WP9.6/8.6.2 Summary

Common DAQ in AIDA

Things to Do….

- Two deliverables:
  - Common DAQ specification
  - Report at end of project
  - Can provide what we promised. Would also like to do something useful….
- Common DAQ specification needed now (before end of month)
  - As contract obligation
  - To give details needed for any integration.

What to Integrate

- AIDA beam telescope with beam-test users
  - Use EUDAQ, enhanced to allow one-trigger-per-particle , needed by LHC detectors

- SiTra with TLU
  - Needed for event synchronization
  - Done

- SiTra with EUDAQ
  - Will be done (estimated 1 – 4 staff-months)

What to Integrate

- TPC with TLU
  - Allows use with silicon tracking device
  - Not well advanced.
- Timepix (e.g. Clicpix group)
- Calice with TLU
  - Synchronize clock and/or triggers
- Calice and tracking common data taking
  - Add information to event data structure to allow data from Calice with tracking devices to be correlated.
  - Event reconstruction not trivial
  - Online monitoring even more challenging (aim for near-online ?)

Common DAQ Hardware

- Upgraded Trigger/Timing Logic Unit (TLU)
  - See earlier talks
  - Allows higher trigger rate, useful for LHC detectors
  - Prototype exists
  - Firmware (A. Dosil, USC) and software (F. Crescioli, LPNHE) being written

Issues

- We have an solution for some technical issues, and staff effort
  - Definition of hardware synchronization signals complete. (Existing EUDET mode, with addition of high rate clock-synchronous mode)
  - Integration of SiTra
- We have conceptual solutions for some issues but staff-effort unclear
  - Data structures for combining Calice and tracker data
  - Event builder (DataCollector) that can cope with one-trigger-per-particle
- Some issues have no clear "road map"
  - E.g. monitoring

Conclusion

- Common DAQ worth pursuing

- Due to dispersed nature of AIDA will not be able to reach total consensus

- Publishing common DAQ specification in next few weeks.

- Biggest problems are lack of effort rather than technical.