

Sven Stubbe - Implementation of GigE Vision standard and applications in MicroTCA

Thursday 6 December 2018 09:45 (15 minutes)

Camera-based solutions are commonly used in research and industrial automation in a wide variety of environments. High transfer rates and processing of large amounts of data with smallest possible latency are typical requirements. Applications range from basic inspection and diagnostic tasks to complex systems with multiple cameras in synchronization. Image processing algorithms can be implemented on different platforms: CPU, GPU, FPGA and DSP.

GigE Vision standard, based on Gigabit Ethernet, is a popular choice in scientific community because of the possibility to use commercial network equipment. Presented here is an implementation of GigE Vision stack in FPGA on DAMC-TCK7 board. This way we manage to achieve very low and deterministic latency as well as high throughput, which is very valuable for certain applications. The solution is completed with graphical user interface and a server for various control systems.

Current applications and possibilities for future will be presented.

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Session Classification: Session 5