Contribution ID: **540**   Type: **Parallel session talk**

The MUonE DAQ: Online Track-finding and Event Selection in Hardware at 40 MHz

Friday 25 August 2023 09:10 (20 minutes)

High intensity beams provide a significant challenge to DAQ systems, in particular when reading out many sensors. The MUonE experiment has been conducting beam tests using the M2 muon beam at CERN, with in-spill intensity of 5×10^7 muons/s, using silicon strip sensors with a bandwidth of 5 Gb/s per module. A pilot run is scheduled for late summer, which will incorporate several such modules arranged in three tracking stations and a prototype electromagnetic calorimeter connected to a triggerless readout system. Limits on processing and data storage will necessitate online event selection to be implemented in hardware, on state-of-the-art AMD-Xilinx UltraScale+ FPGAs.

The status and plans of the MUonE DAQ operation will be presented, outlining a general purpose platform for online event selection, from simple occupancy cuts, to track reconstruction, vertexing and particle identification using low-latency machine learning.

Collaboration / Activity

MUonE Collaboration

Primary author: MONK, David (Northwestern University (US))

Presenter: MONK, David (Northwestern University (US))

Session Classification: T12 Detector R&D and Data Handling

Track Classification: Detector R&D and Data Handling