

8th Beam Telescopes and Test Beams Workshop



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The Caribou DAQ System and its EUDAQ2 Integration

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Developing a new silicon detector requires significant effort for preparing the readout hardware and software for the prototype to be operated in the laboratory and test beams. The aim of the Caribou DAQ system is to significantly reduce the manpower and cost of developing such a system from scratch for every new chip. By utilizing modern system-on-chip (SoC) platforms, it combines programmable logic and a processing system and thereby brings unprecedented flexibility to the DAQ design. A universal interface card connects the SoC with the detector prototype, housing power supplies for biasing as well as DACs and ADCs for setting and measuring operational parameters, test pulses, etc. Through this versatile hardware and the modular design, the turnaround time for supporting new detectors can be minimized. The system is completed by a set of configurable firmware blocks for commonly used functionality as well as the DAQ software Peary. The latter is fully integrated into the EUDAQ2 framework and no further work is required to operate new prototypes in complex test beam environments.

This contribution provides an overview of the Caribou system with an emphasis on showcasing its ease-of-use and the integration into the EUDAQ2 framework for test beam measurements.

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