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Development of an ATLAS compatible ReadOutDriver for MicroMegas Detectors, based on the SRS system

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High-rate capable micro-pattern gas detectors, as miromegas, are foreseen to replace the current detectors in the innermost forward region of the ATLAS small wheel systems. In 2012, two micromegas prototype detectors have been installed inside the ATLAS myon spectrometer in front of a CSC detector. To read the data from these detectors together with the other ATLAS subsystems, a ReadOutDriver (ROD) based on the Virtex5 and Virtex6 FPGAs of the Scalable Readout System (SRS) has been developed. This system is highly scalable from a few hundered channels during detector development and test, up to the readout of a full sized detector subsystem. It integrates into the ATLAS readout chain and takes over tasks like trigger reception, data collection, slow control and eventbuilding, including trigger id, event id, bunchcrossing id and more. The structure of the ROD firmware is presented, together with first data from the system in the ATLAS environment.

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