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The Mu3e Data Acquisition System

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The Mu3e experiment is designed to search for
the lepton flavor violating decay $\mu^+ \to e^+e^-e^+$.
The aim of the experiment
is to reach a branching ratio sensitivity of 10^{-16}.
The experiment is located at the Paul Scherrer Institute (Switzerland)
and an existing beam line providing 10^8 muons per second will allow
to reach a sensitivity of a few 10^{-15} in the first phase of the experiment.
The detector utilizes thin High-Voltage Active Monolithic Pixel Sensors
for precise position measurement
and scintillating fibre and tile detectors for precise time measurement.
In a first phase of experiment the total data rate will reach 100 Gbit/s.
This work will present Mu3e DAQ system
where this large stream of data from all detectors is sorted and merged.
The final stream of data is passed to GPU filter farm
where full track and vertex reconstruction is performed
to allow for reduction in data rate by factor of 100
for subsequent permanent storage.

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