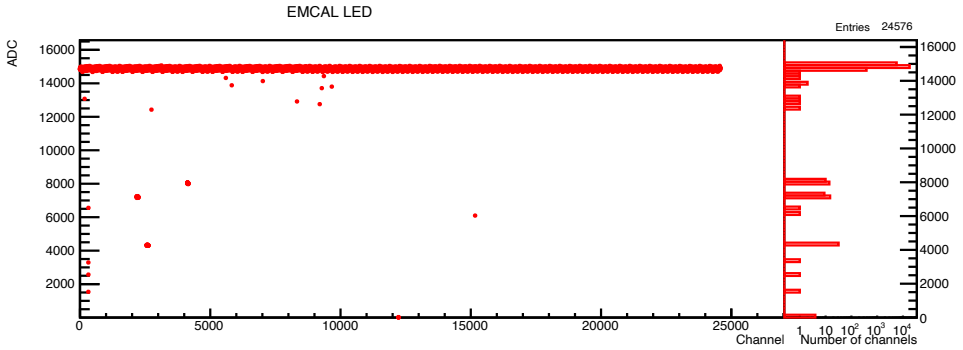
sPHENIX commissioning without beam

John Haggerty, Caroline Riedl

Calorimeters

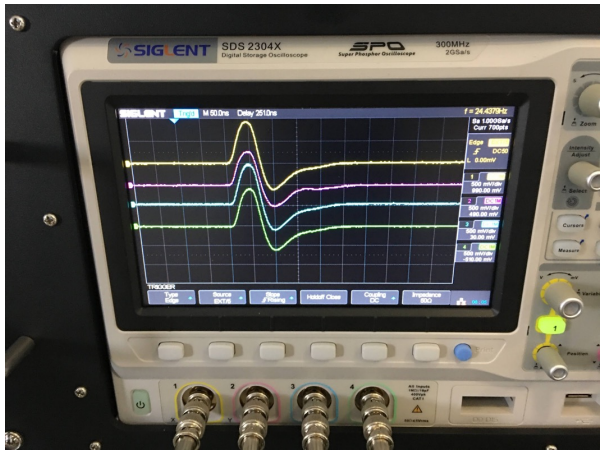
- All sectors of OHCAL, IHCAL, and EMCAL have been tested with the electronic test pulse, LED pulse, and cosmics
  - These data are the basis of satisfying the KPP's on live channels and calibration
  - They were done with the production on-detector electronics and prototype waveform digitizers for the EMCAL, and older WD's for the HCAL
- Post-installation testing with "roll-around" test rack
- On-carriage testing will take place after roll-in, infrastructure installation (AC feeds, PLC), and detector cabling
  - This will basically reproduce the individual LED testing en masse



EMCAL LED's driven to saturation
100% working channels
(0.4% with some LED driver issues early on)

Roll-around calorimeter testing

- Steve Boose and Sal Polizzo developed and built mobile test stands for EMCAL and HCAL
  - Sector under test has to be connected to temporary power, control, and signal cables
  - Check signals on scope
- All installed OHCAL and IHCAL sectors have been tested this way (tech support needed for access)

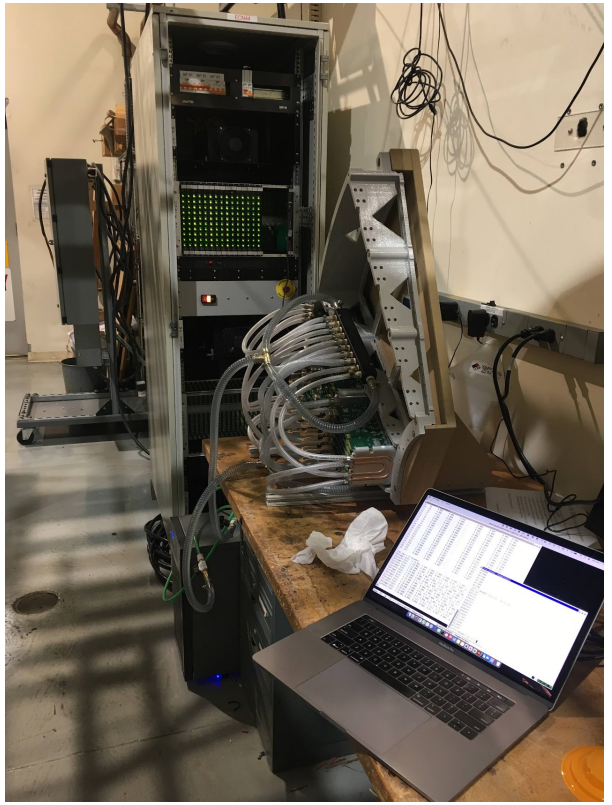


Switching through 4 channels

Sean Stoll testing EMCAL sectors with roll-around rack

TPC

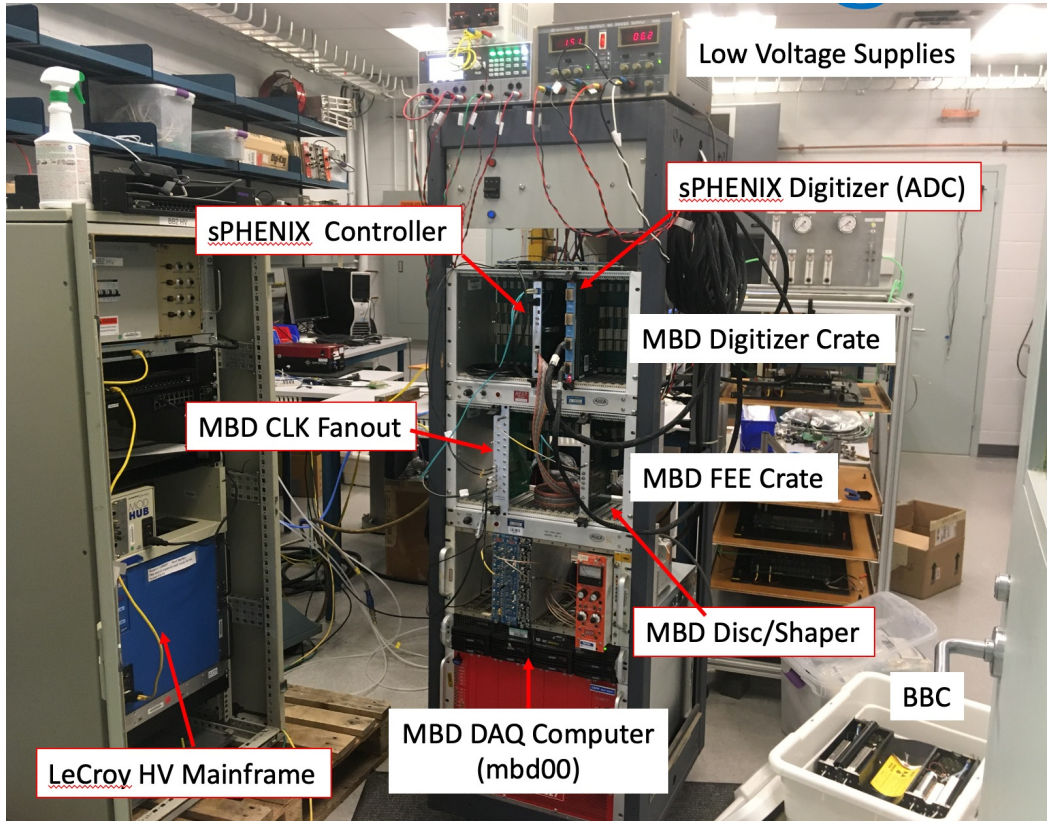
- We plan to test as much as we can at SBU
  - But it will be mostly sector-by-sector
- We have started to assemble equipment needed to power and read out a sector:
  - Tested, burned-in FEE with cooling plates
  - DC power supplies
  - FELIX+EBDC
  - Fibers, cables
  - HV power
- Development of essential features continues in IO
  - FELIX firmware
  - Integration with clock and trigger from GL1/GTM
  - Zero suppression
  - Data formats
  - Digital currents
  - Streaming and triggered readout



Slice test apparatus will evolve into sector testing

MBD

- Small but extremely important to commission before installation
- Mickey Chiu and Cheng-Yi Chi far along with detector readout prototypes in 510
- Setting up full test of detector with LL1 trigger in 1008
  - Should be ready in the next few weeks
  - Should be able to pulse LED with laser



Test setup in 510

Other commissioning tests under way

- That's not all… INTT and MVTX have also set up pre-installation commissioning ray tests
  - MVTX is putting together the readout chain in the 1008 Rack Room
  - INTT is doing the same in the 510 Silicon lab
- We are doing this testing off-carriage as much as possible so that when we start moving to the detector in Aug-Sep-Oct we have operational experience