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A cost-effective Module for Divertor Bolometer Diagnostics

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Various Advanced Mezzanine Cards (AMCs) are developed based on the MicroTCA.4 technology. The standard always requires basic functionality including: Module Management and Rear-Transition Module Controllers, fabric interface, power supply, clock and synchronization. The module usually provides some programable resources that can be used by the final application.

A second version of cost-effective but effective AMC module was developed for the divertor bolometer diagnostics system of W7-X stellarator. The rationale for this project was to develop a very simple module providing basic functions required in many projects in a short period of time. The AMC module is equipped with Xilinx Artix-7 FPGA, PCIe x4, gen. 2 fabric interface, TCLK and MLVDS lines and Zone 3 digital connection.

Moreover, the module has 4 programmable digital lines on the front panel. The development and production costs were further optimised using the smart Module Management Controller developed at Lodz University of Technology, Department of Microelectronics and Computer Science.

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