GLAST Large Area Telescope:

Configuration Processing Design

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Definitions

- **What defines the LAT configuration?**
  - **Hardware redundancy selection**
    - **E.g. EPU 2 and 3 active**
  - **Hardware register settings**
    - **E.g. gains, masks, timing, parity settings, timeouts, thresholds, low rate science settings …**
  - **Software settings**
    - **Event filter settings**
    - **LAT Housekeeping Telemetry**
    - **Thermal control**
    - **Ancillary settings**
      - **Charge injection calibration settings**
      - **Diagnostic frameworks settings**
    - **Others …**

Design Strategy

- Break up list of fields into subsets that are related
  - Logically grouped
  - Independent
  - Maintain charge injection or diagnostic testing separately, since they do not directly affect science collection
- Define group or tool responsible for setting the fields in each subset
- Define the dynamic nature of each field
  - Static fields initialized by PIG
  - Non static fields set by LATc (or similar) generated binary files
- For non-static fields determine the process used to set the field

Proposed Parameter Subsets

- Subsystem specific fields, set by test and analysis provided by subsystems (e.g. gain settings)
  - ACD
  - CAL
  - Tracker
- Config – Settings driven by hardware configuration
  - Command fabric related parameters
- Data Flow – Timeouts, parities and buffer depths
- Diagnostic – Low Rate Science counter definitions
- Timing – TACK delay, TREQ delay, window width and other LAT wide timing related fields
- ROI – Selects ROI modes and sets parameters per tile
- Global – Includes trigger engine parameters and map, likely to include event filter parameters
- Others may be added based on the completed parameter list

Actions/Issues

- Define complete list of parameters to manage (SE with S/W support)
  - H/W register list compiled, mapped to LATc and PIG
    - Need to update LATc and PIG coverage and determine method for setting fields not defined by LATc or PIG
      - Examples include Low Rate Science settings, high voltage bias
  - S/W list available ???
- Break up list into manageable subsets (SE lead)
  - Draft of H/W subsets completed (see next slide), need support for review
- Determine process for initializing and updating each subset (SE lead)
  - Factor in transition from LATTE based schema
  - Tracker and Calorimeter calibration flow drafted
- Data base design (ISOC lead)
- Data base implementation (ISOC lead)
- Data base population (SE lead with I&T support)
- Transition of FSW provided conversion tools to ISOC (ISOC lead)