Contribution ID: **121**   Type: **Oral Presentation**

Preliminary Design of CDEX-100 DAQ Architecture

Monday 1 August 2022 15:00 (20 minutes)

This paper introduces the DAQ architecture of CDEX-100 experiment and the preliminary test results. The target of CDEX-100 experiment is the direct detection of WIMPs and ^{76}Ge $0\nu\beta\beta$, it contains 100-kilogram HPGe detectors and is deployed in a large liquid nitrogen thermostat which located in CJPL-II underground laboratory. We have designed a DAQ system which responsible for waveform digitization, data triggering, time synchronization and data uploading to satisfy the requirement of CDEX-100 experiment. The system contains a data acquisition and timing chassis which conforms to the CPCI standard and a PCIe readout card for data dumping. Each chassis can provide 128 sampling channels(125 MSPS/16-Bit) and 80 Gbps upload bandwidth(maximum). The sampling channels and triggering methods can be flexibly configured by modifying the number of chassis. In addition, each chassis contains a trigger/timing board, which uses a WR module to fan out synchronization clocks to other boards in the same chassis through the backplane. Finally, the collected data of all chassis is transmitted to the PCIe acquisition card through optical fiber and saved in the storage servers.

Minioral

Yes

IEEE Member

No

Are you a student?

Yes

Author: WEN, Jingjun

Co-authors: XUE, Tao (Tsinghua University); WANG, Tianhao; JIANG, Lin; GUO, Xiaowei; LI, Jianmin; JIANG, Lin; Prof. LIU, Yinong

Presenter: WEN, Jingjun

Session Classification: DAQ System & Trigger - II

Track Classification: Data Acquisition System Architectures