

CONTROL SOFTWARE FOR THE RED PITAYA ZYNQ ARM PROCESSOR

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The ROACH2 high performance processing board is fitted with an external Power PC for controlling the FPGA. Its successor, the SKARAB board, uses the softcore microblaze for controlling and communicating with the FPGA fabric. The new educational Red Pitaya board is fitted with a Zynq FPGA, which combines an ARM hardcore processor with the FPGA fabric. In the true CASPER spirit we looked at reusing and extending existing software. TcpBorphServer is control software which supports the KATCP protocol and has been extensively used for controlling and communicating to CASPER hardware. Therefore it has been chosen as the control software for the Red Pitaya. This presentation will introduce the TcpBorphServer and explain why it is ideal to work with the ARM processor. It will cover the changes required to the software and explain what is involved in porting the TcpBorphServer Software to the ARM processor on the Red Pitaya. The memory mapping changes required for the programming of the FPGA fabric and the reading/writing of the registers will be discussed. This presentation will cover the core functionalities required to control the Red Pitaya. Finally, the future developments to the TcpBorphServer will be discussed e.g. extended support for a slower data transfer rate via the 1 GB interface.