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A real time pulse processing DAQ for neutron wall modular detector on RIBRAS experiments

In order to potentiate the experiments with Brazil Radioactive Ion Beam (RIBRAS), new VME (Versa Module Euro Card) Data Acquisition (DAQ) modules characteristics to control, triggering and data acquisition will be described. The DAQ should be defined to include the Double/Single Sided Silicon Strip Array and Neutron Wall detectors with maximum readout efficiency, no dead time, data selection and event synchronization.
CAEN digitizer modules for VME provide features like zero suppressed readout and overflow suppression. Zero suppression, once enabled, prevents conversion of value which is lower than user defined threshold. Overflow suppression, once enabled, aborts the memorization of data which constitutes an ADC overflow.
Adding FPGAs (field programmable gate array) to data acquisition provides pre- and post-algorithmic processing on data. The hardware elements chosen should have features that make the modules easy to program and handle.
A feasibility analysis of using this experimental setup to investigate the dineutron-cigar configuration in reactions with light radioactive nuclei is presented.

Notes

Primary authors: Dr PADRON DIAZ, Ivan (CEADEN/JINR); Dr LICHTENTHÄLER, Rubens (IF-USP, Sao Paulo, Brazil); Prof. A. LÉPINE-SCILY, Alinka (IF-USP, Sao Paulo, Brazil); Dr GASQUES, Leandro (IF-USP, Sao Paulo, Brazil); Dr ALVAREZ, Marcos (IF-USP, Sao Paulo, Brazil)

Presenter: Dr PADRON DIAZ, Ivan (CEADEN/JINR)