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Beam Position Monitoring using MicroTCA for Diamond-II

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Diamond Light Source is preparing to replace the synchrotron injector and storage ring to upgrade the facility into a fourth-generation light source. This new machine, Diamond-II, requires faster beam diagnostics to feed improved feedback systems, enabling a significant reduction in beam emittance. Data rates increasing from 10 kHz to 100 kHz has led us to develop an in-house solution based on the MicroTCA platform. For Diamond-II, x-ray beam position monitors will be included in the same feedback systems as electron beam position monitors, so the ability to integrate them side-by-side in the same shelf is convenient. This paper will present the design of the standard cell diagnostics shelf including the structure of the communications interfaces.

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