergio Maldonado	Open		Critical
FSW-274	EFC	EFC Configuration	James J Russell	Open		Critical
FSW-282	LPA	Output event formatting	Sergio Maldonado	Open		Critical
FSW-272	EFC	Additional filters for CNO, alignment ...	James J Russell	Open		Critical
FSW-283	LPA	Configuration of filters	Sergio Maldonado	Open		Critical

Major Issues

FSW-275	EMP	EMP - Make like a filter, output format	Ed Bacho	Open		Major
FSW-286	LTC	Evaluate thermal control algorithm	Daniel L. Wood	Open		Major
FSW-285	LTC	Convert LTC to standard configuration method	Daniel L. Wood	In Progress		Major
FSW-246	PIG	Some fragment of PIG need to migrate to a new package QPIG.	James Swain	Open	Structures required to interpret the datagram written by PIG to the SSR need to be split off into a seperate package, QPIG, to isolate the FSW interface from internal implementation details.	Major
FSW-237	LHK	Add LHK Configuration File Dump Utility	Sergio Maldonado	Open	A dump utiltiy is required to identify the contents of a binary LHK configuration file.	Major

Summary Plan Ahead

- Users (LICOS & FSW Test Team) are making forward progress with FSW Rel 5.0
- Critical FSW priorities well understood…
  - Expect Rel 5.1, 17 Oct with promised System C/O baseline
  - System C/O FQT with Rel 5.1(+) as soon as test scripts complete
  - Key resource is Sergio (double booked LPA & Test lead)
- FSW plan is to fully meet System C/O needs and in the timeframe needed
  - Driving to have FSW available to I&T at earliest need - (8 Nov)
  - Normal Command/Telemetry
  - Calibration
  - Muon data Collect
- FSW to LICOS interface (via VSC) difficult w/o Huffer/Claus
  - JJ/Ric Claus have interim data dump to file/read approach
  - Claus on vacation next two weeks, Jana Thayer standing in
- Key issue is FSW system runtime prior to I&T System C/O
  - Expect some bugs, need to position ourselves to respond
  - Concerned about critical bug fix to support I&T impact on formal FSW FQT at end of year… planning in work