



Contribution ID: 30

Type: **Oral Presentation**

Belle2Link —a unified high speed link in Belle II experiment

Saturday 11 June 2011 11:40 (20 minutes)

The Belle II experiment is an upgrade of the KEK B-Factor Belle experiment. Upgrade of the accelerator to SuperKEKB, which will increase its luminosity to $8 \times 10^{35} \text{ cm}^{-2} \text{ s}^{-1}$, requires many new detector components: a totally new pixel detector, a significantly larger silicon vertex detector (SVD), replacement central drift chamber (CDC), new particle identification (PID) detector technologies, an improved readout electromagnetic calorimeter (ECL), higher rate KL and muon detector (KLM), and also completely upgraded trigger (TRG) and data acquisition systems (DAQ) to handle the 40 times higher rate. The collaboration has decided to use optical fibers and RocketIO for simple and reliable connections between Front-End Electronics (FEE) and Trigger and DAQ system for signal and data transmission. The system design is almost complete and a so-called Belle2Link — a unified high speed(HS) link for Belle II — has been defined for use between the FEE and DAQ in all subsystems. Proto-types of this unified HS link has been designed and Firmware in FEE part data collection and in DAQ part preprocessing has been developed. 3.125Gbps of stable data rate and $<10^{-15}$ BER has been reached. Some slow control over this high speed link is also implemented. Overall test with CDC prototype and file server system showed the present design satisfy the requirement. This presentation will give general description and also some technical issues.

Authors: Mr SUN, Dehui (Institute of High Energy Physics, Chinese Academy of sciences); Prof. LIU, Zhen'an (Institute of High Energy Physics, Chinese Academy of sciences)

Co-authors: Dr XU, Hao (Institute of High Energy Physics, Chinese Academy of sciences); Mr ZHAO, Jingzhou (Institute of High Energy Physics, Chinese Academy of sciences); Mr WANG, Qiang (Institute of High Energy Physics, Chinese Academy of sciences); Ms GONG, Wenxuan (Institute of High Energy Physics, Chinese Academy of sciences)

Presenter: Mr SUN, Dehui (Institute of High Energy Physics, Chinese Academy of sciences)

Session Classification: Trigger and DAQ Systems

Track Classification: Trigger and Data Acquisition Systems