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An Overview of the Nab Data Acquisition and Real Time Waveform Analysis System[1] DAVID MATHEWS, Univ of Kentucky, NAB COLLABORATION — The Nab neutron decay correlation experiment will measure the electron-neutrino correlation coefficient a and by extension unitarity of the CKM matrix. This coefficient will be determined through a measurement of the 2D energy spectrum of coincident protons and electrons on a pair of 127 pixel silicon detectors. The signals created by particles interacting with each pixel will be processed in FPGA on National Instrument digitizers using newly developed filtering techniques that allow for real-time fitting of pulse-shape parameters for extraction of both energy and timing. After initial processing on the FPGAs, relevant signals will be sent to Nvidia GPUs for higher precision energy and timing with lossless compression for long-term storage. An overview of the DAQ system design and algorithms will be presented.

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