

Run 2B Readout Testing

- SVX4 testing
 - LBL setup
 - Fermilab stimulus setup
- Production testing in SiDet
 - One channel Purple Card + SASeq setup
 - o Testing Hybrid + Jumper Cable
 - Multi-channel Purple Card + SASeq setup
 - o Max 6 channel setup – L0 sector (more channels are possible if needed?)
 - o Testing collective effects in modules and Jumper Cables
 - o Groundings
 - o Digital and analog crosstalk, data integrity
- Full chain testing in DAB (and SiDet?)
 - Next slide

Tests in DAB

- Currently have 2 setups on the 3rd floor
 1. 8 Run2A HDI's, IB crate, SEQ crate, VRB crate (M.Utes)
 - o Connected to TWF
 - o Operated by Run2A online software
 - o Used for Run2A IB studies, timing studies
 - o Shared with CFT commissioning team
 2. SEQ crate, VRB crate, SBC (D.Mendoza)
 - o Used for VRBC commissioning
- Have a black box with microscope and probe station
 - Used for Run2A SMT hybrids

Tests in DAB

1. Hybrid - Jumper Cable - Purple card - Sequencer
 - Same as setup with SASeq.
 - Developing of firmware for Sequencers
2. Hybrid – Jumper Cable – Junction Card – Twisted Pair Cable – Adapter Card – 80-conductor cable – Interface Board – 50-conductor cable – Sequencer
 - Testing of performance for all components - anticipate most of the time will be spent here
 - o Timing studies, verification of terminations, impedance matching etc.
3. Multi-channel readout test
 - Can have up to 10 boards of each type (80 readout channels), limited by the amount of spares (including the cable spares)
 - 16-24 channels are realistic
 - Data integrity, collective effects tests
4. Tests of Low Voltage Power Supplies
 - New backplane in IB crate
 - Likely new low voltage supplies
 - Need simulate full load on supply
5. What cannot be done in DAB ? Next slide

Tests in DAB

- What cannot be done in DAB ?
 - L0-L1 assembled structures tests
 - Low temperature cooling tests
- Some stave tests should be possible in DAB
 - Reshuffle the black box, need some water cooling
 - Safety of silicon is a concern
- Full readout in SiDet
 - Possible – question of manpower (hardware & software) and time
 - Caveats
 - No Trigger Framework available = no SCL
 - NRZ for SEQ generated by VRBC
 - Different software
 - Why it may be needed : Performance issues at low temperature or in L0-L1 structures that cannot be studied with SASeq
 - Fast readout : cooling issues & data integrity