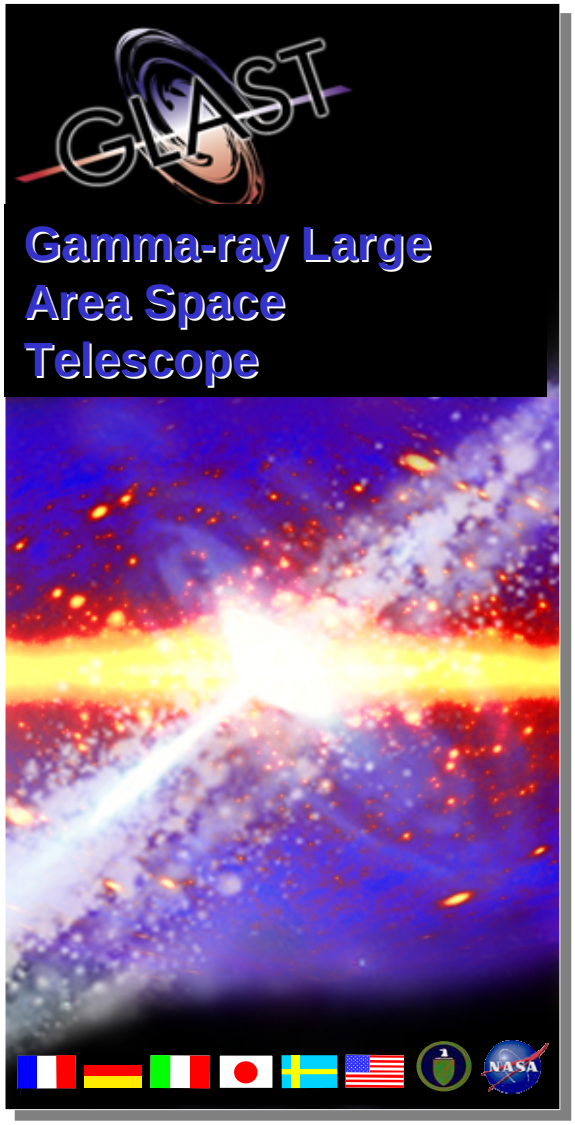

GLAST Large Area Telescope

Instrument Flight Software

Monthly Status Review
August 5, 2004

Jeff Fisher

Stanford Linear Accelerator Center

July activities

- ISIS
  - All ISIS general commands are running
  - The command and telemetry database is being produced
  - Communication between the SC and LAT side is working (both directions) using this database.
  - Intertask Communication package integrated with Housekeeping package

- FES
  - HW is complete
  - FPGA Firmware updated
  - Sending a complete data path from Gleam into LATTE

July activities

- **Primary and Secondary Boot**
  - **Boot Code is functionality complete**
  - **Code is loadable into RAD750 boards**
- **File Management**
  - **Planned approach may have to be abandoned**
  - **New memory management scheme needed**
- **Power Initialization of GASU**
  - **power-up sequencing code was written**
- **LAT Communication Board Driver LAT Communication Board update underway (replaces old previous hardware interface code LCB/LIOX/DEM/DAB)**

July Activities

- LAT Control Board Test
  - Porting/modification of code to reflect new LCBD driver
- LAT Configuration
  - Code written, will need updating to reflect new LCBD driver
- LAT Charge Injection
  - Integrating LEM and LCBD packages
- Housekeeping
  - Updates underway due to new LCBD changes
- Thermal Control
  - Code written (w/o HW)
- LAT Event Manager
  - Consolidating DEM/DAB layers into a single LEM package
  - Completed testing of bit packing routines
  - Updated the command line interface

FSW Test Plan/Procedures

- FSW Test Plan updated
- Task Analysis performed
  - Identified staffing and HW resource requirements
- Staffing plan to meet schedule developed
  - Made offer to test engineer
  - Identified need for an additional test engineer (physics)
    - Recruiting underway

Monthly Demonstration Schedule

- **The demonstration schedule has been reorganized to reflect current realities especially the ISIS schedule.**

- **Jun** **Telemetry**
- **July** **ITC/Housekeeping packages integrated**
- **Aug** **test commands and thermal control**
- **Sept** **Boot centric**
- **Oct** **physics items**
- **Nov** **Ops and comprehensive 1553**
- **Dec** **FU build load/run and diagnostics**

Note: ISIS will have a separate demo

Issues

- **EEPROM on SIB Board Reliability**
  - **- Mitigate risk by FSW implementing memory management**
- **SUROM is also EEPROM**
  - **– Risk mitigation analysis underway**
    - **Hardware options**
    - **Software options (Boot code internal checksums)**
  - **– All options have schedule impact**

Tracking Progress on Demonstrations

- In the following table, requirements are rolled up into high-level functional categories.
  - A complete requirements to demonstrations matrix is posted on the FSW Monthly Demonstrations Web page: http://www.slac.stanford.edu/exp/glast/flight/web/FSW_demos.shtml

General Requirement Category	July Multi tower and ITC	Aug catch up and thermal	Sept BOOT and full ITC	Oct Physics	Nov OPS Full 1553	Dec FU build, diagnostics	Jan	Notes
5.2.1: LAT Internal Hardware Interfaces [7]		40%	60%	75%	85%			
5.2.2: Hardware Interfaces with Spacecraft [6]	50%				100%			
5.2.3: Hardware Interfaces with the GBM [1]	100%							
5.3.1: Boot Process [15]	50%		90%		100%			
5.3.2: Watchdog [1]	10%					100%		

Tracking Progress on Demonstrations (cont'd)

General Requirement Category	July Multi tower and ITC	Aug catch up and thermal	Sept BOOT and full ITC	Oct Physics	Nov OPS Full 1553	Dec FU build, diagnostics	Jan	Notes
5.3.3: Command Processing [10]			80%		100%			
5.3.4: Time Services [5]	20%		100%					
5.3.5: Telemetry [8]	15%				100%			
5.3.6: Deadtime Management [3]				100%				
5.3.7: File and Memory Management [20]	10%		100%					
5.3.8: Event Monitoring and Delivery [10]					10%	100%		
5.3.9: Event Filtering [3]				100%				
5.3.10: GRB Detection [6]					100%			

Tracking Progress on Demonstrations (cont'd)

General Requirement Category	July Multi tower and ITC	Aug catch up and thermal	Sept BOOT and full ITC	Oct Physics	Nov OPS Full 1553	Dec FU build, diagnostics	Jan	Notes
5.3.11: GRB Response [11]	10%			40%	90%			
5.3.12: Charge Injection Calibration [19]					100%			
5.3.13: Diagnostics [35]					5%	100%		
5.3.14: Ancillary Data from SC (at 1 Hz) [5]	100%							
5.3.15: Mode Control [1]				100%				
5.3.16: Safety [4]				100%				

Tracking Progress on Demonstrations (cont'd)

General Requirement Category	July Multi tower and ITC	Aug catch up and thermal	Sept BOOT and full ITC	Oct Physics	Nov OPS Full 1553	Dec FU build, diagnostics	Jan	Notes
5.3.17: Configuration [3]	100%							
5.3.18: SAA Transit [3]								
5.3.19: Thermal Control System [17]		100%						
5.4.1: System of Units [1]								
5.4.2: Coordinate Systems [3]								
5.4.3: Resource Margin [1]								

Next 3 Month's activities:

- ISIS Build and Test scripts & TRR & FQT & DELIVERY
- Understand Mode Control schedule
- Development of Flight Unit test scripts
- Development of Flight Unit modules
- Flight Unit Peer Review – September 16
- Delivery of versions to support I&T
- Resolve EEPROM issue