Common DAQ in AIDA

.. An introduction

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Outline

- Why?
  - Why do we need a common DAQ
  - Why do we need to decide now?
- What?
  - What can (should?) we integrate with what?
- How?
  - Hardware synchronization
  - Software

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Why?

- Be able to operate different detector systems together.
- … perhaps even share DAQ ideas/approaches.
- But – given limited effort available, don't attempt anything that isn't useful.
- Why now? Deliverable D8.2 "Publication of specification documents for the DAQ and for the central documentation facilities" already delayed.

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What?

- Some integration has already happened in framework of EUDAQ
  - EUDET Beam-telescope and “Devices Under Test” (beam-test users)
  - ILC SiTra
  - ILC TPC
- Useful to integrate CALICE with tracking.
- N.B. Some groups unlikely to participate in common DAQ, e.g. Neutrino (common beam test unlikely), LHCb-Timepix-telescope (own DAQ)

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How?

- Tracking detectors will continue to use EUDAQ
- For CALICE
  - synchronize at hardware level (specification almost final)
  - Linking run-control between CALICE-xDAQ system and EUDAQ looks possible
  - Integrating data streams and event building looks more challenging. Can write separate files, but how to monitor?

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Conclusions

- AIDA Common DAQ is challenging, not so much technically but…
  - Resource constraints
  - Many different groups, many different DAQ systems.
- → Need to keep system as simple as possible.
- Define hardware synchronization signals.Keep EUDAQ for tracking devices. Figure out how to integrate with CALICE.
- We have to define approach now. Both to give people a standard to design against and because it is a “Deliverable”

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