



Detector Support Group

Weekly Report, 2018-05-09

Summary

HDice

- Completed development, testing, and debugging of the program that processes the NMR data files which verifies synchronization of current shunt measurements with the locking amplifier's values.
- Debugged VISA driver based Oxford Mercury iPS power supply test program.
 - ★ Power supply set-commands were intermittently failing due to occasionally late status read-back responses.
 - ★ Clearing the VISA COM port for the power supply set-commands solved the issue.
- Fabricated and repaired D-sub to BNC cable adaptors for CT box trigger.

RICH

- Updated hardware-interlock programs deployed to N2 cRIO and EP cRIO.
 - ★ Update gives averaging and trip delay controls for individual sensors.
 - ★ Update allows spare relays to be used as remote override switches for interlocks system.
- Moved aerogel to EEL 124 dry-box and connected nitrogen to dry-box.
 - ★ Done because of power outage in the EEL.

Gas System

- Ordered power chassis for the mass flow controllers of the gas systems in Hall B.
 - ★ Components and a distribution PCB are under development.
- Created Hall B N2 Supply P&I diagram.
 - ★ Additional N2 line to double flow capacity of Hall B supply for forward carriage added to P&I diagram.
- Submitted for the LTCC, PR 376850 for 500 kg of C4F10 (\$67,500)
- Submitted for continued funding of the bulk LN2 contract, PR 376901.
- LTCC gas supply flows reduced for sectors 2, 5 and 6 to 0 LPM.
- DSG informed Hall B that two weeks advanced a noticed is needed prior to any work which may result in the loss of N2 to the hall.

Hall B Magnets

- Upgraded the four magnet cRIOs to LabVIEW 2017.
- Updated firmware of sol-fast and tor-lv cRIOs.
- Enabled core dump functionality on the fastDAQ cRIOs.
- Noticed FPGA code works fine when compiled with Quartus 17.1 (current version).
- Full order of 25-turn 3/8" (in place of 12-turn 1/4") trim pots for QD boards ordered.
 - ★ After machining is finished in the front plate, it will allow access to adjustment screws showing it is feasible to use the larger pots.
- Fixed shorted pins on RS232 line driver in spare Low Voltage chassis #2 that prevented it from working.
- Table generated for voltage tap values when first VT 18 and VT2 voltage spikes occurred ~ 200 ms before the Solenoid fast dump events.



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- ★ Based on the voltage tap values acquired from the FastDAQ data calculated the values for the hardware quench detectors which are different combinations of the voltage taps.

Hall C

- Mailing list named “dsg-hallc_control” created to communicate all related work between dsg members and Hall C personnel.
- Walk through of Hall C and Hall C Counting room done to get familiar with the Hall C control systems.
- RS-Logix licenses for hall C PLCs researched.
- Meeting set up with Mike Fowler to discuss Hall C magnets control systems.
 - ★ Investigated HMS and SHMS PLCs network set up in Hall C.
 - ★ Hall C PLC tasks reviewed.
 - PLC tasks cover the entire controls systems in Hall C.
 - ★ Agreed on procedures to perform any implementation of PLC code in HMS and SHMS.

LERF

- Continued populating one of six VME FSD fiber card boards for Machine Protection System.

cRIO Test Station

- Wiring of 9207 D-sub connector completed for connection to 9265 module (current supply) for testing 9207 channels 12-15.
- SubVI programs, written, tested, and debugged for current tests, 9207 module on channels 8-11.
 - ★ Manual and Auto modes completed for: dynamic range, offset error, gain error, differential nonlinearity, and integral nonlinearity tests.
 - ★ User interface and main real time programs updated to run these tests.
- All tests updated with a status message to notify if not connected to cRIO.



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Antonioli, Mary Ann

cRIO test stand

- Completed wiring of 9207 D-sub connector for connection to 9265 module (current supply) for testing 9207 channels 12-15.
- Wrote subVIs, tested, and debugged current tests for channels 8-11 for manual dynamic range, offset error, gain error, differential nonlinearity, and integral nonlinearity.
 - * Updated user interface and main real time to run these tests.
- Wrote auto current tests for channels 8-11 for above tests.
 - * Tested and debugged.
- Updated all tests with a status message if not connected to Crio
- Attended Safety Workers Committee meeting.
 - * Proper PPE is needed to use breaker panels
 - * An across-the-lab procedure is being discussed for after-hours work if alone.

Bonneau, Peter

HDice

- Programming, testing, and debugging NMR Development test program.
 - * Completed development, debug, and testing of the NMR data file processing for current shunt measurements.
- Debugged VISA driver based Oxford Mercury iPS power supply test program.
 - * Power supply set commands were intermittently failing due to occasionally late status read-back responses.
 - * Clearing the VISA com port for the power supply set commands solved the issue.
 - * The device drivers used in the test program will be used to facilitate use of the original Oxford or the new Mercury iPS power supplies in the NMR program.

Hall C

- Reviewed PLC task list compiled by Hall C.
 - * Tasks include upgrade of all systems to a version compatible with Windows 10.
- DSG is requesting access to the Hall C controls subnet from the EEL Control Room.

Hall D

- Attended Hall D Slow Controls Meeting.
- Held meetings on Hall D status and EPICS controls monitoring.

Campero, Pablo

Magnets

- Generated table for voltage tap values when first voltage spikes for VT 18 and VT2 occurred prior to the Solenoid fast dump events
 - * Completed table for six of the fourteen fast dumps.
 - * Based on the voltage tap values acquired from the FastDAQ data calculated the values for the hardware quench detectors which are different combinations of the voltage taps.
 - * Compare each hardware quench detection values for each Quench Detector channel (1 to 8 channels) with the set thresholds.



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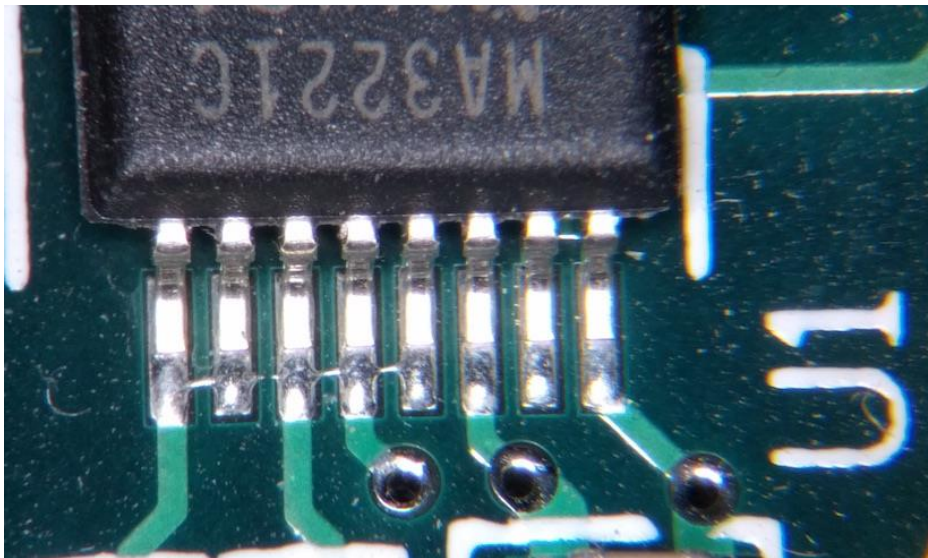
Hall C

- Created a mailing list named “dsg-hallc_control” to communicate all related work between dsg members and Hall C personnel.
- Walk through of Hall C and Hall C Counting room to get familiar with the Hall C control systems.
- Researched RS-Logix Licenses manage in Hall C.
- Set up meeting with Mike Fowler regarding Hall C magnets control systems.
 - ★ Investigated about the HMS and SHMS plc network set up in Hall C.
 - ★ Discussed about the priority for the tasks proposed to complete by DSG.
 - ★ Agreed procedures to perform any implementation of PLC code in HMS and SHMS.
- Edited and re-format DSG weekly report.

Eng. Brian

Hall B Magnets

- Updated 4 cRIOs to 2017: <https://logbooks.jlab.org/entry/3574083>
- Run FPGA code for current board and noticed that it seems to work fine when compiled with Quartus 17.1 (current version).
- Meetings in preparation for shutdown and power outage
- Ordered full order of 25-turn 3/8" (in place of 12-turn 1/4") trim pots for QD boards after Marc finished with the machining of the front plate to allow access to adjustment screws showing it was feasible to use the larger pots.
- Fixed shorted pins on RS232 line driver in spare LV chassis #2 that prevented it from working properly.



Fixed pins at spare Low Voltage Chassis #2 in its RS-232 line driver

RICH



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- With Tyler setup N2 purge on large dry box in EEL/124 used for aerogel tiles during power EEL power outage.
- Attended Hall D Slow Controls meeting to discuss work on PXI & PLC during shutdown
- Setup SLA 3D Printer.
- Took Radiation Worker 1 test.

Hoebel, Amanda

Absent

Jacobs, George

Gas System

- Monitored daily LTCC S5 single sector test detector pressure and gas usage.
- Created Hall B N2 Supply Work P&I diagram showing remain task.
 - * Included additional N2 line for forward carriage to double flow capacity in Hall B N2 supply.
- Placed PR 376850 for 500 kg C4F10 (\$67,500)
- Placed PR 376901 for continued funding of the bulk LN2 contract (SOTR)

Leffel, Mindy

LERF

- Continued populating one of six VME FSD fiber card boards for Machine Protection System.

HDICE

- Fabricated CT box trigger cable adaptor D-sub to BNC.

Lemon, Tyler

RICH

- Deployed updated hardware interlock programs to N2 cRIO and EP cRIO.
 - * Update gives averaging and trip delay controls for individual each sensors.
 - * Update also allows spare relays to be used as remote override switches for interlocks system.
- Moved aerogel to EEL 124 dry-box and connected nitrogen purge to dry-box with Brian.
 - * Planned power outage in EEL from May 8 at 5:30PM to May 9 at 3:30AM would prevent dry-boxes from maintaining a low humidity environment.
 - * Nitrogen purge would allow low-humidity environment to be maintained despite power being lost to dry-box.
- Met with Mike Fowler to discuss Hall C PLC tasks and to walk through areas where PLC systems are located.
 - * Development PLC located in TEDF 1544.
 - * HMS controller and I/O modules in 2nd floor of counting house.



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- * SHMS controller in 2nd floor of counting house I/O modules in shielded area in Hall C.
- Cleared area in EEL 124 for **UVA GEM detector**.
 - * RICH items previously stored in area in storage relocated to clear area.

McMullen, Marc

Hall B Gas System

- LTCC gas supply has been reduced to 0 LPM, on sectors 2, 5, and 6.
 - * We will observe the pressure as the gas leaks out.
- Power chassis to be used for the mass flow controllers in Hall B gas system have been ordered.
 - * Components and a distribution PCB are under development.
- Hall B Mechanical/Engineering will be relocating the moisture detectors and oxygen sensors for the DC return gas to the exhaust manifolds in the hall.
- Hall B has been informed that the DSG will need 2 weeks advanced notice prior to any work which results in the loss of N₂ to the hall.