Raport from the Hardware Working Group

Marek Idzik

Faculty of Physics and Applied Computer Science
AGH University of Science and Technology
Cracow Poland

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Main Objectives of Hardware Group

- Presently the main Hardware Goal is to build a prototype of Compact Multilayer FCAL Detector

  – Within the AIDA-2020 project it is also our deliverable with the deadline originally in first part of 2019, but after the extension of AIDA2020 by one year, the deadline is moved to January/February 2020.

- Proceeding with hardware R&Ds: on sensors, ASICs, mechanics, alignment, DAQ, back-end electronics, …

- Test-beam preparation and data analyses – topic shared with Software&Analyses group

- 3 meetings from the last (October 2018) FCAL Workshop at Hamburg – in total 40 meetings
- Duration: ~1-1.5 hour
- Participation: > 5 people

Recent topics and presentations:

- Design of LumiCal prototype
  - Sensor testing
  - Carbon fibre envelopes and tungsten plates
  - FLAME readout ASIC
  - FPGA-based readout back-end for FLAME

Summary of meetings held
Technical info

Presentations in 38-40 HWG meetings:

- 38th HWG – discussion and updates from the groups
  - IFJPAN closes FCAL activities...
- Sensor testing in TelAviv using the new probe card / switch card system, Eva Sicking, 39 HWG
  - Setup with probe-card working well, C-V and I-V measurements started...
- Update on carbon fibre envelopes and tungsten plates, Eva Sicking, 39 HWG
  - 25 new tungsten plates arrived at CERN from Dubna,
  - flatness will be measured soon,
  - 25 new carbon envelopes produced at CERN
- FireDAQ for FLAME, Jakub Moroń, 39 HWG
  - back-end architecture simplified to one FPGA par sensor tail with new Trenz FPGA board
  - Works going very slowly – lack of man-power
- Status of back-end for FLAME readout, Jakub Moroń, 40 HWG
  - FLAME chip submitted!, Jakub has restarted works on the back-end...
  - In parallel Hans bought few new Trenz FPGA.

Summary of Hardware WG meetings

- Meetings have restarted after few months break…
- Last HWG meetings focused on development of compact LumiCal prototype (AIDA2020 delivery):
  - Sensor setup and testing is going well
  - Good situation with tungsten plates and carbon envelopes (>30 ready)
  - FLAME ASIC design completed, submitted to production, prototypes should arrive at the beginning of June
  - Works on FPGA-based DAQ for FLAME readout ongoing...
- New updated on hardware activities should will be presented during this workshop...

Thank You for Attention