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Yocto Embedded Linux for SoC based AMCs –Latest developments for demanding applications

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The MicroTCA Technology Lab provides a full-blown Yocto Linux system for the latest DESY SoC based AMC (Advanced Mezzanine Card®) developments which can be tailored to respective user applications. The related code repositories (called "layers" in the Yocto world) have been refactored and consolidated to increase interoperability and to minimize redundancy.

Including the latest developments, the BSP provided by the MicroTCA Technology Lab allows to build Linux images for different AMCs, targeting different SoC architectures with different Programmable Logic (PL) bitstreams, while using the same set of layers. For retrieving critical MicroTCA management information at application level (e.g. calibrate ADCs by using on-board sensor information or issue a Linux Operating System shutdown when the AMC handle gets pulled) it also features a data interface to the AMCs Module Management Controller (DMMC-STAMP). The MicroTCA Technology Lab Yocto BSP layers are released as open source on GitHub and integrated with the DESY Firmware Framework (FWK).

This contribution gives a summary of the latest MicroTCA Technology Lab developments in Yocto Linux and outlines application examples running on the latest DESY AMCs (e.g. DAMC-FMC2ZUP, DAMC-FMC1Z7IO and DAMC-DS812ZUP).

Primary author: HUESMANN, Patrick (ITT (Business Development Office))

Co-authors: STUBBE, Sven (ITT (Business Development Office)); Mr DÜLSEN, Carsten (ITT (Innovation und Technologietransfer))

Presenter: HUESMANN, Patrick (ITT (Business Development Office))

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