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A build system for DAMC-FMC25 Board Support Package

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In the development of custom applications based on the DAMC-FMC25 Board Support Package an advanced build system is used to ensure high quality of the application as well as traceability of the source code and possibility to reproduce the build. The build system is composed of three parts: a tcl script which rebuilds the entire project directly from the source code from version control, a Python script which runs all unit tests to check the inconsistencies between design and implementation, and a Doxygen (Doxverilog) configuration file which automatically creates low-level documentation from the comments in the source code. The use of automated tests dictates a modular design, which simplifies migration of FPGA modules between FPGA families. Build system integrates AXI Bus Functional Models which can be used to exercise and collect data from the Module Under Test. A comparison of our build system with hdlmake will be given and some examples of migration from Virtex-5 series FPGA to Kintex UltraScale series FPGA will also be presented.

Primary author: Mr MARJANOVIC, Jan (CAEN ELS d.o.o.)

Presenter: Mr MARJANOVIC, Jan (CAEN ELS d.o.o.)

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