

## BigBite Working Group Bi-Weekly Meeting Minutes

7.14.2021

### Agenda:

- Connecting the BNC cables in the Hall – Arun
- fADC replacement – Scott/Provakar
- Connecting fADC cables – Bhesha
- Connecting the trigger twisted cables – Arun/Mark
- Cosmic counters – Bogdan
- SBSGenericDetector status – Mark
- Other business

### Attendance:

1. Sebastian Seeds
2. Provakar Datta
3. Arun Tadepelli
4. Bradley Yale
5. Eric Fuchey
6. Jake Manalo
7. Mark Jones
8. Scott Barcus
9. Steve Wood

### Actual:

- **This will become a weekly meeting moving forward**
- Cables
  - Provakar and Arun spoke with Jesse
    - New route – under the HRS
    - Works for BB, gives 50 to 100 ft of additional cable to work with
  - Cable trays laid out on ground (signal/HV)
    - Stacked on top of HCal tray
    - Can be done in parallel
  - Cable trays on top of blue racks
  - Both should be ready within two days or so pending floor trays
- fADC replacement
  - 2 need attention
    - Slot number 4: One LEMO connector needs replaced
      - Bill D. Fixed it after verification that no radcon survey necessary
    - Used spare fADC, channel 7 needs fixed. No data on channel
      - Mark Jones: Give to Bill D to have it repaired

- Connecting fADCs
  - Bhesha will work on this – Arun to follow up with him offline
  - Eric – extended one fADC cable with a 2 ns delay extension. No need to switch channels or verify, simply remove the delay cable and plug back in.
- Twisted trigger cables
  - All intact, no changes
  - F1TDC to trigger map
    - Need to reconnect TDCs
    - For scalars
      - Find out from Alex where the scalars are, so the TDC connectors are laid out correctly
    - NIM to ECL units to TI
      - Mark should be able to help with this
        - Will be in the lab on Thursday
- Cosmic counter
  - Bogdan working on 2 modules
    - One on top, one on bottom (paddles)
    - Used as cosmic trigger
    - Channels already set up and waiting for counters
- Scalars
  - One on each leg of the trigger
    - Immediately upon beam during commissioning: What's the rate on the detector?
    - No fADC channels available
    - Look at rates during experiment from the f1TDC into scalar VME units via 64 channel ribbon cables
      - Mark Jones and Steve Wood contact for this
      - Each scalar module can take 32 channels (two ribbon cables)
      - Status for reading f1TDC
        - Can decode, but root branch structure needs worked out and encoded in SBS offline
          - Mark Jones working on this
- HV Crates
  - Flakey – RPI 18 crashed
    - Still needs assessed and fixed
      - Steve Wood is contact
      - Need LaCroix mainframe
        - Need name for raspberry pi
          - Arun: Can remain the same
    - Could be source of 60 Hz noise
      - Will look for noise after RPI 18 is fixed and cables laid out in the hall
      - Filters weren't effective in correcting this noise in TEDF
        - Jack Segal can help with this
  - Installation time

- No news/timeline yet, pending power in the bunker and network
  - BB cable trays will need installed before crates installed
- SBSGenericDetector
  - Working on f1TDC root branch structure
  - Upgrades added for timing hodoscope and f1TDCs
    - Combine by energy and time
      - Course process only processing by energy
      - Element class only has energy from ADC and TDC
    - Need to create output tree when course process is called
      - Fill fGood with ADC and TDC information
      - Should just use this, not fElement
      - Need monte carlo
        - Eric Fuchey produced simulations
        - SBS sim decoder on uconn\_dev branch needs to be pulled for digitized data
      - Waveform analysis
        - Look for peak, then look for jitter and multipeaking
          - Get first peak – current strategy
- Provakar Datta
  - fADC time analysis
    - Get V\_mid and get fADC\_time
      - Time between beginning of window and FWHM trailing edge bin
    - Cut on hit above and below, none to the sides
    - Peak position difference vs shower
      - Difference between neighboring (above below) channels
      - Should be close to zero
      - For first several in SH, differences are very large
        - Cable lengths could account for this
        - RMS large for first few channels
      - PS looks good
        - RMS also reasonable
    - HCal 50 bins (4 ns per), so variance order 10 bins not an issue
    - Provakar – physically test four cables that display large peak position differences