DSG-RICH R&D Meeting

Date: August 30, 2021
Time: 11:00 AM – 12:00 PM

Attendees: Mary Ann Antonioli, Aaron Brown, Peter Bonneau, Pablo Campero, Brian Eng, George Jacobs, Mindy Leffel, Tyler Lemon, and Marc McMullen

1. **RMC**
   Peter Bonneau, Aaron Brown, Pablo Campero, Brian Eng, Tyler Lemon, and Marc McMullen
   1. Modifying orientation of some resistor pads and locations of vias to neaten routing
   2. Net list check ~85% complete

2. **SHT35 sensor PCB fabrication**
   Peter Bonneau, Aaron Brown, Pablo Campero, Brian Eng, Tyler Lemon, and Marc McMullen
   1. Fabrication company has received order from JLab Procurement
   2. Marc McMullen will contact fabrication company to inquire how to send the sensors to them
   3. Estimate 4-5 weeks for completion of PCBs, once company receives all parts they order and SHT35 sensors from us

3. **Backplane PCB review**
   Peter Bonneau, Aaron Brown, Pablo Campero, Brian Eng, Tyler Lemon, and Marc McMullen
   1. PCB has six layers (top, power, ground, internal layer 1, internal layer 2, and bottom)
      - Allows for neater routing of RMC-to-backplane connector and RJ45 ports, since they are on opposite sides of the PCB
   2. Marc McMullen will work on adding a jumper to PCB design to ground RJ45 port shields to the chassis

4. **Hardware interlock system chassis design in NX12**
   Peter Bonneau, Aaron Brown, Pablo Campero, Brian Eng, Tyler Lemon, and Marc McMullen
   1. Tyler Lemon will investigate making backplane PCB fuses easier to access, without cables being in the way or having to remove all 24 I^2C cables from chassis

5. **Ansys thermal simulation of heat loads in RICH Electronic Panel (EP)**
   Pablo Campero
   1. Model for EP exported from Ansys detector model
   2. Ansys EP model conditions
      - Convection to air applied to interior surfaces of EP
      - Convection to nitrogen applied to exterior surface of EP
      - Temperature of components determined using archived RICH data
        - Ambient environment temperature determined using hardware interlock sensors
        - Temperature of internal components of EP based on on-board FPGA temperature sensors