

The InfiniBand based Event Builder implementation for the LHCb upgrade

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The LHCb experiment will undergo a major upgrade during the second long shutdown (2018 - 2019). The upgrade will concern both the detector and the Data Acquisition (DAQ) system, to be rebuilt in order to optimally exploit the foreseen higher event rate. The Event Builder (EB) is the key component of the DAQ system which gathers data from the sub-detectors and build up the whole event. The EB network has to manage an incoming data flux of 32 Tb/s running at 40 MHz, with a cardinality of about 500 nodes. In this contribution we present the EB implementation based on the InfiniBand (IB) network technology. The EB software relies on IB verbs, which offer user space API to employ the Remote Direct Memory Access (RDMA) capabilities provided by IB the network devices. We will present the performance of the EB on different High Performance Computing (HPC) clusters.

Primary Keyword (Mandatory)

DAQ

Secondary Keyword (Optional)

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