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【357】 Event reconstruction at 30 MHz - the LHCb experience

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In 2022 the LHCb experiment starts taking data using a redesigned data acquisition and trigger system. A complete event reconstruction at the full LHC bunch-crossing rate of 30MHz will be performed using a two-stage software trigger, using GPUs in the first stage and a farm of CPUs in the second stage.

I will show the performance and design of the real-time event reconstruction, discuss the challenges of implementing and running a purely software-based trigger at an LHC experiment and present first results from Run 3 data taking.

Primary author: DE CIAN, Michel (EPFL - Ecole Polytechnique Federale Lausanne (CH))

Presenter: DE CIAN, Michel (EPFL - Ecole Polytechnique Federale Lausanne (CH))

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