Contribution ID: **47** Type: **Poster**

# FELIX: the new detector interface for the ATLAS experiment

*Tuesday, 10 July 2018 16:00 (1 minute)*

During the next major shutdown from 2019-2021, the ATLAS experiment at the LHC at CERN will adopt the Front-End Link eXchange (FELIX) system as the interface between the data acquisition, detector control and TTC (Timing, Trigger and Control) systems and new or updated trigger and detector front-end electronics. FELIX will function as a router between custom serial links from front end ASICs and FPGAs to data collection and processing components via a commodity switched network. Links may aggregate many slower links or be a single high bandwidth link. FELIX will also forward the LHC bunch-crossing clock, fixed latency trigger accepts and resets received from the TTC system to front-end electronics. The FELIX system uses commodity server technology in combination with FPGA-based PCIe I/O cards. The FELIX servers will run a software routing platform serving data to network clients. Commodity servers connected to FELIX systems via the same network will run the new Software Readout Driver (SW ROD) infrastructure for event fragment building and buffering, with support for detector or trigger specific data processing, and will serve the data upon request to the ATLAS High Level Trigger for Event Building and Selection. This presentation will cover the design and status of FELIX, the SW ROD, and results of early performance testing.

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**Session Classification:** Posters

**Track Classification:** Track 1 - Online computing