



# Data Acquisition

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# TPC DAQ Development

- TPC channel baseline configurable
- PCIe link configurable
- Automatically identify the number of the readout boards
  - Also allows to manually specify the number of the readout boards
- Data corruption issue resolved
  - “Data ready” code corrected
- Took a test run (single TPC crate) over 18 hours
  - Caveat: data quality to be confirmed

# Online Monitor Integration

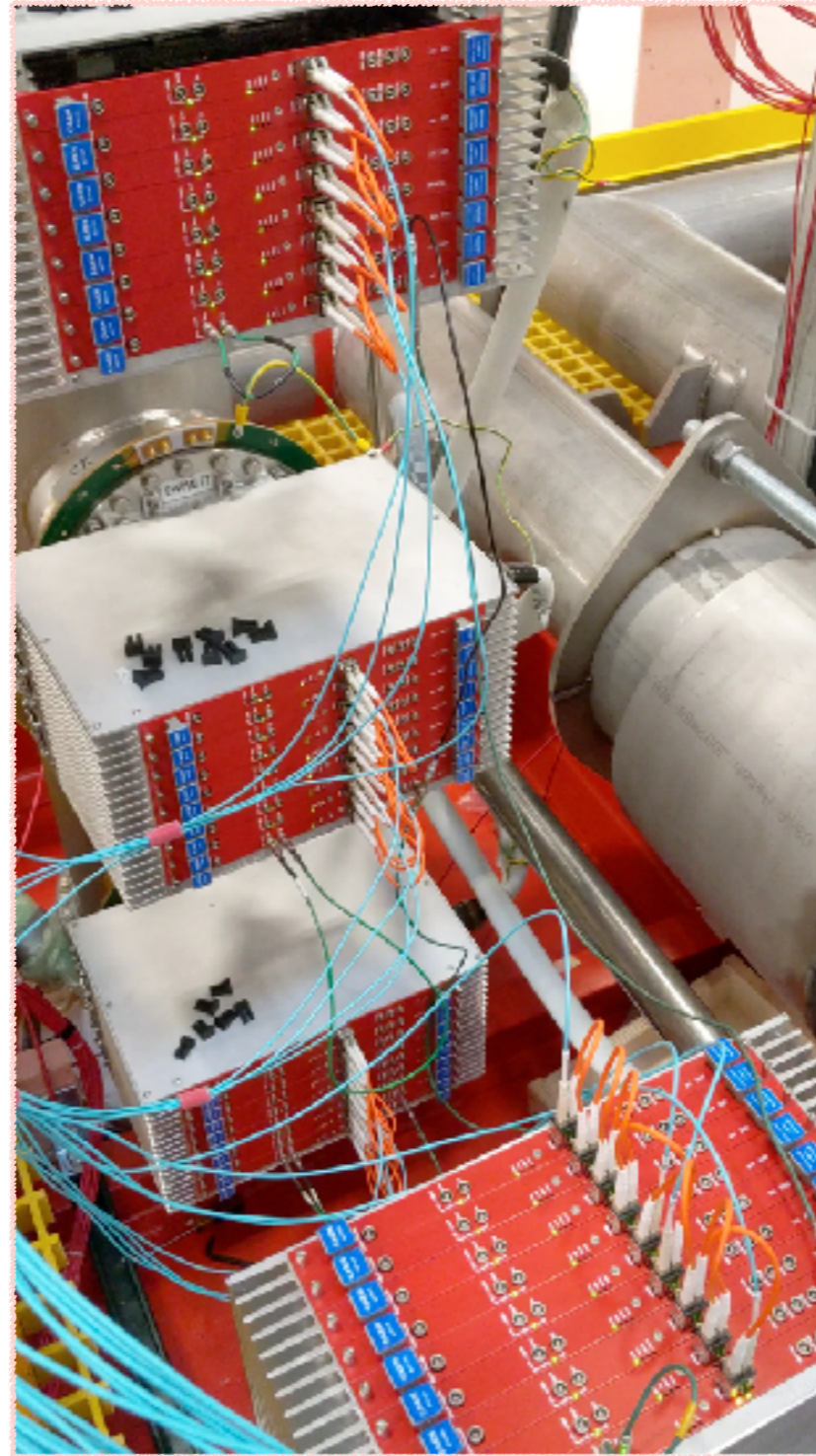
- Integrate with the [DAQ interface tool](#) and the [online monitor](#) with a single TPC crate
  - Metrics of baseline, noise, occupancy, coherent noise, etc.
  - View the waveforms upon request
  - Instruction at [SBN DAQ wiki](#)
  - Used for the noise measurement/test in July
- Expect it straightforward to scale up
- Online monitoring metrics being developed under the scope of the data quality monitor group

# Multiple TPC Crate Readout

- Four TPC crates
- Production fibers used
- Trigger from an external pulser
- Trigger distribution daisy chained for the four crates
- One fragment, two PCIe links per crate (configurable)
- Two old A3818 used
- Icarus-vst01 test server
- Functional at 2Hz!



# Multiple TPC Crate Readout



# Multi-TPC+PMT Readout

- Servers
  - Icarus-vst01: four TPC board readers, event builder, data logger, dispatcher
  - Icarus-vst02: one PMT board reader
- Private network communication
- Trigger distribution
  - Fan out from a single pulser
  - Require strong enough (TTL like) signals
- Functional at 1 Hz!

# Summary and Plan

- Successfully reading out 4 TPC+1 PMT crates at 1 Hz!
- Plans
  - Verify the [synchronization](#)
  - Test [the production A3818](#): not working with more than 2 PCIe links
  - Integrate [run configuration database](#)
  - Set up remote pulser configuration interface for the DAQ tests during the LAr filling period
  - Display monitoring metrics of DAQ performance
  - Test DAQ on production servers

# Development in Parallel

- Run control GUI
- Databases for DAQ: e.g. event-by-event database
- Online monitoring metrics: DQM group
- Data transferring and management
- CRT DAQ



# Collaborators on DAQ

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Scott Reid, Farhan Ahmed, Bonnie King, Pat  
Riehecky, Gianluca Petrillo, ... And sorry if I  
missed your name...