

DSG-RICH R&D Meeting

Date: June 14, 2021

Time: 11:00AM – 12:00PM

Attendees: Mary Ann Antonioli, Aaron Brown, Brian Eng, George Jacobs, Tyler Lemon, Marc McMullen, and Amrit Yegneswaran

1. Interlock Chassis

Tyler Lemon

- Started designing chassis in NX12
 - Design uses NI models for sbRIO and heat spreader, exported STEP file for RMC, and chassis layout from Par-metal's 12-Series 2U aluminum chassis
 - Same x,y dimension 3U chassis also available
 - LED indicators on front of chassis will be added to show status of 3.3 V power supply, 24 V power supply, and override switch

2. Discussed status of LabVIEW user interface

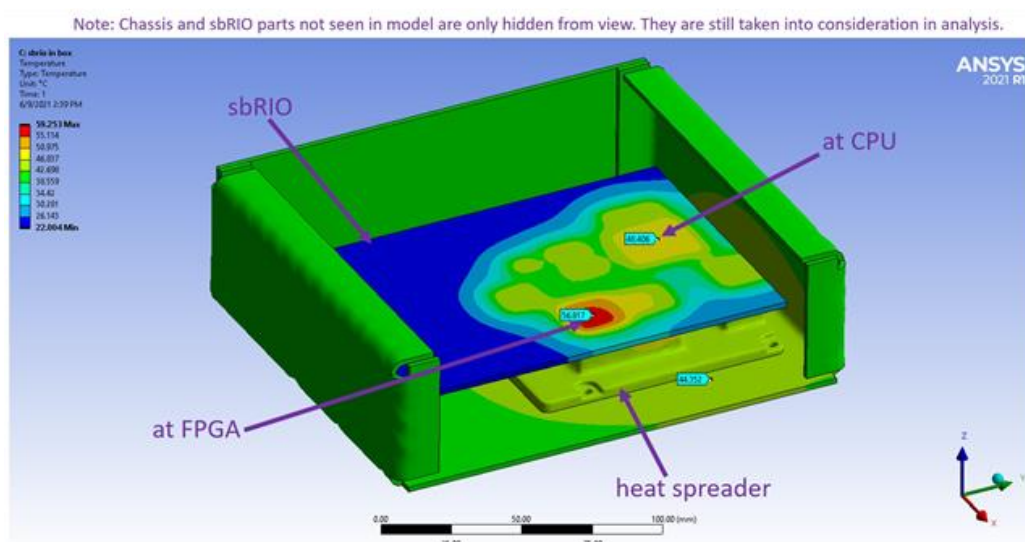
Pablo Campero and Tyler Lemon

- Pablo Campero has developed layout of user interface; additions and changes are in progress
- LabVIEW block diagram code will be completed after sbRIO's LabVIEW program is completed
 - Waiting on expansion chassis for gas system monitoring components

3. sbRIO heat generation modeled in Ansys

Tyler Lemon

- Modeled for “worst case scenario” where its CPU and FPGA both dissipate 10 W.
- If chassis is not used as additional heat sink for convective cooling, it is possible for sbRIO to overheat
 - Max temperature was $\sim 110^{\circ}\text{C}$, limit for FPGA is 98°C
- Using chassis as a heat sink for convection is enough thermal mitigation to prevent overheating
 - Max temperature was $\sim 59^{\circ}\text{C}$



Ansys results of thermal analysis

4. **RMC routing is complete; review is in progress**

Peter Bonneau, Aaron Brown, Pablo Campero, Brian Eng, Tyler Lemon, and Marc McMullen

5. **Reviewed spreadsheet of needed items to purchase for RICH-II and detector support**

6. **Reviewed options for interlock cable feedthroughs into N₂ volume**