

Detector Support Group

We choose to do these things "not because they are easy, but because they are hard".

Weekly Report, 2021-12-15

Summary

Hall A – ECal

George Jacobs, Mindy Leffel, Marc McMullen

- Set up Supermodule assembly station in EEL 126; conducted training on Supermodule assembly
- Measured 36 lead glass blocks (total measured 75)
 - ★ Recorded measurements to Excel file where they can be sorted and grouped to build a Supermodule
 - ★ Prepared Supermodule frame #94 and 9 blocks for assembly
 - ★ Started an assembly logbook which has the assembly procedure and log, the frame evaluation procedure and log



George Jacobs in Supermodule assembly training

Hall A – SoLID

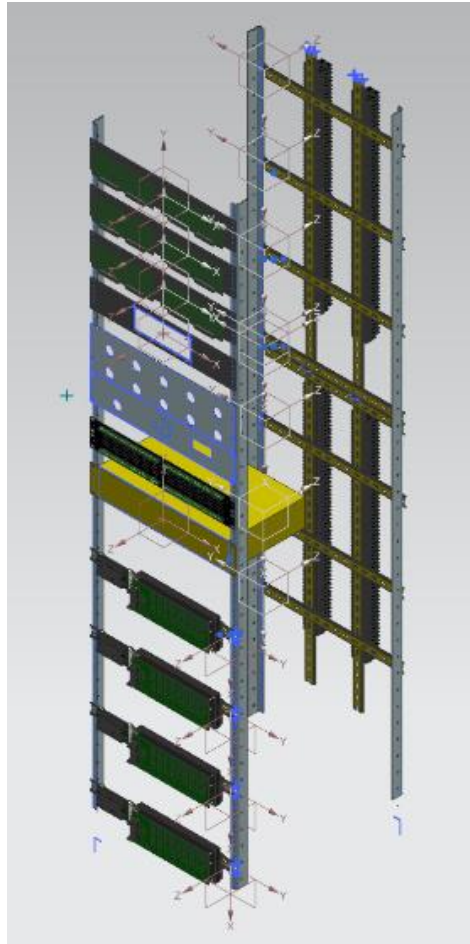
Mary Ann Antonioli, Pablo Campero, Brian Eng, Mindy Leffel, and Marc McMullen

- Wiring instrumentation racks
 - ★ Rack #1 front: 80% complete
 - ★ Rack #1 rear: 47% complete
 - ★ Rack #2 front: 90% complete
- Continued, using NX12, work on model of Instrumentation Rack #1

Detector Support Group

We choose to do these things “not because they are easy, but because they are hard”.

Weekly Report, 2021-12-15



SoLID magnet controls instrumentation rack #1

- Creating pdf files of AutoCAD drawings and posting to the DSG technical documentation website
- Fabricated 12 ferrule-to-ferrule cables

HalB – RICH-II

Mary Ann Antonioli, Peter Bonneau, Pablo Campero, Brian Eng, George Jacobs, Tyler Lemon, and Marc McMullen

- Resolved backplane PCB issues; all 48 channels now work
 - ★ Of the 11 previously non-working channels
 - Three were caused by an error in LabVIEW program
 - Three were caused by a bad ribbon cable
 - Five were caused by shorts at inverter that were able to be cleared by scraping solder with needle-point probe
- Swapped all modules in EP hardware interlock cRIO
 - ★ December 12, 2021: notified that no hardware interlock system sensors in the electronic panel were behaving correctly
 - ★ After rebooting cRIO in an attempt to fix issue, cRIO gave error that it could not find any of the four modules installed in it



Detector Support Group

We choose to do these things "not because they are easy, but because they are hard".

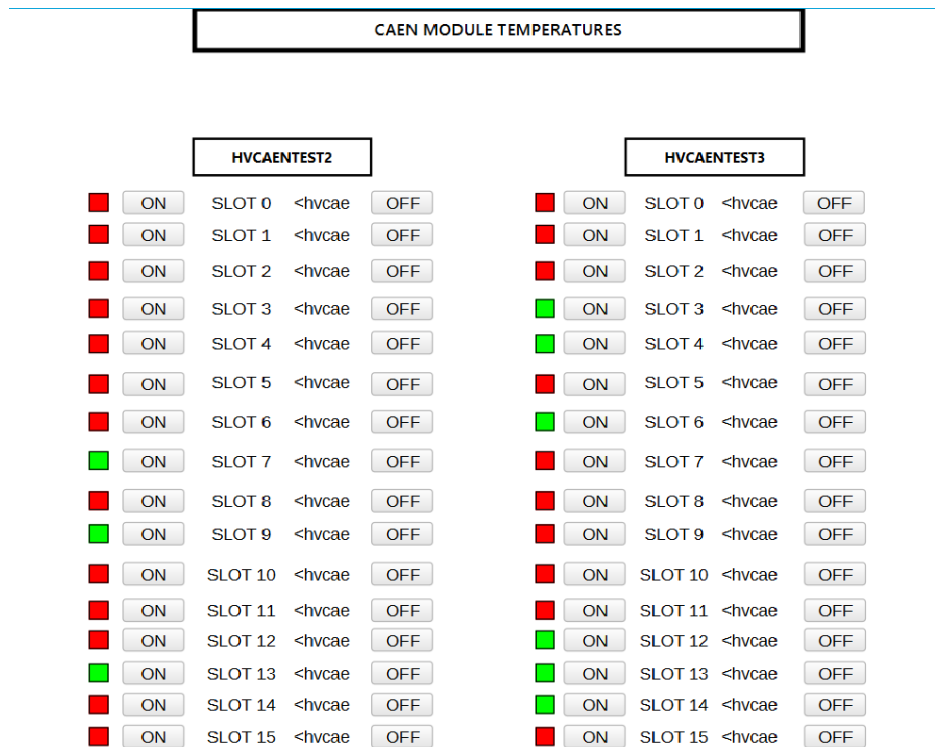
Weekly Report, 2021-12-15

- ★ December 14, 2021: during access period, cRIO modules were swapped for spares, resolving the issue
- ★ <https://logbooks.jlab.org/entry/3962660>
- Swapped module reading air-cooling system buffer tank pressure in N₂ volume cRIO
 - ★ Pressure sensor reading had jumped to ~-800 psi, a nonsensical value
 - ★ Initial thoughts were that PT had failed, but after swapping it for a spare, issue of ~-800 psi value prevailed
 - ★ Swapping module used by N₂ volume cRIO resolved issue
 - ★ <https://logbooks.jlab.org/entry/3963139>
- Hardware interlock system chassis procurement completed; sent for fabrication

Hall C – NPS

Mary Ann Antonioli, Peter Bonneau, Aaron Brown, Pablo Campero, Brian Eng, George Jacobs, Mindy Leffel, Tyler Lemon, and Marc McMullen

- Using Ansys, adding temperature probes to front and rear faces of each crystal
 - ★ Temperature probe values will be exported to a text file via an IronPython script
- Revised CAEN Module Temperatures CSS Phoebus screen
 - ★ Changed LED widgets to squares whose background color changes to green if any of the module's 36 channels are ON and red if all 36 channels are OFF



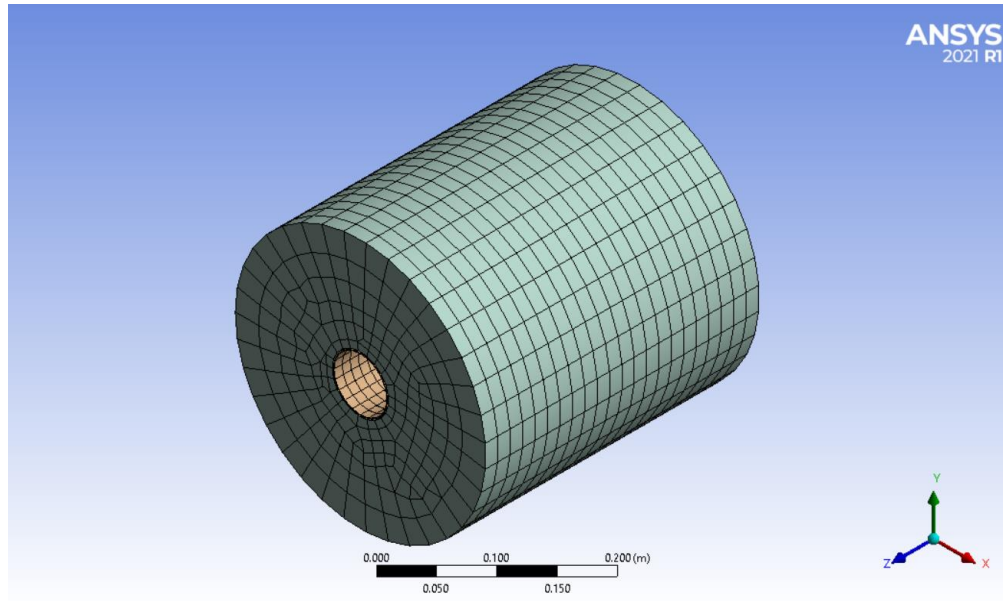
Screenshot of CAEN Module Temperature CSS Phoebus screen (colors are for example)

- Worked on ESR film pre-shaping: 510 of 600 complete (~85%)

EIC

Pablo Campero, Brian Eng

- Continuing simulation of flow for the thermal system (Be pipe and Si Sensor L1) using Ansys Fluid Flow CFX
 - ★ Generated enclosure surrounding both components



Be pipe and Si Sensor L1 with enclosure

- Calculating total thermal resistance for the system (Be beam pipe and Si Sensor L1)

DSG R&D – EPICS Alarm System

Peter Bonneau

- Debugging Phoebus configuration errors for Apache Kafka
 - ★ In the Phoebus alarm system, Kafka serves as a messaging communication link between sections of the alarm system code
 - ★ Kafka also stores the configuration of the alarm system and stores the log for alarmed events
 - ★ Configuration errors were caused by software updates by Apache
 - Phoebus configuration code uses instructions no longer supported by Apache
 - Rewriting of the Phoebus Kafka configuration code is in progress