Trigger-DAQ and slow control systems installation and tests in the Mu2e experiment

Author: Antonio Gioiosa

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 \emph{otsdaq} framework as the online Data Acquisition System (DAQ) solution.
Developed at Fermilab, \emph{otsdaq} integrates several framework components - an \emph{artdaq}-based DAQ, an \emph{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 \emph{artdaq}-based DAQ and processed by a one-level software trigger implemented within the \emph{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. This work presents their status and focus on the installation plans and procedures for racks, workstations, network switches, gateway computers, DAQ hardware, slow controls implementation, and testing.