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Digital acquisition development for neutron induced fission studies at LANSCE DEBRA RICHMAN, JOHN O'DONNELL, AARON COUTURE, SHEA MOSBY, STEVE WENDER, Los Alamos National Laboratory — The Los Alamos Neutron Science Center (LANSCE) is a neutron time of flight facility with a diverse group of experiments dedicated to the study of neutron induced reactions. A powerful proton LINAC is used to produce multiple pulsed neutron beams for which monitoring is required to track the neutron flux and energy distribution for each pulse. Digital DAQ techniques lend themselves well to beam monitoring and many of the experiments. Significant effort is being put into transitioning several traditional analog DAQ systems to state of the art digital systems. The Irradiation of Chips and Electronics (ICE House) and the Total Kinetic Energy of Fission (TKE) experiments are both transitioning to digital for the fall 2013 LANSCE run cycle. These new DAQ systems were built using the CAEN VME digitizer family, and both systems will benefit from reduced module count and zero deadtime. The TKE experiment utilizes FPGA firmware to streamline the acquisition system, as well as provide additional data for further analysis. Details of the implementation process along with preliminary data from both experiments will be presented.

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