

## Introduction to DESY' s firmware framework FWK

In recent years, DESY has developed an open-source FPGA firmware framework, known as FWK, to streamline and accelerate FPGA development in the scientific community, especially with MicroTCA hardware. At its core, the framework serves as an abstraction layer that simplifies the use of various FPGA vendor tools, facilitates IP integration, and helps with documentation generation. Additionally, FWK can generate a tailored embedded operating system based on Yocto or FreeRTOS to create and build more advanced firmware stacks for modern heterogeneous processing architectures.

This presentation will provide an overview of the FWK framework and its application using the PETRA IV motion controller project as a real-world example.

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