Installation & Commissioning

- Installation of LTDBs and LDPBs completed, 1524 FEBs refurbished with LSBs, all cooling hoses replaced
- Legacy TTC (Trigger, Timing & Control) boards replaced with ALTI (ATLAS Local Trigger Interface) boards, which allow to run A and C side in parallel
- Control and monitoring infrastructure being updated

Conclusions

- Commissioning is now in its final steps: system in place and software and firmware update being finalized
- Good performance from Pilot Run data
- The system has been fully operational during Beam Splashes in April. Data analysis ongoing.

LAr Digital Processing Blades (LDPBs)
- Located in underground area, close to detector, to minimize latency
- 3 ATCA (Advanced Telecommunications Computing Architecture) shelves hosting 30 LDPBs
- Each LDPB comprises:
  - 1 LArC (LAr Carrier): signals readout from LTDB and transmission of TTC signals (Trigger, Timing & Control) to LATOME
  - Up to 4 LATOMEs (LAr Trigger prOcessing MEzzanines): E_{T}\text{, computation in high performance FPGA, and transmission to L1Calo System, after further processing by FEX (Feature Extractor)}
  - IPCM (Intelligent Platform Management Controller) for monitoring

Integration tests

- Mapping scans to check the connectivity of all channels
- Timing alignment
- Calibrations to validate pedestal values, pulse shape and gain linearity
- Similar noise level as before refurbishment

Pilot Beam results

- The system has been operational during Pilot Beam in October, collecting splashes and test collisions data at 900 GeV
  - Good consistency between digital trigger and main readout energy
  - Good LAr cells coverage
  - Timing tests (FEB offset timing, LAr cells and SC timing uniformity)
  - Operation also during April Beam Splashes: data analysis ongoing

References


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