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FELIX: commissioning the new detector interface for the ATLAS trigger and readout system

Thursday 28 May 2020 09:18 (18 minutes)

The ATLAS experiment will undergo a series of upgrades during the 2019-2021 LHC shutdown to maintain physics performance in the increasingly harsh collision environment. The Front-End Link eXchange (FELIX) will be introduced into the readout system as part of this upgrade. FELIX will be the interface between the data acquisition; detector control and TTC (Timing, Trigger and Control) systems; and any new or updated trigger and detector front-end electronics. FELIX is a router between custom serial links from front-ends to data collection and processing systems via a commodity switched network. FELIX also forwards the LHC bunch-crossing clock, fixed latency trigger accepts and resets received from the TTC system to the front-ends. FELIX uses FPGA-based PCIe I/O cards hosted by commodity servers running a software routing platform serving data to network peers. This presentation will cover FELIX design and the results of installation and commissioning activities in spring 2020.

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