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Status of the data acquisition, trigger, and slow control systems of the Mu2e experiment at Fermilab

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The Mu2e experiment at the Fermilab will search for a coherent neutrinoless conversion of a muon into an electron in the field of an aluminum nucleus with a sensitivity improvement by a factor of 10,000 over existing limits. The Mu2e Trigger and Data Acquisition System (TDAQ) uses otsdaq framework as the on-line Data Acquisition System (DAQ) solution. Developed at Fermilab, otsdaq integrates several framework components - an artdaq-based DAQ, an art-based event processing, and an EPICS-based detector control system (DCS), and provides a uniform multi-user interface to its components through a web browser.
Data streams from the Mu2e tracker and calorimeter are handled by the artdaq-based DAQ and processed by a one-level software trigger implemented within the art framework. Events accepted by the trigger have their data combined, post-trigger, with the separately read out data from the Mu2e Cosmic Ray Veto system.
Foundation of the Mu2e DCS, EPICS –an Experimental Physics and Industrial Control System –is an open-source platform for monitoring, controlling, alarming, and archiving.
A prototype of the TDAQ and the DCS systems has been built and tested over the last three years at Fermilab' s Feynman Computing Center, and now the production system installation is underway. The talk will present their status and focus on the installation plans and procedures for racks, workstations, network switches, gateway computers, DAQ hardware, slow controls implementation, and testing; installation of air curtains and the fire protection system. It will also discuss the network design and cabling, quality assurance plans and procedures for the trigger farm computers, and the system and software maintenance plans.

Collaboration

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