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Prometeo: The new test bench for the electronics in ATLAS tile calorimeter in the upgrade.

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Abstract content
   (Max 300 words)
Formatting &
Special chars

The ATLAS detector is a general purpose detector at the LHC, which consists of several sub-detectors, such as the inner detector, the electromagnetic calorimeter, the hadronic calorimeter and the muon spectrometer. The tile-calorimeter is one of the most important part of the hadronic calorimeter in ATLAS. The signals in the tile calorimeter are collected by the front-end electronics and sent to the readout driver. In 2022, the elect ronics will be upgraded to fit the new technologies and have better performance. Prometeo is a portable test-bench for the full certification of the front-end electronics of the ATLAS Tile Calorimeter upgrade phase-II during that time. It is a high throughput electronics system designed to simultaneously read-out all the samples from 12 channels at the LHC bunch crossing frequency. The core of the system is a Xilinx VC707 evaluation board extended with a dual QSFP FMC module to read-out and control the front-end boards. The rest of the functionalities of the system are provided by a HV mezzanine board that to turn on the gain of the photo-multipliers, an LED board that sends light to illuminate the them, and a 12 channel ADC board that samples the analog output of the front-end. The system is connected by ethernet to a GUI client from which QA tests are performed on the electronics such as noise measurements and linearity response to an injected charge.

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No

Level for award
 (Hons, MSc,
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No

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