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MicroTCA Motion Controller

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Synchrotron beamline is a complex spectroscopic system comprising numerous actuators and sensors. Successful scans demand data acquisition and precise motion control of multitude motors distributed over several parts of the system (diffractometer, monochromator, shutters).

The beamlines at DESY facility use legacy VMEbus motion control cards that are limited in I/O features and processing power. We have developed a MicroTCA compliant card that provides control of 16 motors per card in synchronous mode.

Processing power and I/O features of MicroTCA Motion Controller card(hereinafter DAMC-MOTCTRL) permit continuous scans, on the fly data analysis, cloud integration and daisy chaining. Conjunction of MicroTCA and DAMC-MOTCTRL architecture provides unparalleled flexibility in retrofitting or building completely new systems.

A beamline can be controlled either by a single MicroTCA crate that includes several DAMC-MOTCTRL cards or by several distributed MicroTCA crates. All DAMC-MOTCTRL cards at a beamline can communicate with each other either via MicroTCA backplane or via optical fiber. This attribute provides a control of synchronized motion of several motors at different locations within beamline premises.

Summary

Primary author: RADAKOVIC, Nikola (DESY)

Presenter: RADAKOVIC, Nikola (DESY)

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