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## Data Transportation with ZeroMQ at the Belle II High Level Trigger

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The data acquisition system of the 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, where it is reconstructed by the full Belle II reconstruction software in realtime. 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. We will compare the performance and capabilities of the new system with the previous implementation based on a custom shared memory ringbuffer and discuss advantages and disadvantages of both approaches.

## Minioral

Yes

## **IEEE Member**

No

## Are you a student?

No

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