ZYBO Board Peripherals for the Linux Driver Development Course

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Abstract

This thesis deals with design and implementation of simple peripherals in FPGA of system-on-chip Xilinx Zynq on Digilent ZYBO board. A total of four peripherals are designed, documented and implemented. Linux drivers are also implemented for each peripheral. The peripherals have control and status registers visible via AXI bus to two ARM cores running Linux. The first peripheral generates interrupts when change of buttons or switches takes place. It also allows write to LEDs. Other peripherals besides interrupts implement DMA transfers. The second peripheral implements simple transformation function, the next one represents disk drive with scatter/gather support and with storage in RAM and the last peripheral is an imitation of a configurable camera.

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