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Initial performance of Belle II High Level Trigger and Back End Processing in the Beam Commissioning

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The Belle II experiment, a new generation B-factory experiment, is about to start data taking from April this year. The data acquisition system (DAQ) is now ready and waiting for the beam commissioning.

The data are processed by the High Level Trigger (HLT) equipped with 1600 cores. A high granularity parallel processing is performed to keep up with the L1 trigger up to 30kHz with a typical event size of 100kB. A full event reconstruction is performed on HLT for the software trigger, and also the track information is fed back to the pixel readout to reduce the data size down to 1/10 by the matching with the track. The data are merged with the HLT output and stored in high speed RAID arrays. The merged data are also fed into a PC cluster called ExpressReco at a reduced rate for the monitoring purpose. ExpressReco is equipped with 160 cores for the fine event reconstruction with the pixel data and the detailed data monitoring is performed. The beam colliding position is obtained and is fed back to the accelerator.

This contribution reports the initial performance of HLT and ExpressReco in the beam commissioning, together with the various experience on the whole Belle II DAQ system during the commissioning period.

Minioral

Yes

Description

backend processing

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