

PXI BASED LOSS LESS CONTINUOUS DATA ACQUISITION SYSTEM FOR STEADY STATE TOKAMAKS

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Measurements are always associated with any experimental setup. But the requirements for the Plasma physics experiments and specifically Tokamaks are unique and different. Most of the plasma physics experiments operates in a pulse mode and capture the data during the plasma discharge and retrieve it later on for analysis and display. Next generation of Tokamaks are steady state where the discharge duration is of the order of 1000s of seconds. Such device demands a data acquisition system which is capable acquiring data loss lessly from plasma diagnostics so that no physics information is lost and no unnecessary data is acquired. The needs of loss less continuous acquisition have a significant effect on selection of acquisition hardware. Specifically the data management due to large amount of data generated by experiment and online display of data during experiment becomes very crucial. Usually in case of large physics experiments the data acquisition system has been normally based on VME and CAMC bus. But with an advent of newer technology many options are available for implementing loss less continuous data acquisition. The paper describes the Client/Server based PXI bus based loss less continuous data acquisition system making use of LabView, Labwindows/CVI. The collected data is directly streaming to hard disk and pushed on to network for users. In the paper performance of measure achieved on general purpose OS like windows operating system has been discuss along with future trends in technologies to meet the needs of present day plasma physics experiments.