

Fast and common data acquisition system in Japan and its applicability to the solenoidal spectrometers

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A worldwide and common issue in the data acquisition and processing is an increase in the data flow and data amount, although the human and budgetary resources are quite limited. In Japan, to overcome this situation, we are organizing the development platform SPADI Alliance, where more than 170 researchers and students are registered. The first package was released this year, and it has reached a throughput of 10 Gbps in total, thanks to the combination of the streaming readout front-end circuit AMANEQ TDCs and the streaming readout software NestDAQ. Some online filters in NestDAQ are also developed for the reduction of the data amount. Corrected data is monitored by the data analysis and monitoring software ARTEMIS. The data acquisition system is implemented in RCNP, J-PARC, RARIS and some small test experiments. Some other front-end electronics are under development: RAYRAW for the MPPC readout, SAMIDARE for the TPC readout, MIRA for the semiconductor readout, and the STAG for the gas chamber readout. In this paper, the details and an implementation of the system are introduced and its applicability to the solenoidal spectrometer will be discussed.

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