New DAQ and Digitizing systems of CMD-3 Detector.

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The CMD-3 Cryogenic Magnet Detector for VEPP-2000 Collider is under construction now. This paper describes hardware part of new DAQ system. The unique features of this system is low EMI, low power and high speed. This is serial-backplane LVDS –media based system. The DAQ system is easy scalable and low-cost due to output to commercially available Fast Ethernet. Special attention is devoted to how DAQ interact with Trigger and Digitizing subsystems. As example the "T2Q"Readout and Signal Processing Board for Drift Chamber of CMD-3 detector are presented. This Board includes 16 wire processing channels which performs double-end wire readout for charge division measurements and time measurement. Each wire processing channel supplied with a micro-trigger to operate in Common-Stop CMD-3 Trigger environment. The unique features of this Board are very high dynamic range to ensure good dEdx and high accuracy time measurement. Low size and low power consumptions are achieved utilizing commercially available components only. It is shown specially designed low EMI high-speed serial backplane DAQ has virtually no pick-ups and allows on-board preamplifier and on-board ground decoupling.

Summary

Modern Academic Research activity requires DAQ that combine high speed of data with high density of hardware. Also it will be cost-effective, easy scalable and low EMI. The DAQ system described is satisfactory approach of that task. Since it is built with commercially available components only it is cost-effective for small and medium size systems. Using of LVDS transceivers allows small power consumption and good EMI compatibility. In order to communicate with DAQ and Trigger each Digitizing Board are equipped with programmable First Level Trigger Preprocessor and DAQ Preprocessor. Current status is finishing of production.

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