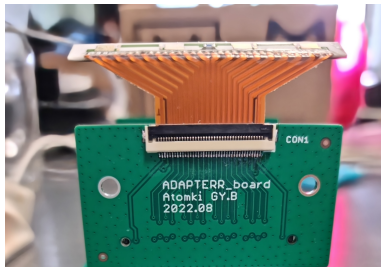


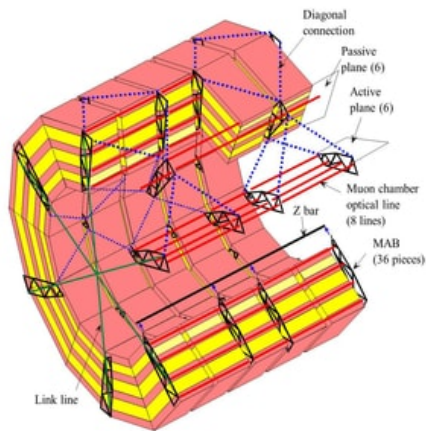
Detector Development at Debrecen

Balazs Ujvari

University of Debrecen, Atomki

23.09.2022.

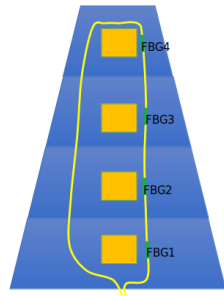
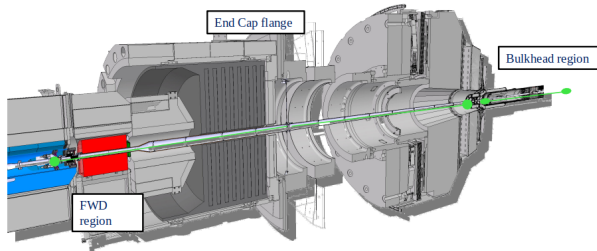




- Alignment of 250 Drift Tube chamber w.r.t each other

- 10k LED on the DT
- MAB: rigid carbon fiber structures attached to Barrel Yoke
- Each MAB has one Board computer
- 600 cameras on the MAB
- Calibration, reconstruction → 0.1-0.3 mm precision
- Measurements can be done in every two hours

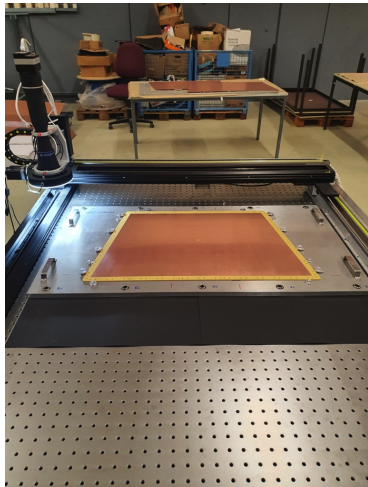




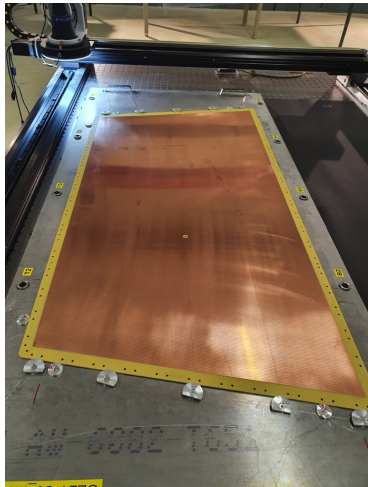
- Temperature monitoring of the beampipe of the CMS detector with Fiber Optical Sensors

- Temperature monitoring of GE2/1 chambers



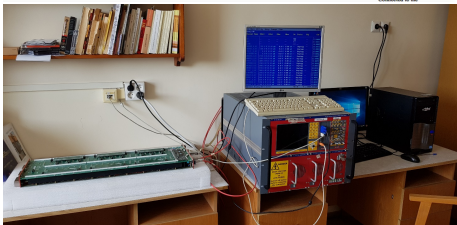
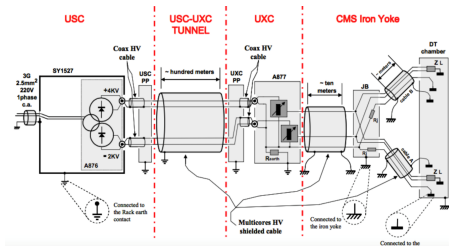


- So far 67 readout (RO) boards are scanned

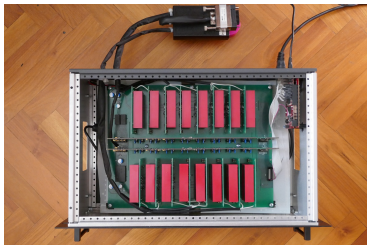
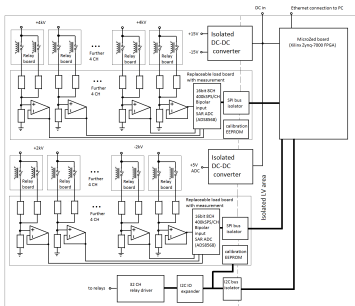


- In total 288 RO boards need to scan





- use the CAEN framework
- our own C/LabView code



- There are different loads





- SiPMs will arrive in arrays
- about 10k
- test at -40C°

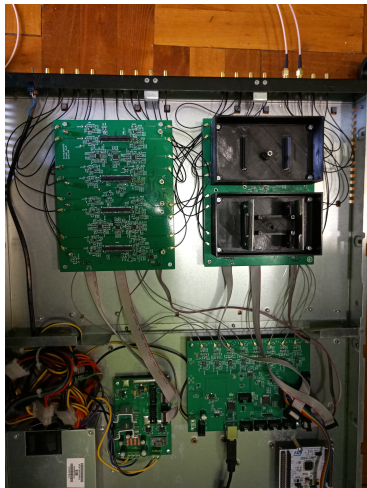
- IV scan
- SPS method
- Vbreakdown, gain, PDE



BTL Module Tester



- source Cs-137 → spectrum
- quality of the glueing, shortcuts...



- 32 channels, 160MSPS



CMS Group at Debrecen

- PhD physics: 4
- PhD informatics: 1
- PhD students: 5 (shared with BNL projects)
- senior engineers: 3
- junior engineers (BSc): 3
- undergrads: 10

Cost covered by OTKA/ITKA grants (3 running, 1 starts soon)
University hired 2 engineers and gave 2-3 smaller labs

