



**BERKELEY LAB**



# 2x2 Shifting and Operational Readiness Status

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February 28, 2024

# Shifting Start Date

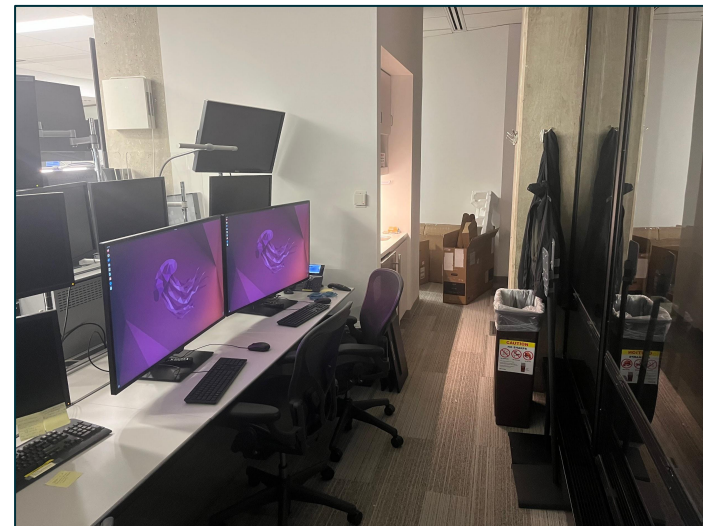
- Cryogenic installation and testing should be such that we are ready for cryogenic system pORC March 18 (best projection as of today, more on next slide)
  - ~1 week needed to commission LRO once cleared for final cabling
- Proposal: start “proto-shifting” week of March 18
  - One 8 hour shift per day. Shake out any issues with monitoring tools, procedures, checklists, etc.
  - Continue this way through the fill
- Transition to 24/7 shifting after the fill, covering cold commissioning into operations
  - April 2
  - Shifts can be taken remotely as well. We still need to define the requirements for offsite shifting.

# Cryogenic Work Timeline (from Jen)

- Still on schedule to have all cryo work (installation of backup pressure relief valve, cryostat pressure test, controls system, etc) completed no later than March 15
  - When PRV installation & pressure test are finished, consortium can finish making cabling connections to the feedthroughs on top of the cryostat.
- ODH strobe/horn installations in progress (near detector is done, near NOvA door should have been done yesterday (maybe today), near elevator should be done this week or early next week)
- Once the above items are completed, we can schedule the ORC (or at least pORC for cryo) -- aiming for that to happen on March 18
  - Won't schedule until we're really sure the cryo work will be done by then
  - When we pass the cryo pORC, we will be cleared to start filling

# ROC-W Control Station

- 2x computers and 2x 43" monitors have been installed in ROC-West (position 09, in the back near the kitchenette area)
  - SLAM is working on installing the correct OS and configuring
- Working on some options for a sign for 2x2 + Mx2 to hang above our station
  - A logo and a few sentences describing the 2x2 + Mx2 setup
  - If we have multiple good options, we can have a consortium vote (for fun)



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# Operational Readiness Overview

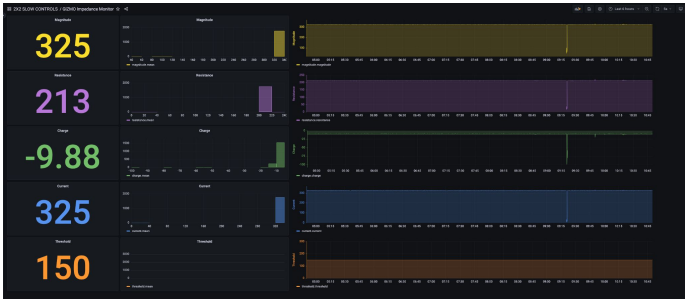
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- We have only very recently begun commissioning activities
- LRS, Mx2 making good progress and CRS is starting back up after the preliminary checkouts some months ago
- Slow Controls are in development, as is detector monitoring
- Many many details I could include here, but instead I'll just try to give an impression of where key subsystems stand

# Operational Readiness - Slow Controls & Monitoring

- Monitoring in good shape and will be developed over commissioning
- Have good starting point for slow controls, developing and testing picking up now

Detector ground monitoring (GlzMo)



Temperature measurements in 4 modules

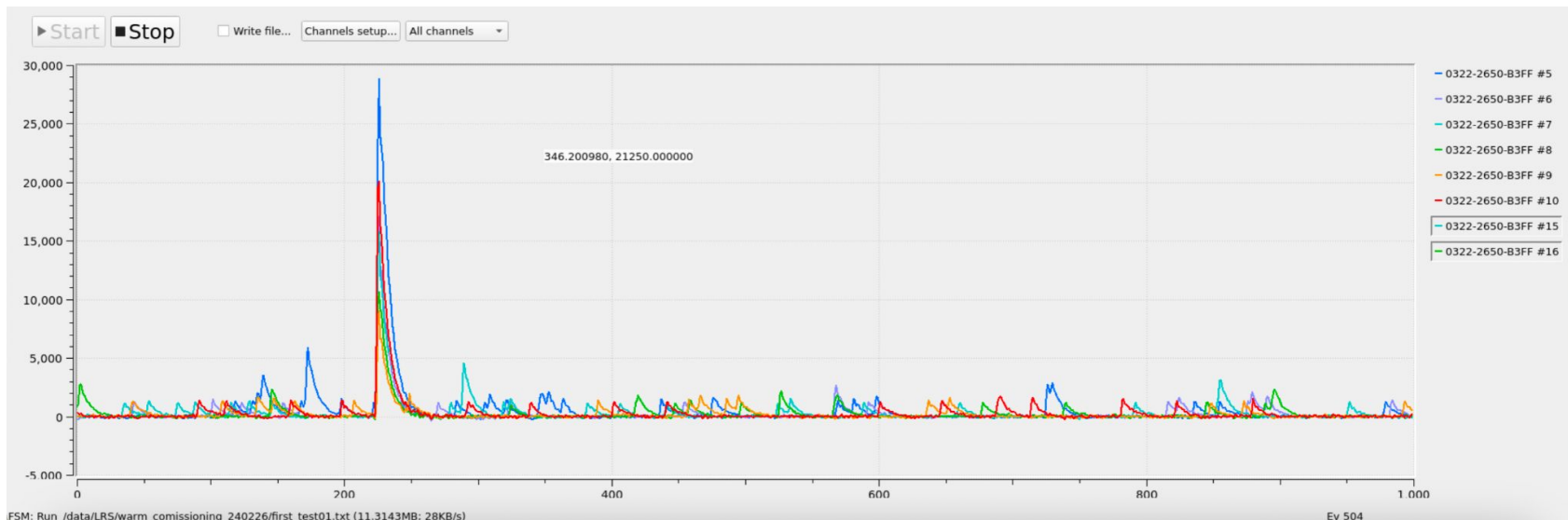


acd server usage (memory, disk, CPU, data rate)



# Operational Readiness - LRS

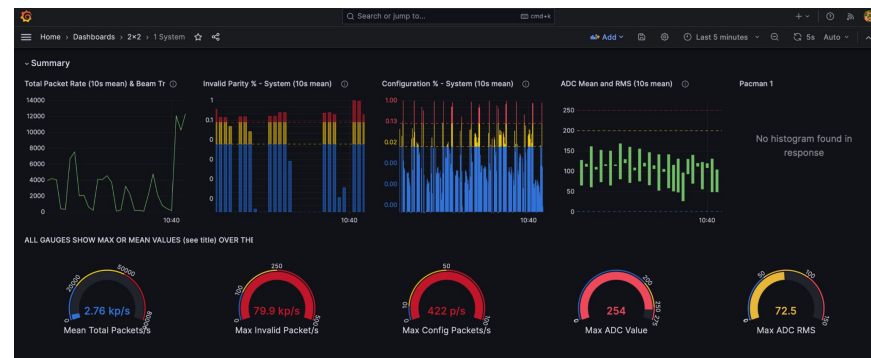
- Starting to checkout full chain from pulser → sipm readout → DAQ
- Catching and addressing some issues - e.g. ID flipped ribbon cable connector
- Not able to finalize cabling until cryo work on lid is complete. Once final cabling is in place, need ~ 1 week to warm commission



# Operational Readiness - CRS

- Read out single TPCs opportunistically over the past months
- As of this week, we have cabling and ORC to readout 1 complete module
- Cables and interlocks for remaining modules expected imminently → enabling readout of entire 2x2
- Updating firmware for tile-by-tile resets
- Installed DQM onto underground servers
- Gearing back up with exercising DAQ
- Working towards establishing automated configuration and DAQ initialization as run control is being developed

Highest level DQM view





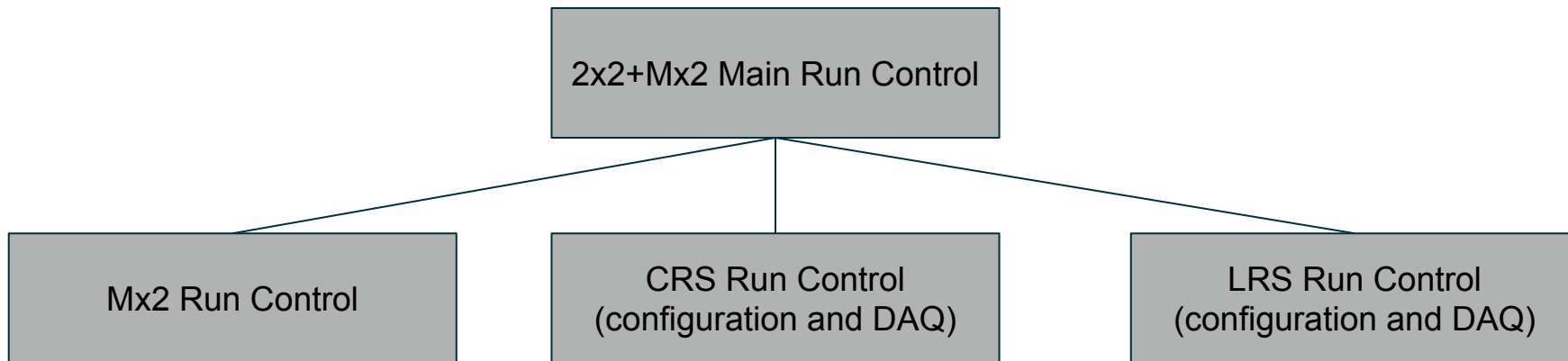
# Operational Readiness - HV

- Have clearance to turn on spellman, but not to ramp up voltage (even w/o cable attached)
- Working on control software
- Discussion: what kind of “freedom” do we want to give shifters with HV controls?
  - Should at least be able to turn off
  - krw opinion: shifters should have access to full controls, but we need clear procedures and safeguards against misuse

# Operational Readiness - Mx2

- A lot of recent progress thank to Akeem and Jack on updating the DAQ & Run Control code for AL9 compatibility
  - Also able to run on test stand and Mx2 in parallel now
  - Taking light injection data runs continuously to exercise the system
  - Planning for data transfer and will start exercising imminently

# Operational Readiness - Run Control



- Lots of discussion, finishing up planning phase, and starting to move into development phase (M. Kramer)
- Start and stop subruns (separates data files), communicate metadata information, handle errors appropriately (e.g. Mx2 failures don't stop 2x2 data taking), ...
- Coupled to data management

# Summary / Closing

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- We, of course, are not ready for operations, but making very nice progress
- We have been and are coordinating with installation activities as much as possible, but will need some time to warm commission once we have full access
- You can monitor the ELog: <https://dbweb9.fnal.gov:8443/ECL/argoncube>
  - Let me know if you need an account. Please include your Fermilab services username (e.g. mine is kwood)
- If you have any concerns, questions, or suggestions, please let Luis and I know. We appreciate feedback from other perspectives