

Preliminary Design and implementation of CGEM DAQ software

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The BESIII spectrometer offers a unique experimental setup to investigate Particle Physics. The CGEM (Cylindrical Gas Electron Multiplier) is designed to replace the BESIII inner drift chamber in order to avoid deterioration of its performance due to radiation background. This work aims to develop the CGEM DAQ software in the current BESIII DAQ framework. The functional requirements of CGEM DAQ include: IGUI, RUN control, event building, online monitoring, FEE configuration and data readout, raw data check and different run modes. The performance requirements should meet the 4KHz designed event rate and dead time should be less than five percent. Our work is mainly focused on upgrading the software framework to add a new layer of CGEM detector, and developing the CGEM specific functions. An integration testing system has been set up to perform preliminary test runs and system verification. The detailed design, implementation and test results of the system will be presented.

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