



# Detector Support Group

## Weekly Report, 2019-08-14

### Summary

#### Hall A – Super BigBite Spectrometer (SBS) HCAL

- Cut and terminated 72 BNC to LEMO cables.

#### Hall A – GEM Gas System Controls

- Created Hall A GEM gas distribution rack/panel layouts
  - \* Rack for back and front panels’ are 24U (42”) height.
- Tested new Legris valve
  - \* Easy adjustments compared to previous valve.
  - \* Determined stem is loose and only half a turn worth of adjustment available from zero to full flow ~ 300 sccm.

#### Hall B – RICH

- Updated pressure systems documentation to include replacement Dwyer pressure transducer on air-cooling system’s buffer tank.

#### Hall C – High Voltage Systems

- Updated gateway setting on CAEN SY4527 crates after finding that the access to them were not allowed from the development subnet.

#### Hall C – EPICS

- Investigated “autosave” support module for backup and restore of HV settings.

#### Hall C – CAEN HV Test Station

- Reviewed interlocking schemes, cable adapter, and HV loads.
- Tested to full current (1 mA) all channels of three A7030 boards.

#### Hall C – CAEN HV EPICS Test Station

- Calculated resistor value to be used in the load box, which will allow the current test for CAEN-7030TN, A7435, and A1535 HV boards via the developed CSS screens.

CAEN Board Model	Max Voltage [V]	Max Current [mA]	Max Power [w]	Selected Resistor [MΩ]	Max Voltage with Standard Resistor [V]	Max Power with Standard Resistor [w]	Max Current with Standard Resistor [mA]
A1535	3500	3	8	2	2200	2.42	1.1
A7435SN	3500	3.5	9	2	2300	2.65	1.15
A7030TN	3000	1	1.5	2	1720	1.48	0.86

- Verified firmware version for hvcaentest1 CAEN mainframe
  - \* PV and web server indicated version as 2.0.1
- To continue with the debugging of hvcaentest2 mainframe CAEN software issues:



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- \* Contacted CAEN representative to request firmware version 2.0.1 and enable the downgrade hvcaentest2 mainframe from its actual version 2.0.2.
  - hvcaentest1 uses firmware version 2.0.1.
- Conducted a meeting to present result for CAEN SY4527 systems tested and discuss status of EPICS/Hardware test station developed by DSG and upcoming work.
- For the development of an automated test for CAEN-SY4527 system, downloaded and installed *CSS-Scan Server* on dsg-b-linux1 PC.

## Hall D – WEDM

- Added indicators for BCAL chiller coolant flow to BCAL chillers' WEDM screen.

## DSG R&D – cRIO Test Stands

- Written code to test the readback of NI 9870 module
  - \* Tested three baud rates for each of four ports.
  - \* Tested both the computer writing to the cRIO module and the module writing to the computer.
- Testing of NI-9871 RS485 Serial module in progress.
  - \* Upgraded firmware and Real time LabVIEW version on cRIO controller

## DSG R&D – LV Chassis FPGA

- Resolved network connection issue by assigning SoC a static MAC address.
- Installed DE0-Nano-SoC in spare LV chassis; debugging in process.
  - \* Serial communication to LV chassis is not able to read from chassis.
  - \* DE0-Nano-SoC is has a newer model Altera FPGA (Cyclone V vs Cyclone IV) and when FPGA program was modified to use newer FPGA, it may have reset pin assignments.

## Accelerator Division R&D

- To improve wire bonds, glued superconducting Nb<sub>3</sub>Sn strip resonator sample to the holder.
- Continued with the adjustments to the bonding parameters for superconducting Nb<sub>3</sub>Sn strip resonator sample.

## DSG-RICH R&D

- To solve issues related with commands transmission (between Sensirion SHT85 integrated sensor and cRIO controller) in periodic data acquisition mode used Agilent 10629A logic analysis system.
  - \* Some commands did not sent on periodic mode.
  - \* Found that pull-up resistors were not working due to a bad fuse in the circuit.
  - \* Replaced the fuse in circuit board and solved the issue.