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## A High Speed PC-Based Data Acquisition & Control System for Positron Imaging

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A high speed PC-based data acquisition system for use with positron imaging systems (e.g. ECAT scanners designed by CTI / Siemens) is presented. This system replaces old dedicated hardware with a compact, flexible device with the same functionality and superior performance. Data acquisition rates of up to 80 MBytes per second allow coincidence data to be saved to disk for real-time analysis or post processing. The system supports the storage of time information with resolution of a half millisecond and remote trigger data support. Control of the detector system is provided by high-level software running on the same computer. A modular positron camera with a flexible geometry suitable for performing Positron Emission Particle Tracking (PEPT) studies on a wide range of applications has been constructed. This camera relies on the new data acquisition system for control, data capture and storage, and real time analysis of event data.

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