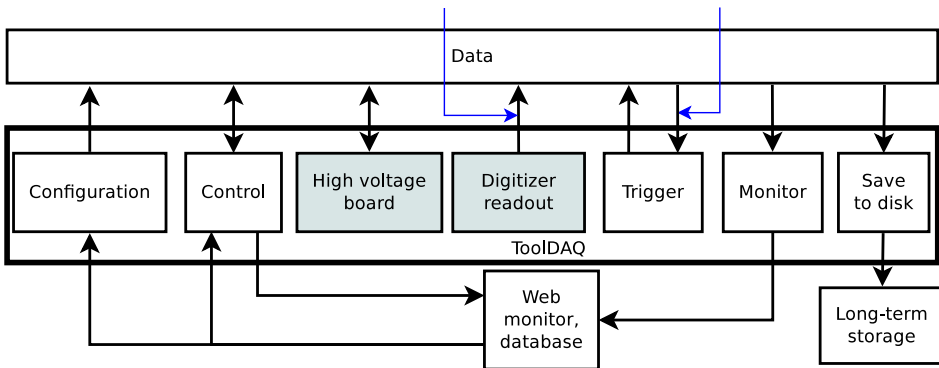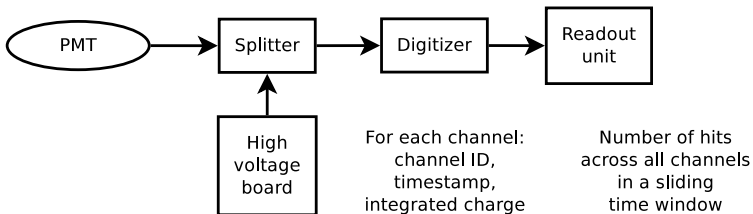# VME readout

Evgenii Zhemchugov

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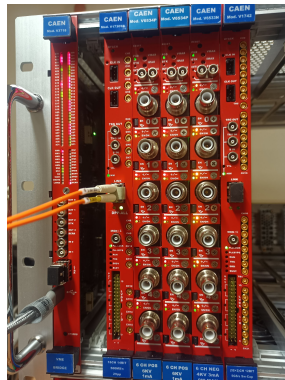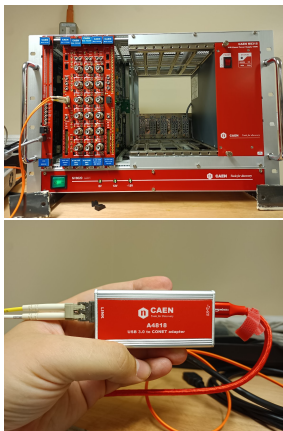
Research fellow at
University of Warwick
Coventry, United Kingdom

BUTTON collaboration meeting
Boulby, United Kingdom,
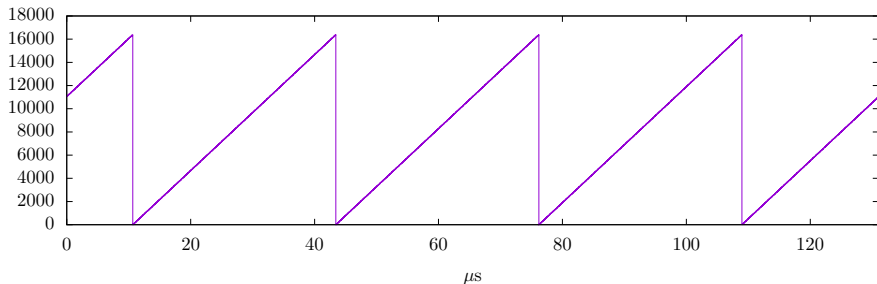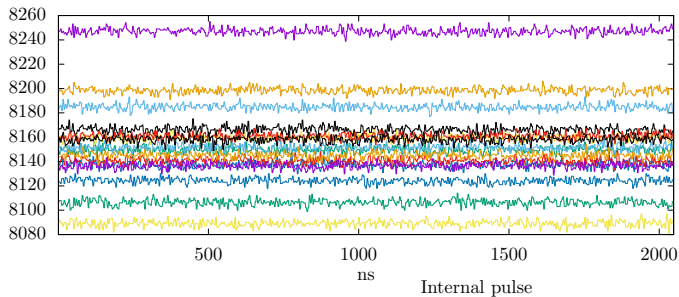June 7–9, 2023

DAQ architecture

CAEN boards

V1730 (digitizer): 16 channels, $500 \cdot 10^6$ samples/s (2 ns/sample), 14 bits/sample.
V6534 (high voltage board): 6 channels, up to 6 kV, up to 1 mA, up to 9 W.
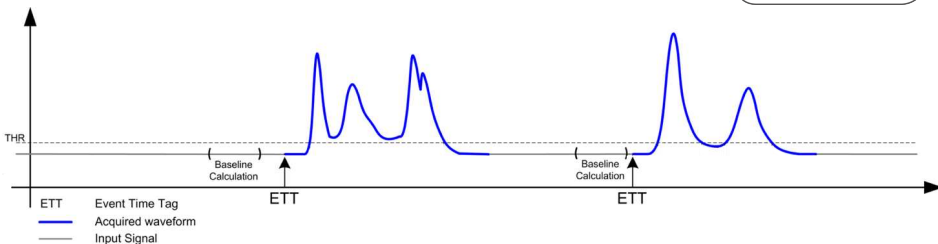
Sample event readout

Random noise

Internal pulse

DPP-PSD vs DPP-DAW

DPP   Digital Pulse Processing (firmware)
PSD   Pulse Shape Discrimination
DAW   Dynamic Acquisition Window
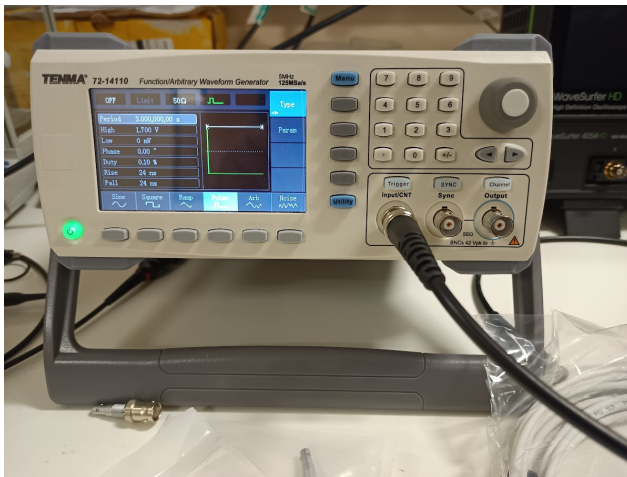
D-WAVE (basic firmware)	produces waveforms
DPP-PSD	produces waveforms, provides integrated charge, fixed acquisition window(?)
DPP-DAW	produces waveforms, dynamic acquisition window

Next steps

- ▶ Try plugging in a waveform generator and record some pulses.
- ▶ Test what happens when an event occurs at the end of DPP-PSD acquisition window.
- ▶ Use a real photomultiplier for readout.

Conclusions

▶ DAQ architecture is being designed.
▶ Tools working with CAEN digitizer V1730 and high-voltage board V6534 are begin developed.
▶ Testing is needed to pick the proper firmware for the digitizer.