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Prototype of a multi-host type DAQ front-end system for RI-beam experiments

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The multi-host type DAQ front-end system is proposed and a prototype system is developed. In general, CAMAC/VME type ADC modules have a single trigger-input (or gate-input) port. In contrast, a prototype of a new system has multiple trigger-input ports. In addition, the Wilkinson-type and successive approximation ADCs have the dead time, whereas, this prototype system utilizes the combination of Flash-ADC and FPGA that enabling the dead-time free system. Corresponding to the trigger-input ports, data are sent to different back-end systems. So, a legacy ADC module is a 1-to-1 system, but, this proposing system is a 1-to-X system without loss.
This system will be applied for nuclear physics experiments at RIKEN RIBF which produces intense RI-beams. This multi-host type DAQ front-end system enables us to perform different experiments simultaneously at the same beam line. In this contribution, the concept and some performance-test results of the multi-host type DAQ front-end system will be shown.

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