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Design and Performance of the Belle II High Level Trigger

Friday 31 July 2020 11:20 (15 minutes)

The data acquisition system of Belle II is designed for a sustained first-level trigger rate of up to 30 kHz at the design luminosity of the SuperKEKB collider. The raw data read out from the subdetector frontends is delivered in realtime into an online High Level Trigger (HLT) farm, consisting of up to 20 computing nodes housing around 5000 processing cores. The HLT then reconstructs the events in realtime using the full Belle II reconstruction software. Based on this online reconstruction, events are filtered before being stored to disk for later offline processing and analysis.

In this talk, we will present the implementation of the newly developed data flow throughout the HLT system utilizing the open-source library ZeroMQ, which was first used in the beam run period in fall 2019. Additionally, we will present the physics performance of the filtering on the online system.

Secondary track (number)

14

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