EUDET JRA1 Meeting
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DAQ Status

Emlyn Corrin

DPNC Geneva

Outline

- Hardware setup
- DAQ overview
- Software sources
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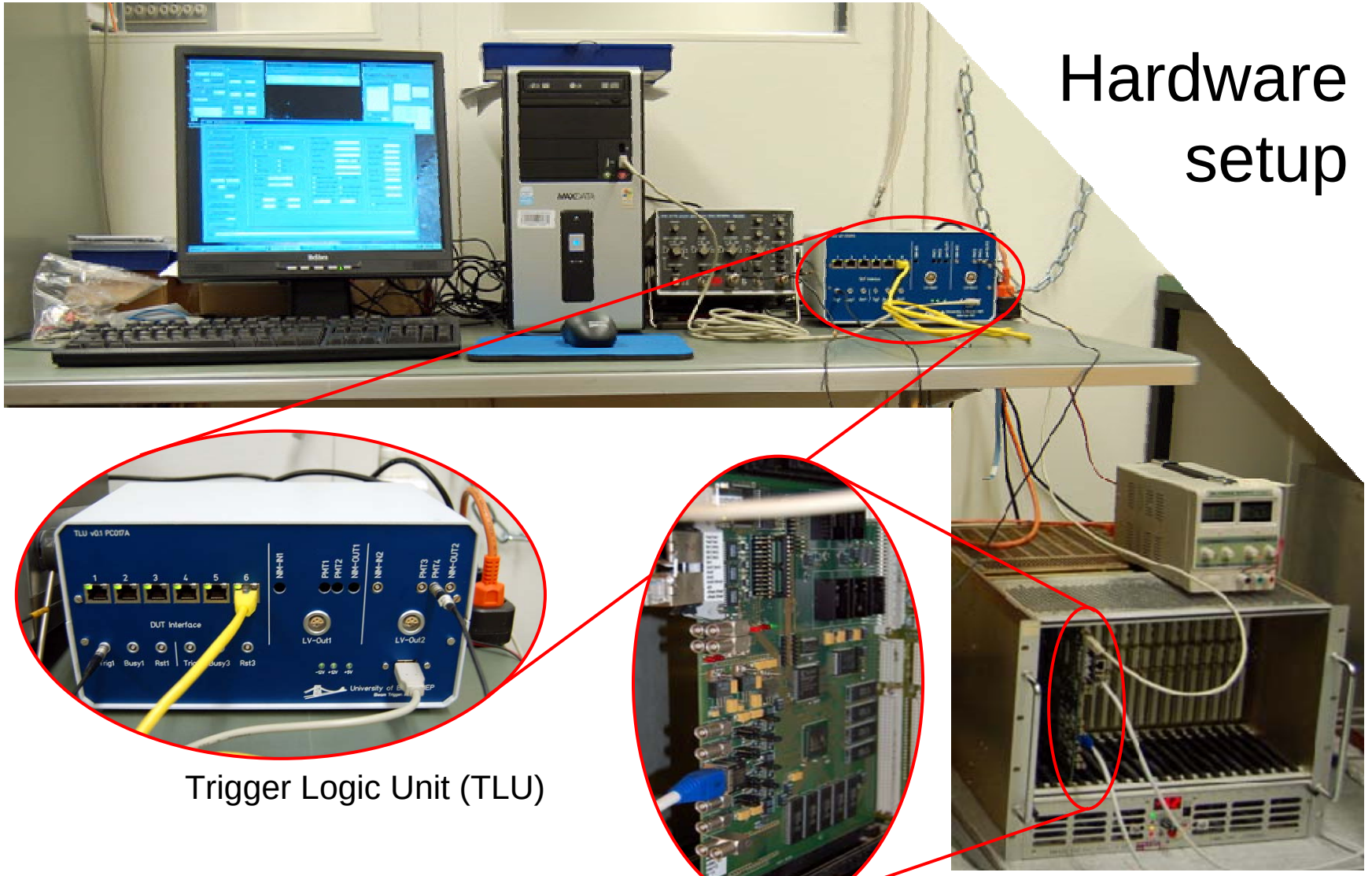
  - Strasbourg
  - Bristol
- Preliminary Results
- Root script
- Next steps
- Summary

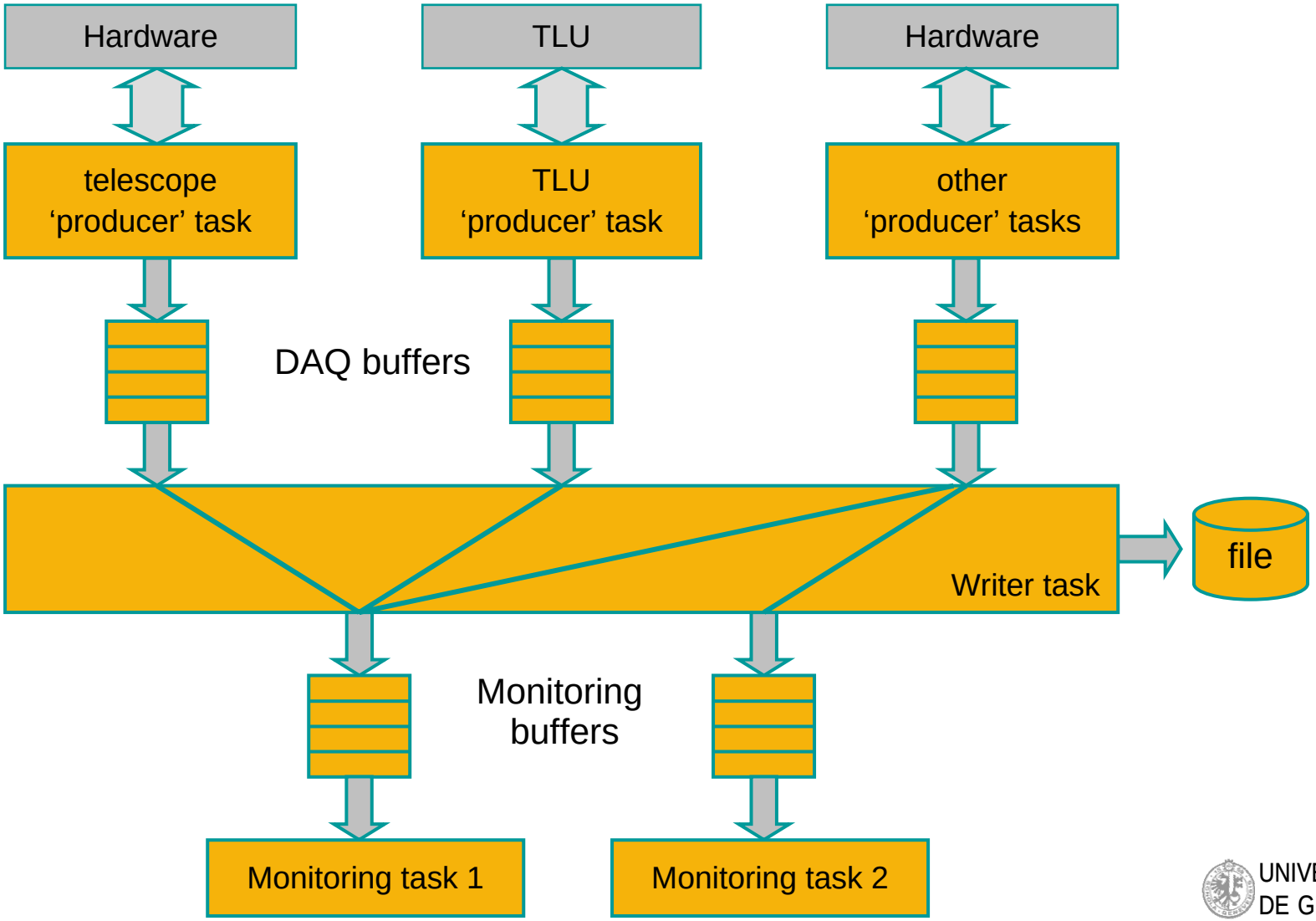
Hardware setup



Trigger Logic Unit (TLU)

Strasbourg Board

DAQ overview



Software sources

Bonn code:

- SharedBuffer, Event
- BufferMonitor
- DEPFET_DummyProducer
- FileWriter

Strasbourg code:

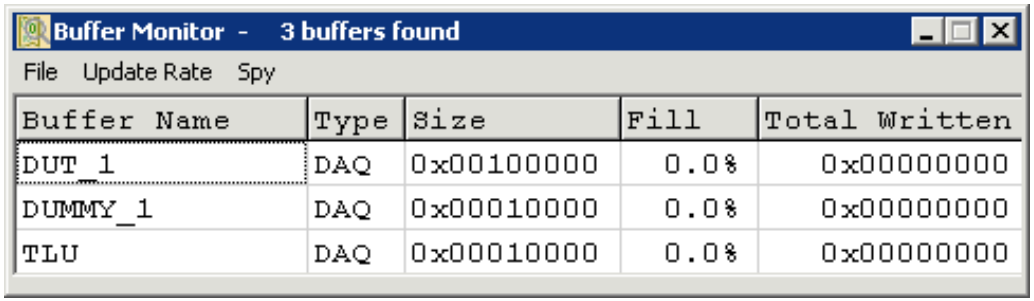
- USB Imager demo application

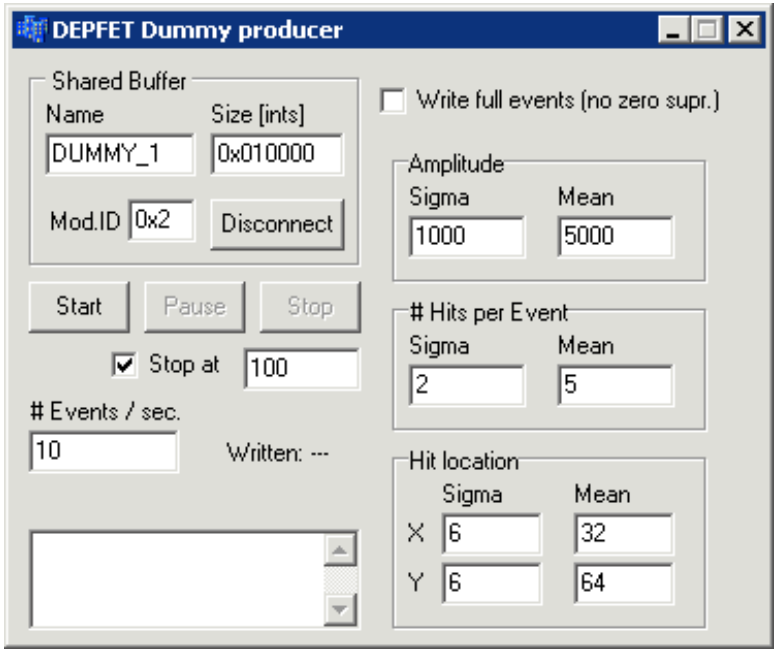
Bristol code:

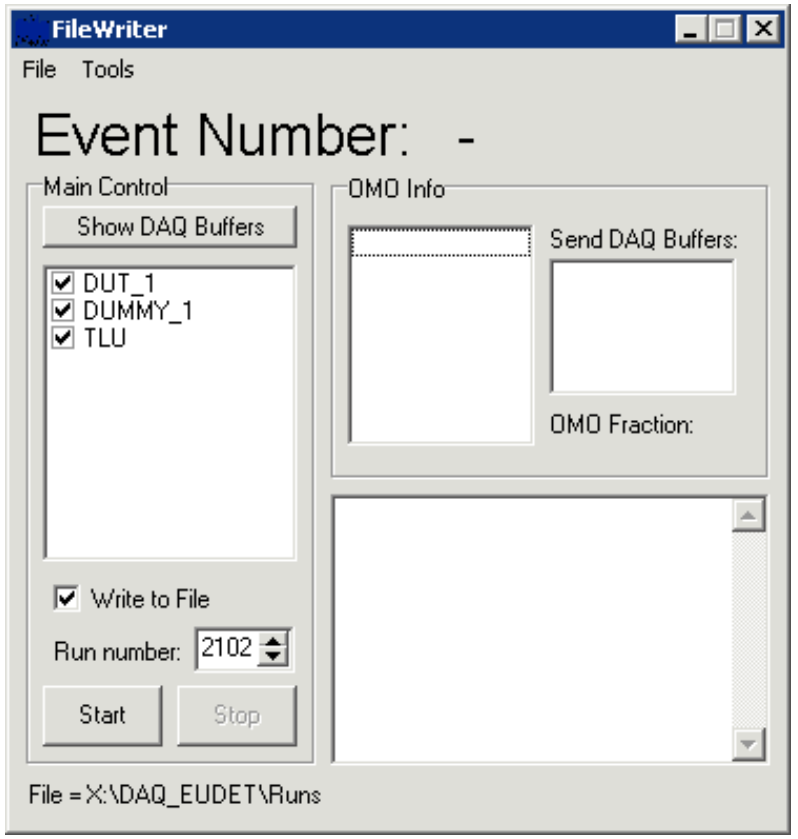
- TLU library
- Perl script

Bonn code

- Generalized DEPFET_Event into DUT_Event for any pixel-like data.
- Added TLU_Event containing just a timestamp.

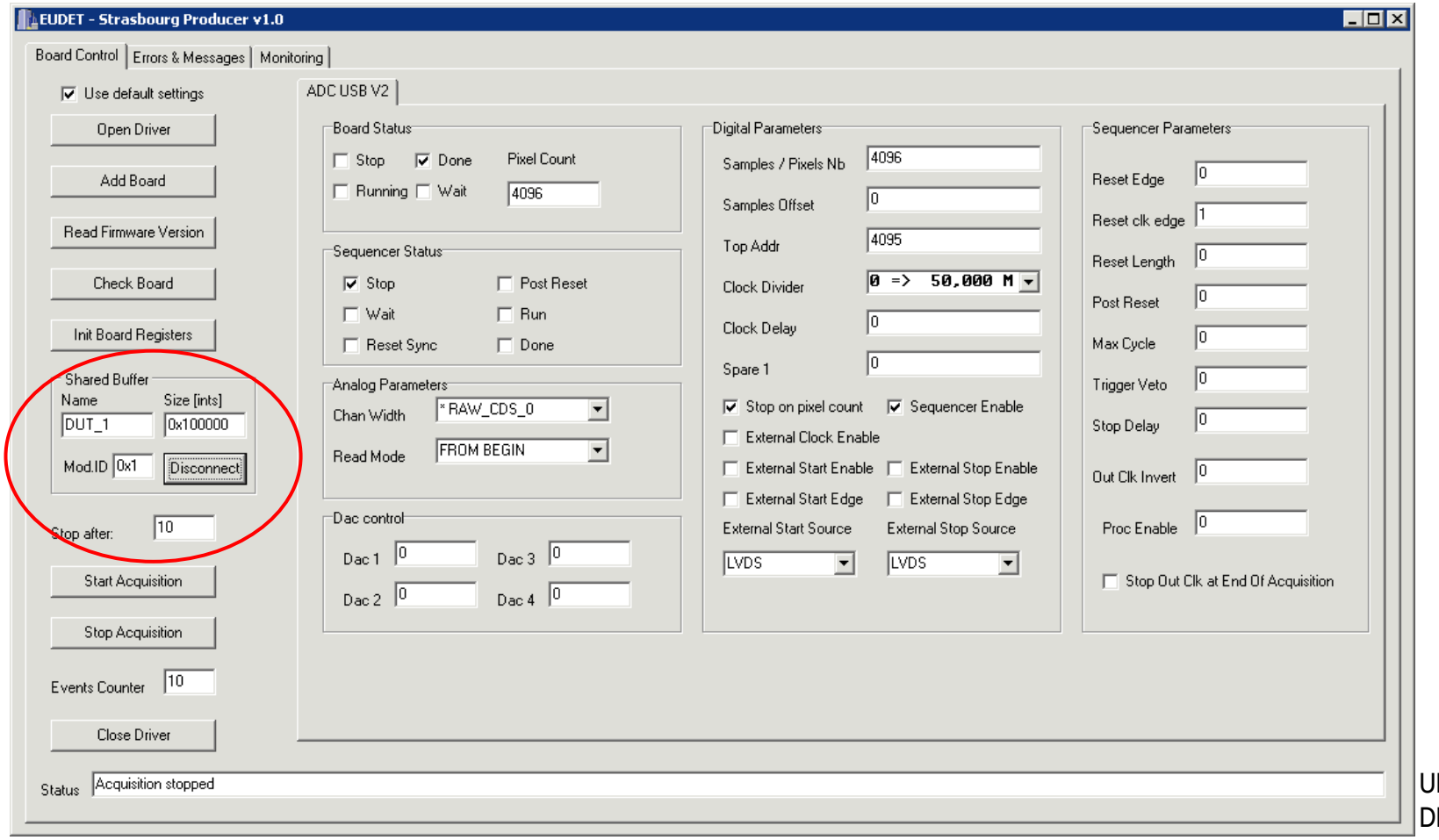






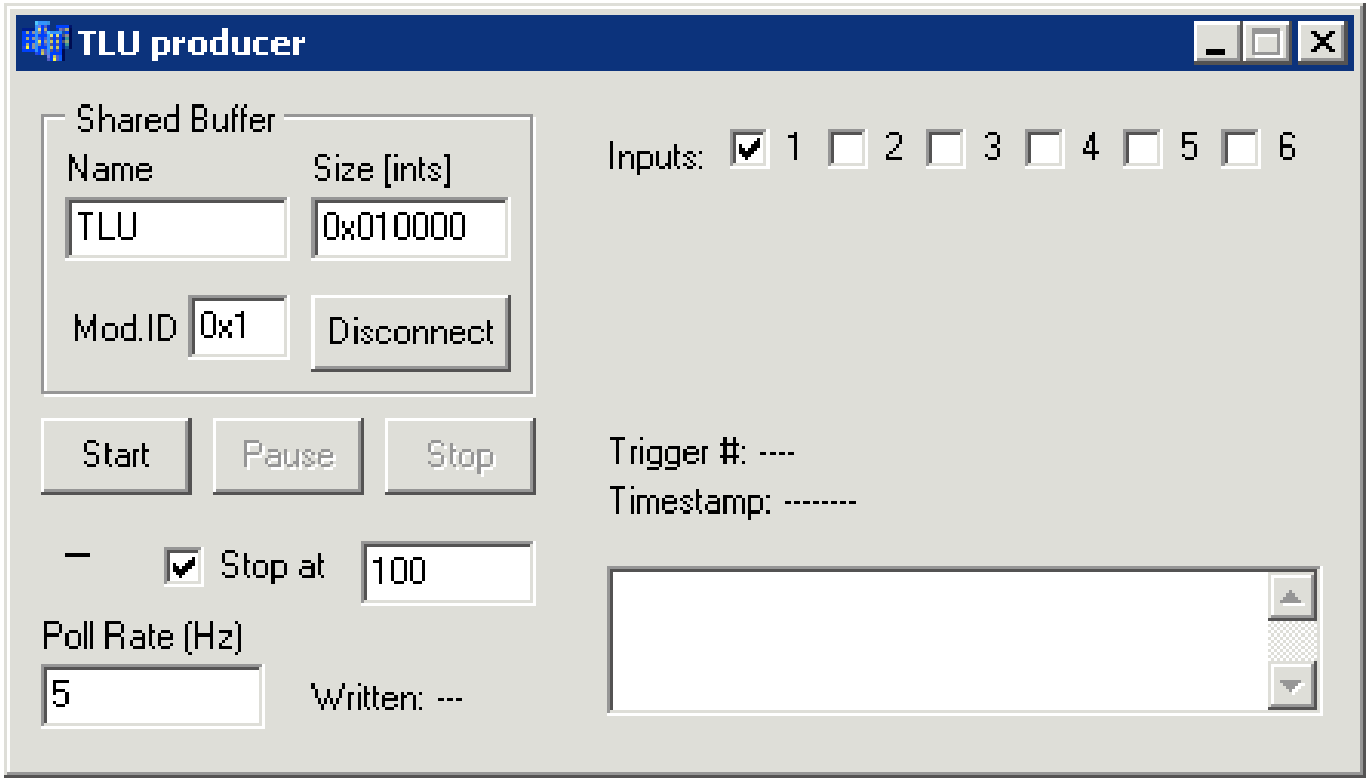
Strasbourg code

- Added DUT_Event and SharedBuffer code to USB Imager demo.
- GUI slightly modified:



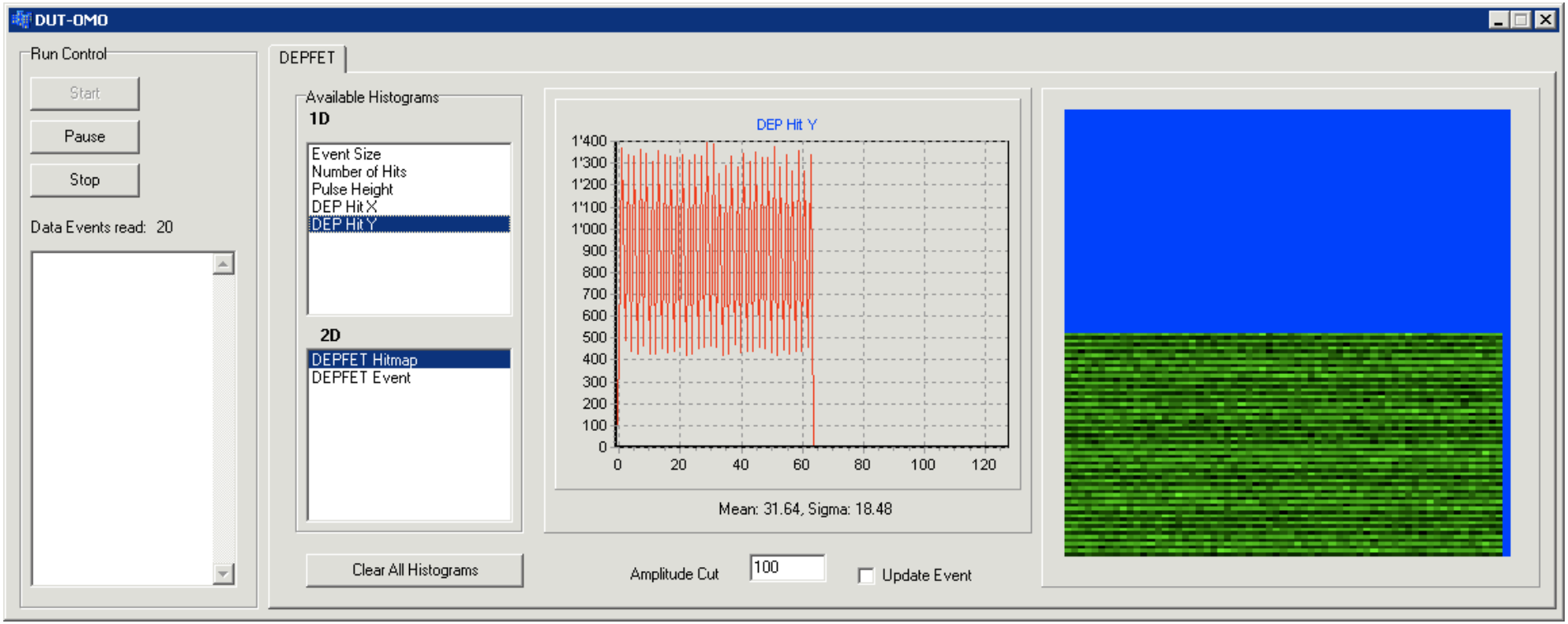
Bristol code

- Converted static library to DLL so it can work with Borland compiler.
- Rewrote Perl script as C++ TLUController class.
- Combined this with TLU_Event and DEPFET_DummyProducer to make TLUProducer:



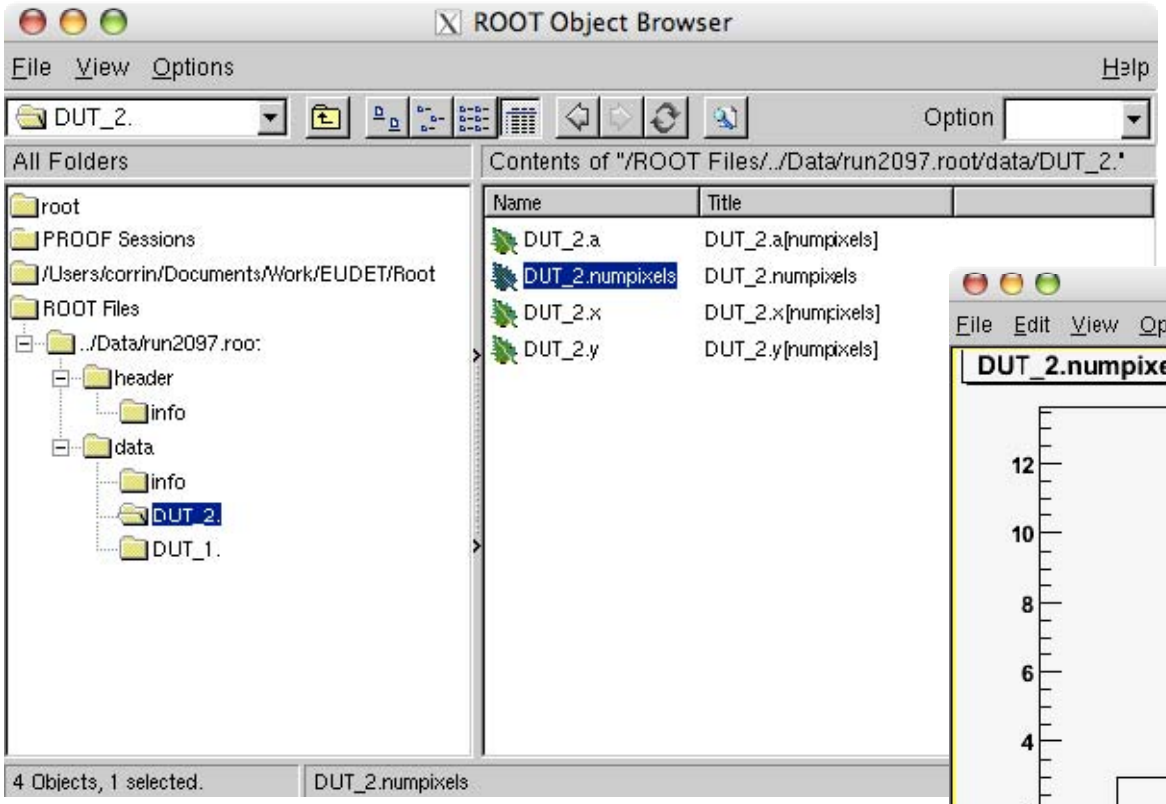
Preliminary Results

- We can send the Strasbourg data to Bonn's DEPFET monitor, but:
  - Detector shapes do not match
  - No detector connected, so we only see ADC noise

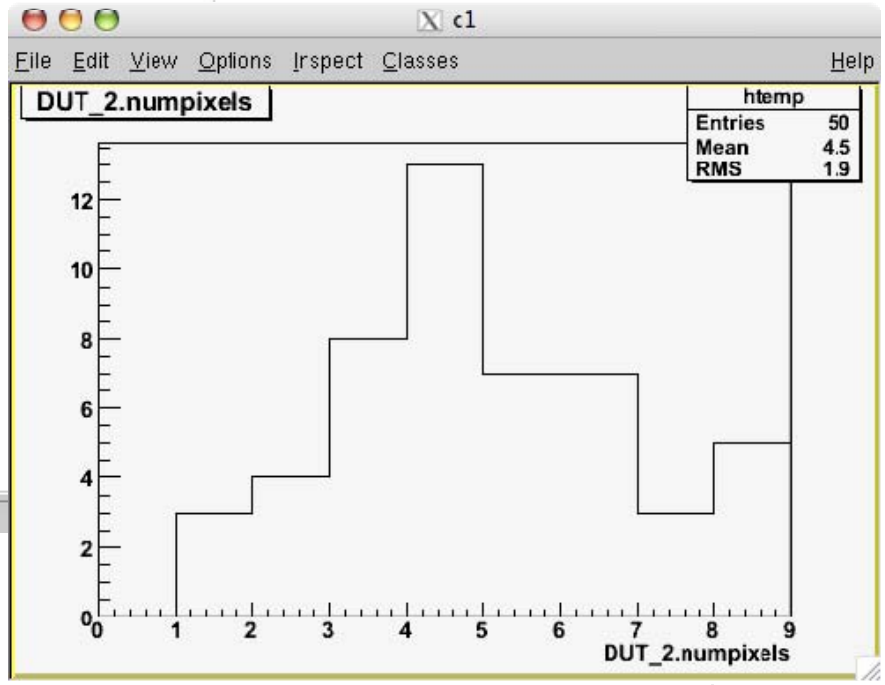


Root

Created script to convert binary files produced by FileWriter into Root files.



Still need to agree on the precise data format.



Next steps

Remaining:

- Send more realistic data, either:
  - get a new board with a detector,
  - or just send test pulses injected externally.
- Trigger the Strasbourg board with the TLU
  - requires firmware update for Strasbourg board.

Then: Version 2 DAQ

- Use ideas from current version, but rewrite code cleanly.
- Use networkable inter-process communication (TCP/IP, SOAP, I2O) so DAQ can be distributed over several computers.
- Write Hit-finder and Track-finder.
- Portable between Windows / Mac OS X / Linux if possible:
  - as much as possible Standard C++
  - portable GUI (Qt, WxWidgets, FLTK)

Summary

- Can have several producers (Dummy, Strasbourg, TLU) all running together.
- Data from all of them combined by FileWriter and written to a binary file.
- This can then be converted to a Root file for easier analysis.
- All working properly, but should be tested with more realistic data.
- Should start work on Version 2 DAQ soon.