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Integration and Commissioning of the ATLAS Tile Demonstrator Module for Run 3

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The Tile Calorimeter (TileCal) is the central hadronic calorimeter of the ATLAS experiment at Large Hadron Collider (LHC). The LHC will undergo a series of upgrades leading into the High Luminosity LHC (HL-LHC). The TileCal Phase-II Upgrade will accommodate the detector readout electronics to the HL-LHC conditions using a new clock and readout strategy.

The TileCal Phase-II upgrade project has undertaken an extensive R&D program. A Demonstrator module containing the upgraded on-detector readout electronics was built in 2014, evaluated during seven test beam campaigns, and inserted into the ATLAS experiment in 2019. This module will be operated in the ATLAS experiment during Run-3 (2022–2025) through a Tile PreProcessor (TilePPr) Demonstrator board implementing the upgraded clock and readout architecture envisioned for the HL-LHC. The TilePPr also provides backward compatibility of the Demonstrator module with the present ATLAS Trigger and Data Acquisition and the Timing, Trigger and Command systems.

This contribution describes in detail the hardware and firmware for the implementation of the data acquisition system of the Demonstrator module and discusses the results of the integration tests performed during the commissioning of the Demonstrator module for Run 3.

Minioral

Yes

IEEE Member

No

Are you a student?

No

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