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MPV - Parallel Readout Architecture for the VME data acquisition system

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In the field of nuclear physics, DAQ systems based on the legacy parallel bus (CAMAC and VME) are still widely working. In case of RIKEN RIBF which is an accelerator facility dedicated for RI beams in Japan, about 20 VME crates are used for experiments. Recent trends of the DAQ front-end architecture are based on the micro-TCA (uTCA) or the direct attachment of the GigaBit Ehternet (GbE) link. In fact, some experiments in RIBF utilize both new uTCA/GbE based DAQ systems and legacy VME based systems. In most cases, uTCA/GbE based systems are much faster than VME. Our motivation is to speed up VME DAQ comparable to uTCA/GbE systems. Recently, we have successfully introduced an MPV system which has a parallel readout architecture compatible with the VME bus. The MPV system dramatically improves readout speed of the VME-based DAQ system. MPV consists of MOCO, MPV backplane (parallelized VME backplane), and MPV controller. MOCO is a small VME controller which is attached to each VME module (i.e. one VME module per one VME controller). About MOCO, it was reported by a poster contribution at 2016 IEEE RealTime Conference. Here, we newly developed the MPV backplane and the MPV controller which merge data from MOCOs and send data to the server through GbE. In this contribution, new architecture of MPV and the data throughput of the system will be shown.

Minioral

Yes

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Yes

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