Contribution ID: **282** Type: **presentation**

The Continuously Running iFDAQ of the COMPASS Experiment

Monday, 9 July 2018 11:15 (15 minutes)

Recently, a stability of Data Acquisition System (DAQ) has become a vital precondition for a successful data taking in high energy physics experiments. The intelligent, FPGA-based Data Acquisition System (iFDAQ) of the COMPASS experiment at CERN is designed to be able to readout data at the maximum rate of the experiment and running in a mode without any stops. DAQ systems fulfilling such requirements reach the efficiency up to 99%. The iFDAQ runs nonstop 24/7 regardless of nights, weekends or bank holidays for most of the calendar year. Thus, it puts stress on reliability and robustness of the system. Every undesirable interruption of data taking results in a possible loss of physics data. To improve the iFDAQ stability, the communication library DIALOG for the inter-process communication has been implemented and the DAQ Debugger has been developed for an error detection and incorporated to all iFDAQ processes. Moreover, the continuously running mode enables to collect data in runs with 200 spills without a necessity of any other user intervention and runs 24/7. Such mode affects all processes of the iFDAQ with high emphasis on reliability and precise synchronization. It helped to collect more physics data in run 2017. In the paper, we present the continuously running mode in more detail and discuss the overall iFDAQ stability.

Primary author: SUBRT, Ondrej (Czech Technical University (CZ))

Co-authors: BODLAK, Martin (Charles University (CZ)); FROLOV, Vladimir (Joint Institute for Nuclear Research (RU)); HUBER, Stefan (Technische Universitaet Muenchen (DE)); JARY, Vladimir (Czech Technical University (CZ)); KONOROV, Igor (Technische Universitaet Muenchen (DE)); KVETON, Antonin (Charles University (CZ)); LEVIT, Dmytro (Technische Universitaet Muenchen (DE)); NOVY, Josef (Czech Technical University (CZ)); STEFFEN, Dominik (Technische Universitaet Muenchen (DE)); TOMSA, Jan (Charles University (CZ)); VIRIUS, Miroslav (Czech Technical University (CZ))

Presenter: SUBRT, Ondrej (Czech Technical University (CZ))

Session Classification: T1 - Online computing

Track Classification: Track 1 - Online computing