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Image Acquisition and Processing with MTCA.4

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A wide variety of methods employed in diagnostic systems of large-scale physics experiments is based on data from visible and infrared light cameras. Observation of rapid physical processes requires the application of high-speed cameras, therefore the imaging systems should support high-performance image acquisition and processing. The systems should be also easily scalable and should allow the synchronization of a few cameras with each other and with other sensors.

The presentation will show MTCA-based system dedicated for data acquisition from ultrafast high-resolution cameras with Camera Link interface. The system supports data transfer with throughput up to 6.3 Gbit/s for single camera. Thanks to the modular structure of MTCA.4 architecture the system is scalable and can handle multiple cameras. The ability of connecting multiple cameras to single MTCA chassis greatly facilitates their synchronization as well as data acquisition and processing. Software developed for the system ensures primarily data acquisition and cameras control and monitoring. Moreover, it allows images recording and offline analysis. It also implements a set of basic algorithms for image processing.

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