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The DAQ for the single phase DUNE Prototype at CERN

Thursday 14 June 2018 10:00 (20 minutes)

DUNE will be the world's largest neutrino experiment due to take data in 2025. Here is described the data acquisition (DAQ) system for one of its prototypes - ProtoDUNE-SP due to take data in Q4 of 2018. ProtoDUNE-SP also breaks records as the largest beam test experiment yet constructed, and is a fundamental element of CERN's Neutrino Platform. This renders ProtoDUNE-SP an experiment in its own right and the design and construction have been chosen to meet this scale. Due to the aggressive timescale, off-the-shelf electronics have been chosen to meet the demands of the experiment where possible. The ProtoDUNE-SP cryostat comprises two primary subdetectors - a single phase liquid Argon TPC and a companion Photon Detector. The TPC has two candidate readout solutions under test in ProtoDUNE-SP - RCE (ATCA-based) and FELIX (PCIe-based). Fermilab's artDAQ is used as the dataflow software for the experiment. Custom timing and trigger electronics and software are also described. Compression and triggering will take the ˜480 Gb/s of data from the front-end and reduce it sufficiently to 20 Gb/s bandwidth to permanent data storage in CERN's EOS infrastructure.
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Minioral

No

Description

DAQ for prototype

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