

Joint meeting of Electronics & DAQ and SRO WGs

- News / Schedule
 - Last week SRO XI: overview (me), Timing (Jo), MAPS (Jo), SRO (Markus), ASIC (Fernando), HGCROC (Norbert)
 - 12/14 – USC ASIC testing report
 - 12/21 – RDO protocol & timing update?
 - 12/28 – Holidays (No WG meeting)?
 - 1/4 – ERD109 monthly updates from ASIC developers start
 - 1/9-1/13 – Collaboration Meeting (1/10 SRO & Electronics & DAQ, 1/12 DAQ report)
- Questions for detector groups
 - Do you have detector/channel addressing schemes? (Sector/row/channel etc...)
 - If so, document & share!
 - Slow control parameters to control and monitor
 - For SRO/Software --- DB choice?
 - relational / record based.
 - Which DB?
- Other announcements?

Agenda

Short introduction slides followed by discussion with the idea of more firmly defined outcomes on the time scale of the collaboration meeting workfest

- I. Time Frames length & content (me)
- II. Calibrations and Run Structure (Marco)
- III. Echelon 0 computing (Jin)

Time Frames Length and Content (1)

I. I think there is already a lot of consensus:

- Time frame length $\sim 1\text{ms}$ (up to $\sim 10\text{MB}$ output data size)
- Time frame is basis for gathering / routing / tracking data within DAQ defined by GTU protocol
- Time frame's to be gathered by DAQ into coherent packets containing info from all detectors
- Data volume to be reduced from $\sim 2\text{Tb/s}$ to $\sim 0.1\text{Tb/s}$
 - Implies need for different types of data banks corresponding to different levels of data reduction, with unreduced data read out with lower frequency
- At least some slow controls, conditions, scalers, info to be included
 - Again implying data bank structure

II. Also open &/or undiscussed ideas:

- Exact length
 - Fixed: 2^{16} BX (0.665 ms), but not multiple of 1160
 - Fixed: 64960 BX (0.655 ms), 16 bits, multiple of 1160
 - Configurable
 - Variable start, constant size, according to protocol (e.g. flow control operating at time frame level implying potential dead times, with next time frame starting when live)

Time Frames Length and Content (2)

- Requirements for presentation to SRO
 - Time frames ordered within files?
 - Time frames placed in files without gaps?
- Does all information follow time frame structure?
 - Scalers (continuously running portions of the DAQ)
 - Conditions data
- Relationship with Reconstruction
 - Is the DAQ time frame size appropriate for offline streaming?
 - Vectorization of tracking?
 - Any need for, or difficulty with repackaging time frames for offline use?

III. Immediate needs for time frame vs eventual DAQ data format

- For TDR will need time frame based data with noise / beam backgrounds included for event selection studies... will not be eventual data format used by ePIC DAQ.
- Expect to use Kolja's mixer technology for this? But details.
 - Is infrastructure for generating everything in place?
 - Do we know what type of data and how much is needed?
 - What kind of studies are needed, and is the infrastructure in place for the studies?