Kithara Bulletin 14

A New Milestone for Real-Time Ethernet

Ethernet is the future. As one of the most reliable yet upscalable communication technologies, the interface has already a set place in automated industrial application fields. Thanks to years of experience in real-time network communication, Kithara has now taken the next step. For the very first time, Ethernet in real time can be used with 40 gigabit per second.

Specifically, this refers to the Intel controller XL710, whose implementation within Kithara RealTime Suite allows for network data rates of 10, 25 and 40 Gbit/s in conjunction with hard real-time capabilities. With this high quality of data rates combined with deterministic reaction times, even the most demanding requirements in research and industry can be fulfilled. This way,

Kithara further expands its continued support for nearly every network controller by Intel.

XL710 cards have ports for QSFP+ (Enhanced Quad Small Form-factor Pluggable Transceiver), an extension of SFP+ which is commonly used for 10 gigabit Ethernet. Instead of using four parallel 10 gigabit channels, it is possible to utilize a single channel for 40 Gbit/s. For Intel XL710, Kithara supports controller-specific features such as interrupt throttling for improved performance, adjusted data communication with flow control, hardware timestamping according to IEEE-1588 or checksum offload for the host CPU. Furthermore, jumbo frames can be used with up to approx. 9.5 KBytes.