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Framework for High-performance Video Acquisition and Processing in MTCA.4 Form Factor

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The video acquisition and processing systems are commonly used in industrial and scientific applications. Many of them utilize Camera Link interface for the transmission of a video stream from the camera to the host system.

The framework presented in the paper enables capturing such data, processing it and transmitting to the host CPU. It consists of MTCA.4-compliant frame grabber and a set of software libraries supporting several different cameras. It is designed for use in large scale physics experiments such as ITER tokamak or European X-Ray Free-Electron Laser (E-XFEL), as well as in the Centre for Free-Electron Laser Science (CFEL).

The proposed video acquisition solution features the world's first Camera Link frame grabber for the MTCA.4 architecture. Thanks to the modern FPGA circuit architecture, the deserialization is done using only the built-in ISERDES primitives, which reduces the costs and complexity of the required hardware.

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Description

Video DAQ

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