2-24-2022 DUNE 2x2 Electronics Integration Meeting

- Attendees:
  - **MinJeong, Faiza, Trevor, Nikolay, Howard, Geoff, Cindy, Lane, Debbie, Linda, Sasha, Alex Moor, Matt M, Abbey, Karolina, Rowen, Alan H, Anne, Jay, Everardo, Steve H, Armin and Ting**
- DAQ and control software for light readout system
  - **Suggests to use unmanaged 10G network switch for the ADCs. Only local IP address is needed**
  - **The data rate is much less than 10G per ADC. Nikolay will estimate the rate**
  - **We will have dedicated meeting to discuss ADC networking need**
  - **Rpi boards to control/monitor SiPM PS card and VGA card**
  - **Linux box will be fine to run the DAQ and control software**
- Follow-up discussion of SEDR/ORC documentations for light readout electronics
  - Three subsystems: VGA crates, ADC crates and LED light injection
    - 2 VGA crates: 2 VGAs, 1 VGA control, 1 siPM PS, 1 siPM PS control for each crate
      - TTI PLH 120VDC to siPM PS card
      - +5V/1.5A PS to VGA adapter on VGA control card **(Need to add a fuse to the adapter card -- Linda)**
    - 1 ADC crate: 2 ADCs, 1 trigger board (ADC sum), WR
      - **SFP$^+$ network connection needs further discussion**
    - Racks and their placement
      - "Light VGA" rack – near TPC and on access platform in MINOS
      - "Light ADC" – east wall in LArTF, on catwalk in MINOS
    - LED equipment?
  - Electronics delivery schedule for Module-1 test
    - Module-1 is expected to be at FNAL in April
    - Need to complete designs of electronics installation and cabling ahead of time
    - **Can we get electronics in March?**
    - All electronics should be installed before requesting ORC review
  - Can we SEDR and request pORC for module-1 QA/QC test first, then add more for integration test?
    - **Do we have a task list for module-1 QA/QC in room temperature?**
  - Posting design documents to docDB for each VME cards
    - System diagram
    - DC power distribution schematics
    - Initial design documentations in docDB in 2 weeks **(By March 10) – Sasha: We are working on it**
  - SEDR and ORC request documentation Example: DUNE docDB 23664, 23844
  - Support documentation: engineering notes, schematics, PCB layouts. BOM
    - Master list in DUNE docDB **21955** for all 2x2 electronics
  - **LED light injection system**
    - Discuss detail and support requirement next integration meeting? **In the meeting of March 10**
- **2x2-Minerva**
  - Cabling solutions for 2x2-Minerva modules
    - **LI and readout racks to be switch positions, and move upstream by a few feet**
      - **Need to discuss more with cryo group as they may now block the access to cryocooler**
    - **Extending the cable might be needed:**
      - **Cat6 will be by extra cables with Ethernet connector**
      - **Power cable will be added on by soldering**
  - Rack ORC – Kapton on power cord, network installation?
    - **Go ahead with the DAQ networking rack first for ORC: Geoff and Linda to talk about detail**
    - **After M11 cabling, we will request the LI and readout racks ORC**.
  - MTM – any progress from Paul R: **ORC committee is fine with the MTM card for now.**
  - DAQ work