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Upgrade of the KEDR detector DAQ system

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The KEDR experiment is ongoing at the VEPP-4M e+e- collider at Budker INP in Novosibirsk. The collider center of mass energy range covers wide area from 2 to 11 GeV. Most of the up-to-date statistics were taken at the lower end of the energy range around charmonia region.

Planned activities at greater energies up to bottomonia would lead to significant rise of event recording rates and accelerator backgrounds, thus stressing the existing DAQ and trigger systems beyond their limits.

To operate at higher energies, we need to:

- reduce trigger decision time
- reduce time of transferring digitized data from electronics to computers

Described in the presentation DAQ upgrade plan includes:

- Re-design of trigger electronics using modern components to improve trigger decision time
- Development of new readout processors using ethernet connections
- New software for collecting events and electronics management
- High level of parallelization of data transfers and events processing
- Improved reliability based on readout computing cluster with redundancy

The upgraded DAQ system is very flexible and could be considered as a concept prototype for the perspective BINP project of Super Charm-Tau Factory.

Consider for promotion

No

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