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Large-scale DAQ tests for the LHCb upgrade

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The Data Acquisition (DAQ) of the LHCb experiment will be upgraded in 2020 to a high-bandwidth triggerless readout system. In the new DAQ event fragments will be forwarded to the to the Event Builder (EB) computing farm at 40 MHz. Therefore the front-end boards will be connected directly to the EB farm through optical links and PCI Express based interface cards. The EB is requested to provide a total network capacity of 32 Tb/s, exploiting about 500 nodes.

In order to get the required network capacity we are testing various technology and network protocols on large scale clusters. We developed on this purpose an Event Builder implementation designed for an InfiniBand interconnect infrastructure. We present the results of the measurements performed to evaluate throughput and scalability measurements on HPC scale facilities.

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