

The Phase-I Trigger Readout Electronics Upgrade of the ATLAS Liquid Argon Calorimeters

Monday 25 May 2020 14:36 (18 minutes)

Electronics developments are pursued for the trigger readout of the ATLAS Liquid-Argon Calorimeter for the Phase-I upgrade during the LHC shut-down of 2019-2020. Trigger signals with higher spatial granularity and higher precision are needed in order to improve the identification efficiencies of electrons, photons, tau, jets and missing energy, at high background rejection rates, already at the Level-1 trigger. The LAr Trigger Digitizer system will digitize the 34,000 channels at a 40 MHz sampling frequency with 12 bit precision after the shaping of the front-end system. The data will be transmitted to the back-end LAr Digital Processing system to extract the transverse energies and perform the bunch-crossing identification. A demonstrator installed during Run-2 has helped validate the chosen technologies. Results of the ASIC developments and the status of the first boards installed will be presented, along with the overall system design.

Funding information

Author: ATLAS , Collaboration, LAr Project

Session Classification: Readout: Front-end electronics

Track Classification: Readout: Front-end electronics