

# Update on experimental setups

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DUNE Upstream DAQ Meeting  
12th October 2021



# Timelines

This talk is the continuation of the presented ColdBox setups from yesterday's DAQ meeting.

Important timelines and details were discussed there.

<https://indico.fnal.gov/event/51371/>

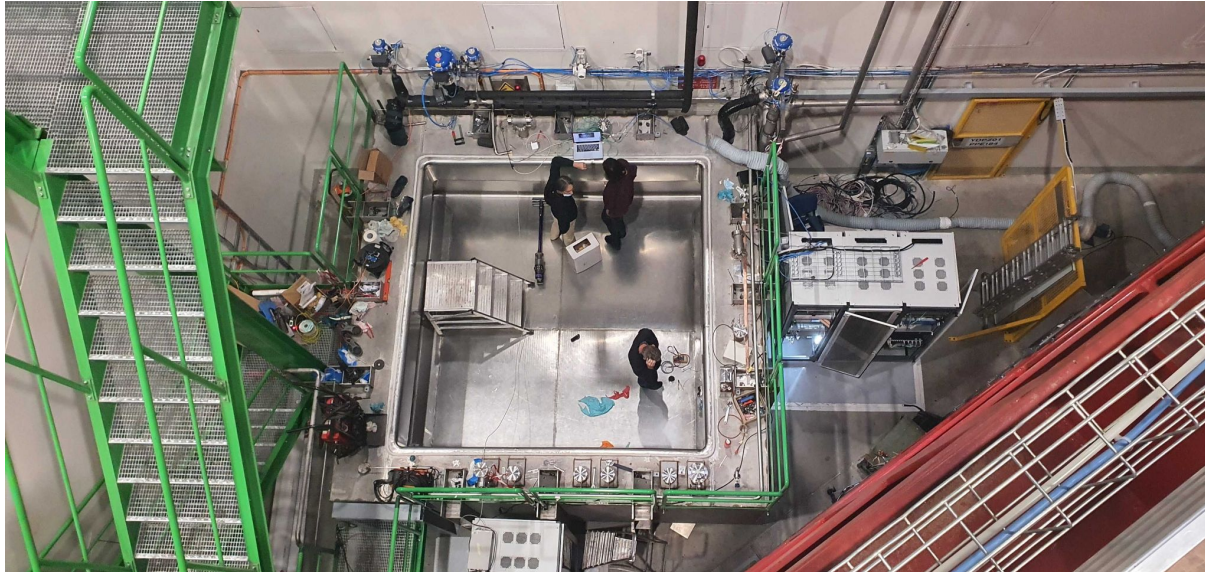
# VD ColdBox

- ColdBox = For testing the detector technology and its required subcomponents
- Needs full integration with detector subsystems
  - Facility, DCS, front-end electronics, DAQ
  - Frontend: 4 x WIB-1

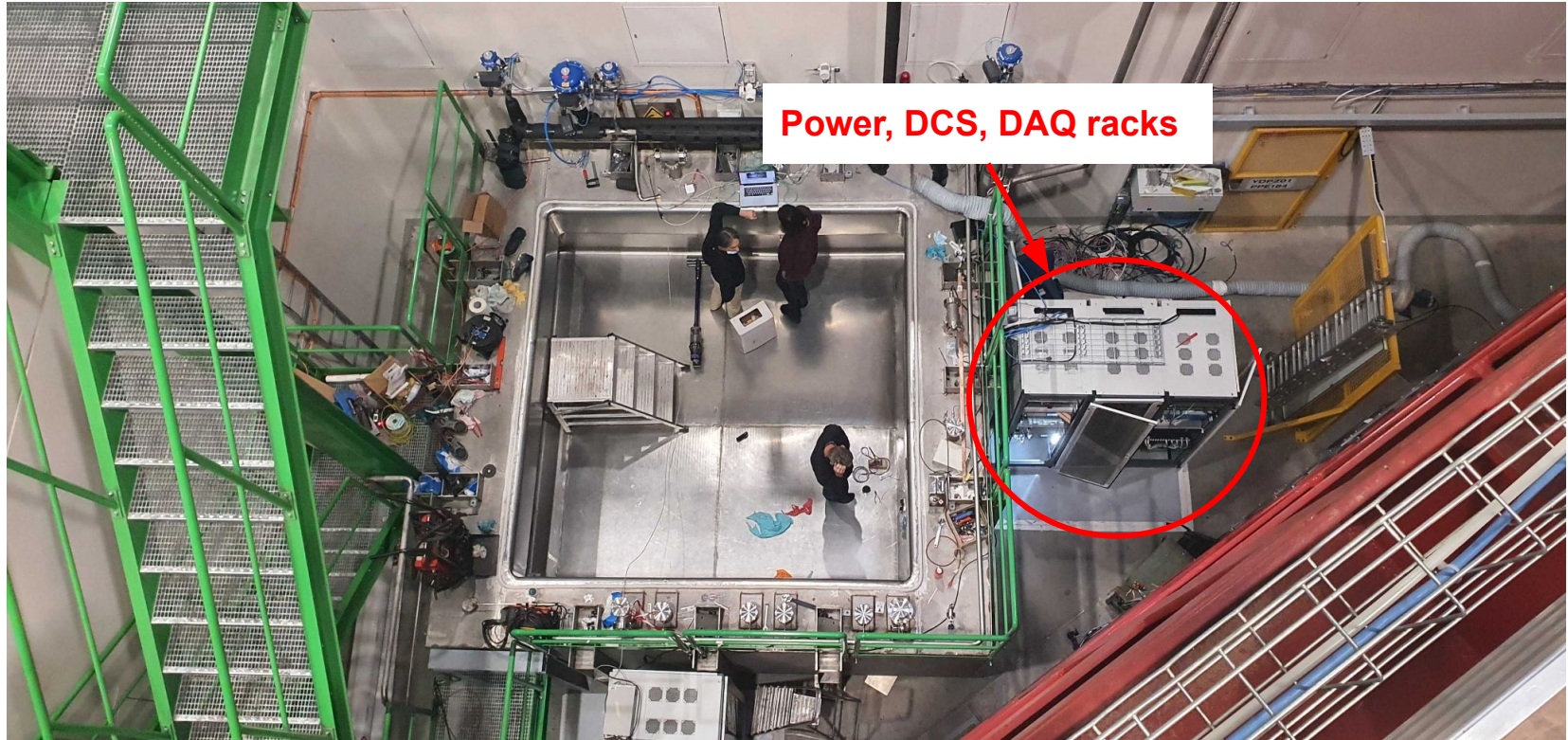


# Location

- Located at the Neutrino Platform (NP) at CERN
- Right behind the NP02 cryostat in the trenches
- Unfortunately, it's quite far from the DAQ barrack



# Location



# DAQ rack



Optical fiber pulled from CB to DAQ barrack for connectivity to NP04 network.



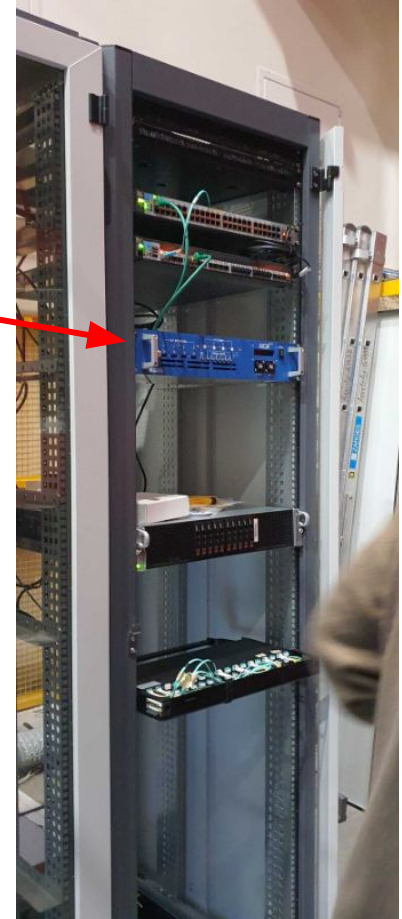
# Network

- Network switches
  - 1Gb and 10Gb switches installed
  - 10Gb connects to NP04 network
  - 1Gb connects to 10Gb switch



# Timing

- TLU moved from NP04
- Firmware design called BOREAS
  - Runs at 50 MHz for WIB-1 FE
  - Timing master + HSI combined
  - Can be used for real hardware pulse or HSI in emulation mode





# Readout

- np04-srv-026 moved from NP04
- I/O card: FELIX BNL-712
  - Firmware: dune-v1
    - First in-house FELIX build on top of ATLAS phase2 fw
    - Ex. TPG
  - Software: dunedaq-v2.8 and v2.8.1
    - Included software TPG capability
    - Upcoming consolidation release with improvements on raw recording and debug streaming domain



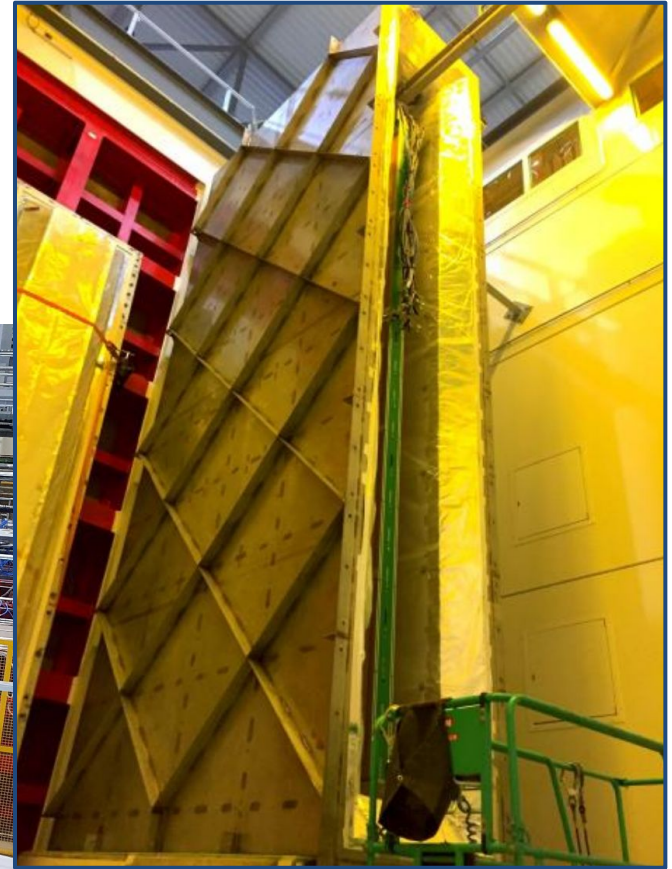
# Patch panel

- Moved from NP04
- For FE (WIB) to FELIX connectivity
- WIBs are not yet present, and therefore not connected to the readout yet.



# HD ColdBox

- Location: front of NP04
- Frontend: 5 WIBs = 20 FEMBs



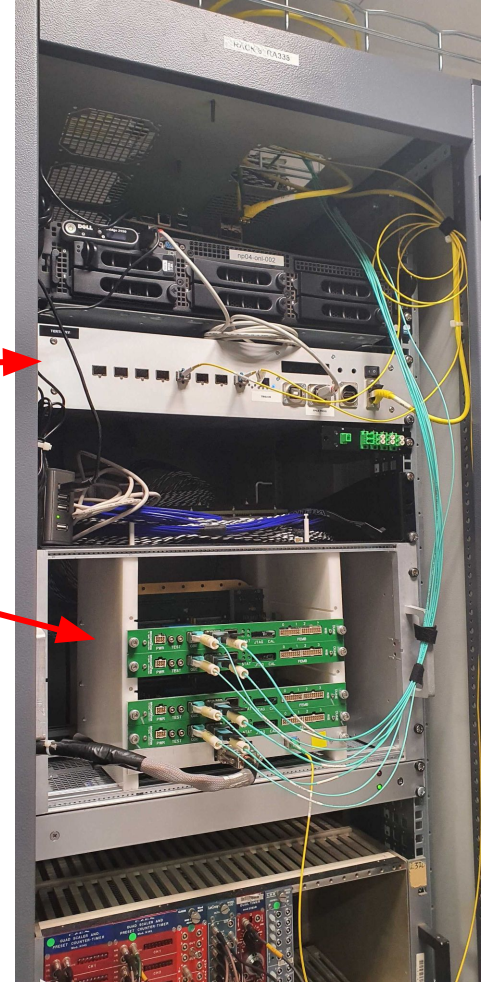
# HD ColdBox hw in DAQ Barrack

- Timing: Enclustra in grey box (TERTIARY)
  - RACK8 in VST
- Readout: FELIX BNL-712 in np04-srv-028
  - Fw: dune/v1 (ipbus)
  - Sw: dunedaq-v2.8
- Network: TERTIARY on np04-srv-012
- Patch panel
  - For WIBs to 028 and 029 FELIX servers



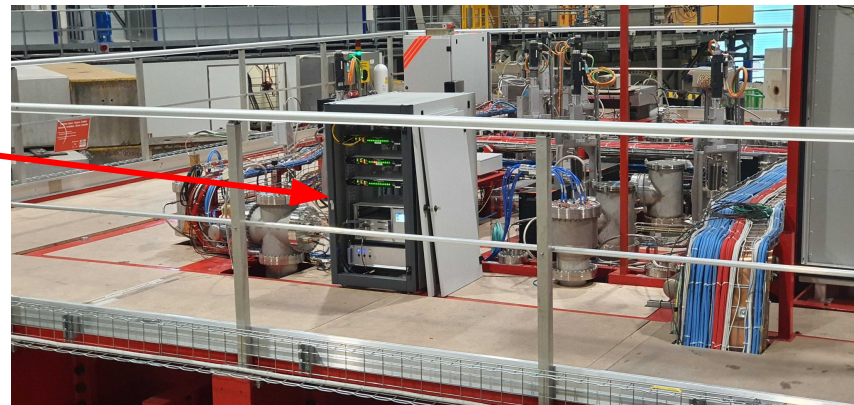
# Vertical Slice Test-stand (VST)

- Location: RACK8 in DAQ barrack
- Timing: Enclustra (TERTIARY)
- Front-end: 4 WIBs with 4 FEMBs
- Readout: FELIX BNL-712 in np04-srv-029
  - Fw: dune/v1 (ipbus)
  - Sw: dunedaq-v2.8



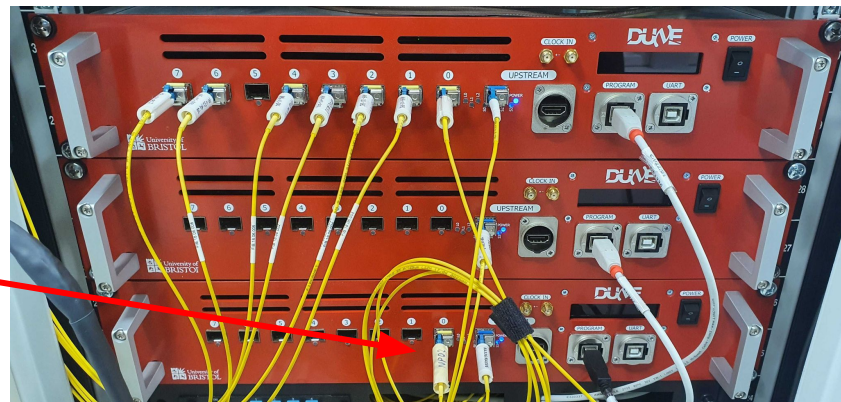
# SSP readout on NP02

- Location: top of NP02 cryostat
- Front-end: 3 SSPs
- Timing: FANOUT
- Readout: servers on NP04 network
  - Sw: dunedaq-v2.8.1
  - Consolidation release with SSP ReadoutType



# SSP readout on NP02

- Location: top of NP02 cryostat
- Front-end: 3 SSPs
- Timing: FANOUT
- Readout: servers on NP04 network
  - Sw: dunedaq-v2.8.1
  - Consolidation release with SSP ReadoutType



# Hot-spare FELIX

- Server **np04-srv-030** with BNL-712 will be kept as hot-spare of 028 and 029
- Will be used also for integration tests of the readout system for the new consolidation release





# Hardware allocation

Hardware presented here and populated on the [spreadsheet](#), are in production from now on!

Any out-of production use-case needs to be requested on the **np04-daq-integration** Slack channel!

The rest of the facilities are available for testing and development

- Bristol test-stand
  - BNL-712 with WIBs available
- CERN DT-DI DAQ lab
  - 3 x BNL-712 (one is MTP-48 version!)
  - 5 x NVMe RAID adapters
  - 100Gb NICs for Ethernet readout testing

# Summary

Despite the front-end electronics are not yet present in VD-CB, we wanted to carry out the hardware setup of the DAQ to avoid missing important equipment or detail.

Configuration of the slices are not yet carried out fully, but it's ongoing.