

The Monitoring of Pixel System (MOPS) chip for the Detector Control System of the ATLAS ITk Pixel Detector

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The ATLAS experiment will get a new inner tracker (ITk) during the phase II upgrade. The innermost part is called the Pixel Detector. A new Detector Control System (DCS) is being developed to provide control and monitoring of the ITk pixel detector.

The Monitoring of Pixel System (MOPS) chip is an Application Specific Integrated Circuit (ASIC) foreseen in the DCS to independently monitor the voltage and the temperature across the modules which constitute the front end electronics responsible for tracking and data readout. The modules which need to be monitored are powered serially in a chain. The MOPS chip has a 12-bit ADC which can read up to 34 channels. Controller Area Network (CAN) and CANopen protocols are used for communication.

The final chip is required to be radiation hard up to an ionizing dose of 500 Mrad. In this talk, the functionality of the chip will be discussed, and also results from the first version of the chip will be presented.

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No, this is an entirely new submission.

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