

# Unified Software Framework for Upgraded Belle DAQ System

*Monday 13 February 2006 16:00 (20 minutes)*

The Belle experiment, which is a B-factory experiment at KEK in Japan, is currently taking data with a DAQ system based on FASTBUS readout, switchless event building and higher level trigger(HLT) farm. To cope with a higher trigger rate from the expected sizeable increase in the accelerator luminosity in coming years, the upgrade of the DAQ system is in progress. FASTBUS modules are being replaced with newly-developed pipelined readout modules equipped with Linux-operated CPUs, and additional units of the modularized event builder and HLT farm are being added. We developed a unified software framework for the upgraded DAQ system which can be used at all levels from the readout modules to the HLT farms. The software is modularized and consists of following components: a common data processing framework compatible with the offline analysis, point-to-point data transmitter and receiver programs over TCP connections, a ring buffer, an event building module, and a slow control framework. The advantage to have a unified framework is that a software module developed in offline can be directly executed at any levels of DAQ, even at the readout module. This makes the development of the DAQ software much easier. The experience with the unified framework in the partially-upgraded Belle DAQ system is presented.

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**Session Classification:** Online Computing

**Track Classification:** Online Computing