



A ToPix test setup

Panda Meeting Stockholm 2010

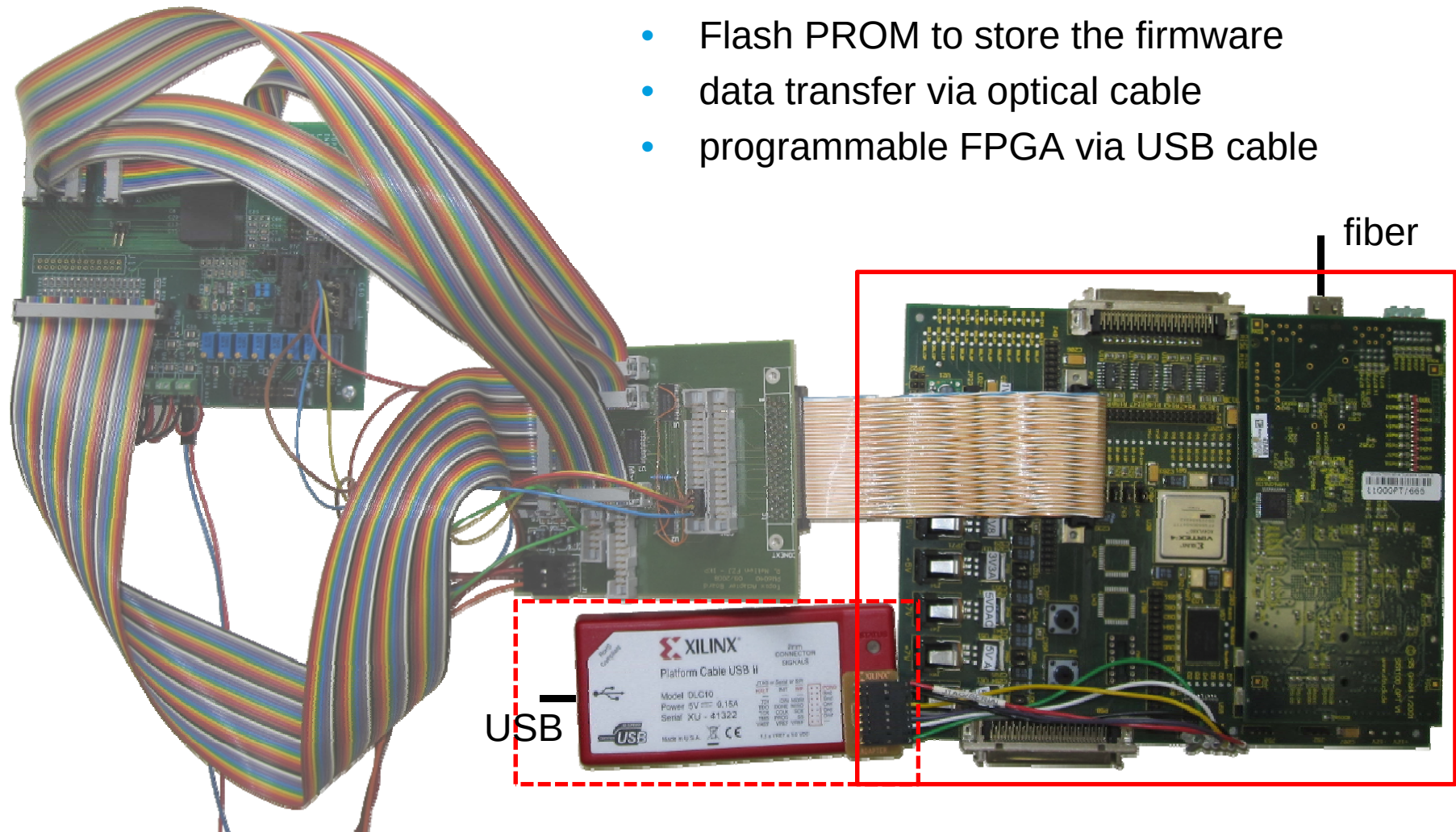
Content

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 - readout board tutorial
- Summary and outlook

Experimental setup (table top part)

Digital Readout Board:

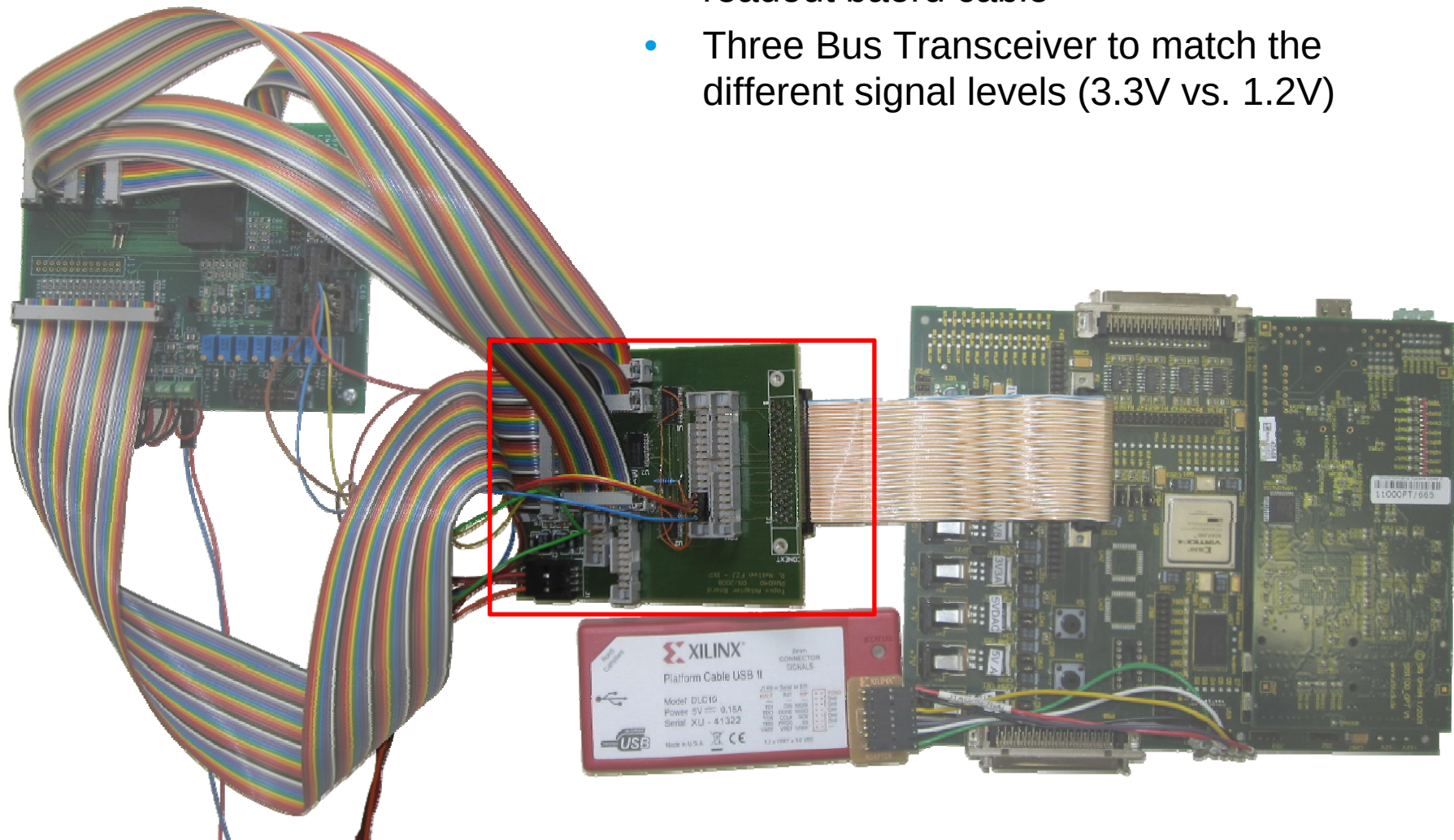
- has FPGA (Virtex4) with ToPix2 firmware
- Flash PROM to store the firmware
- data transfer via optical cable
- programmable FPGA via USB cable



Experimental setup (table top part)

ToPix2 Adapter Board:

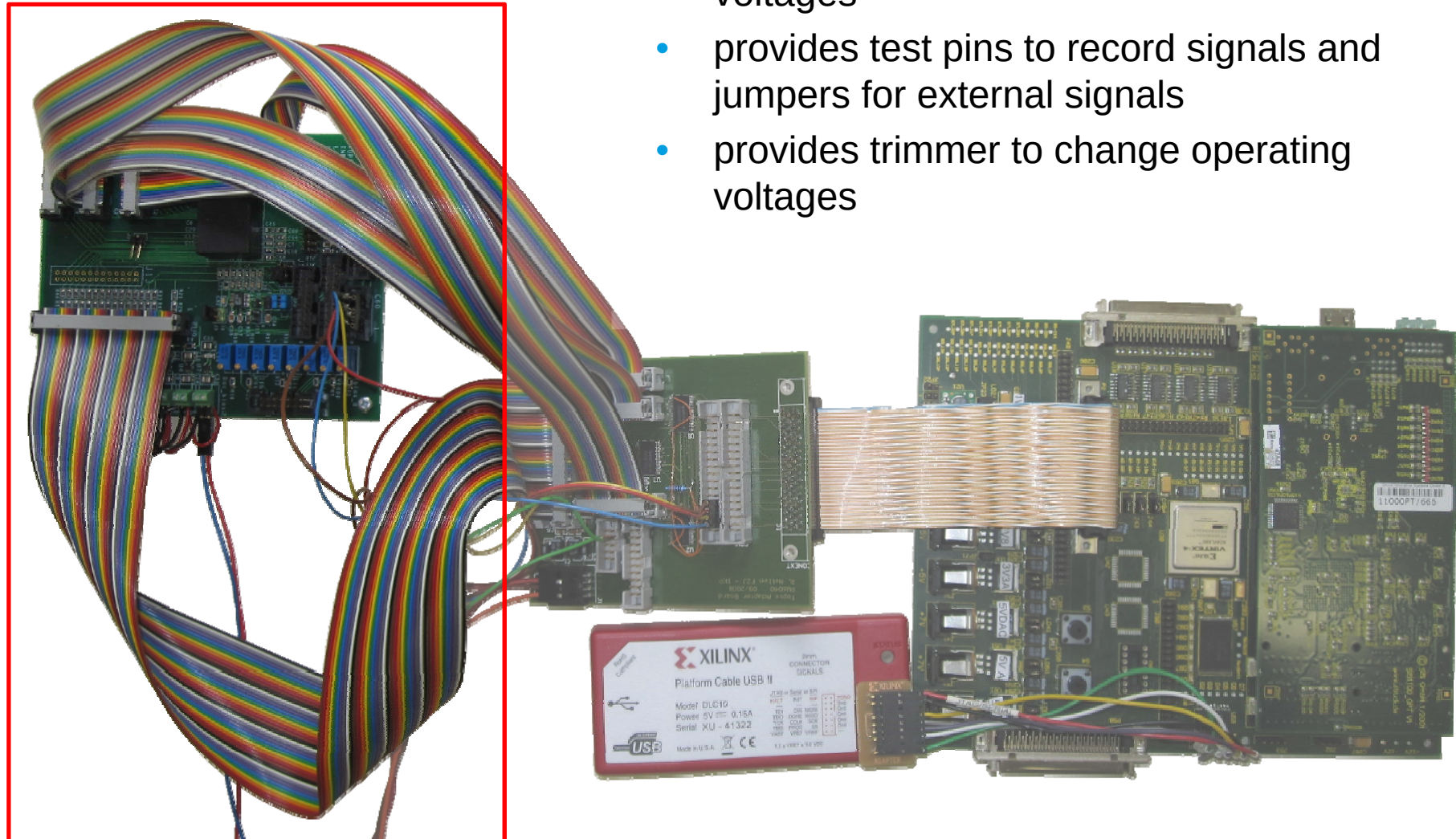
- Interfaces the ToPix cables to the readout board cable
- Three Bus Transceiver to match the different signal levels (3.3V vs. 1.2V)



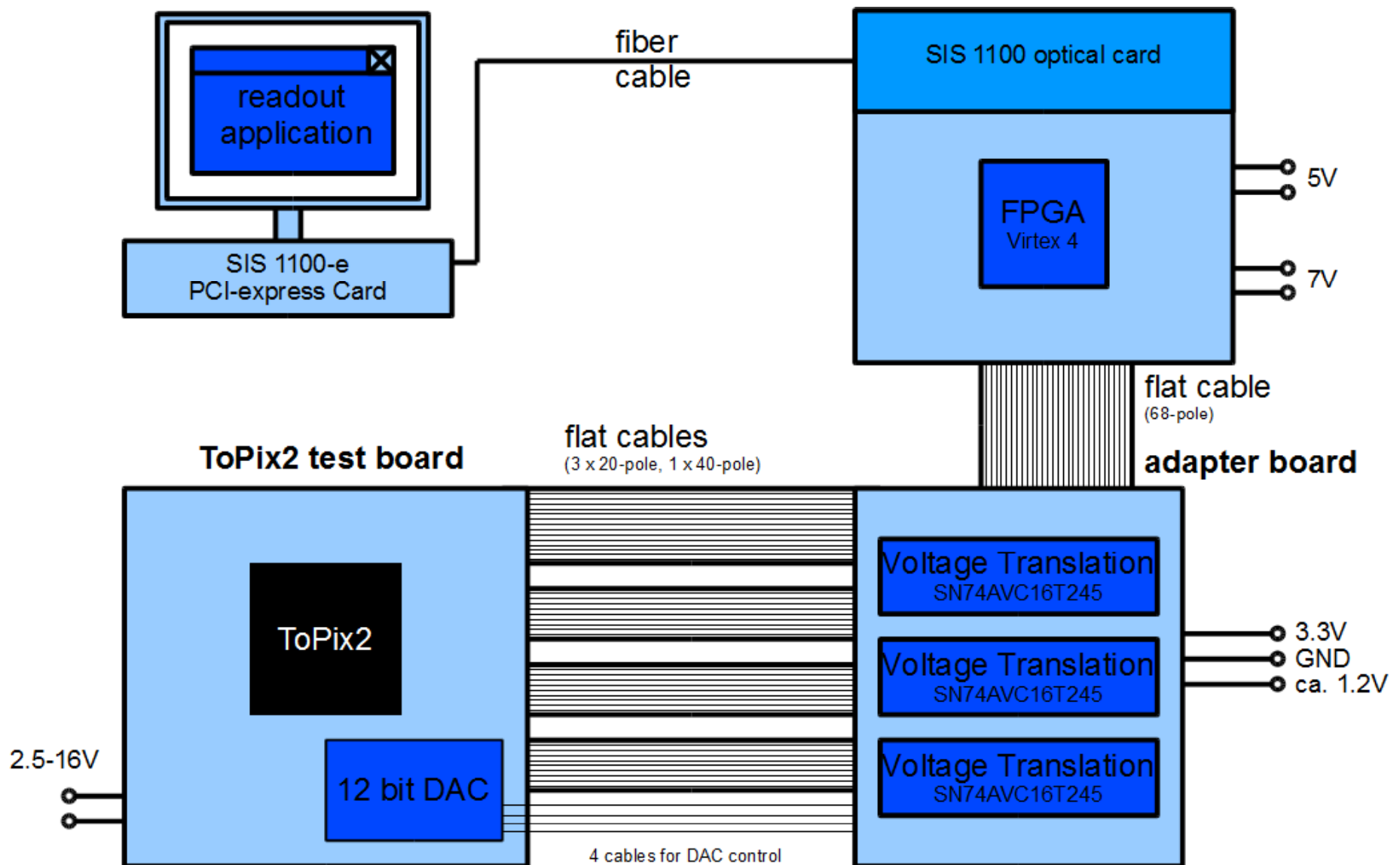
Experimental setup (table top part)

ToPix2 Test Board:

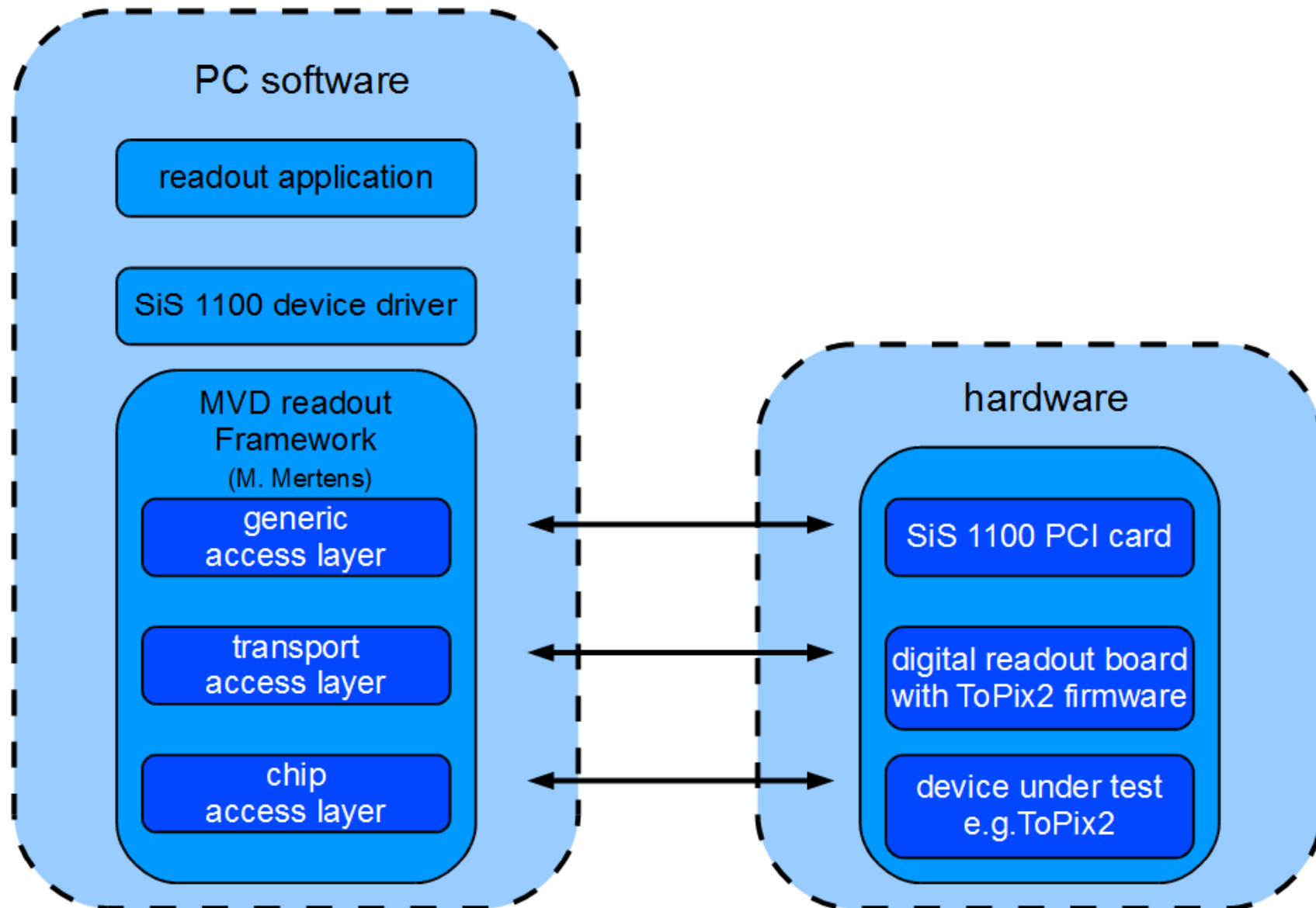
- provides a 12-bit DAC to set the needed voltages
- provides test pins to record signals and jumpers for external signals
- provides trimmer to change operating voltages



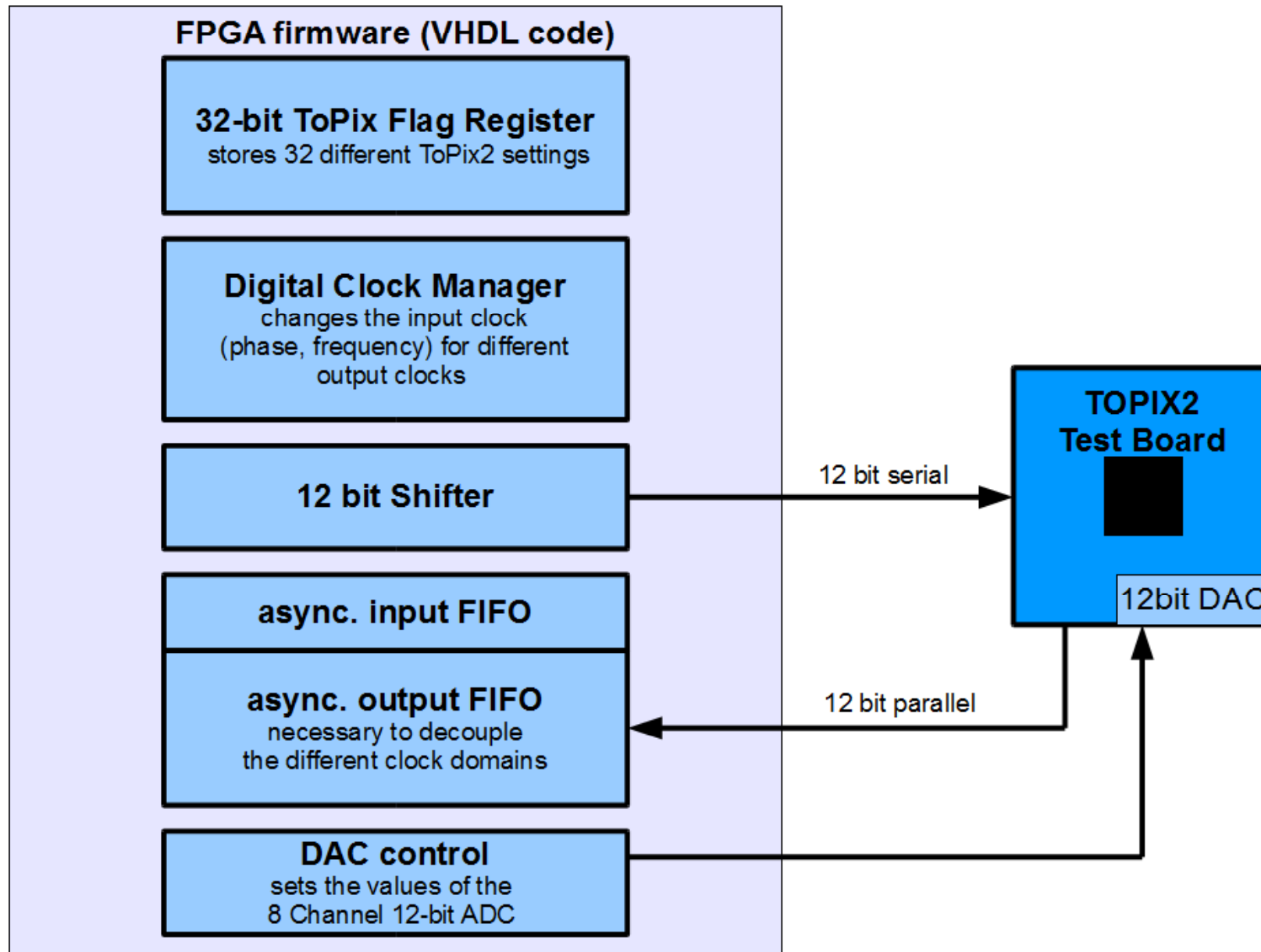
Experimental setup



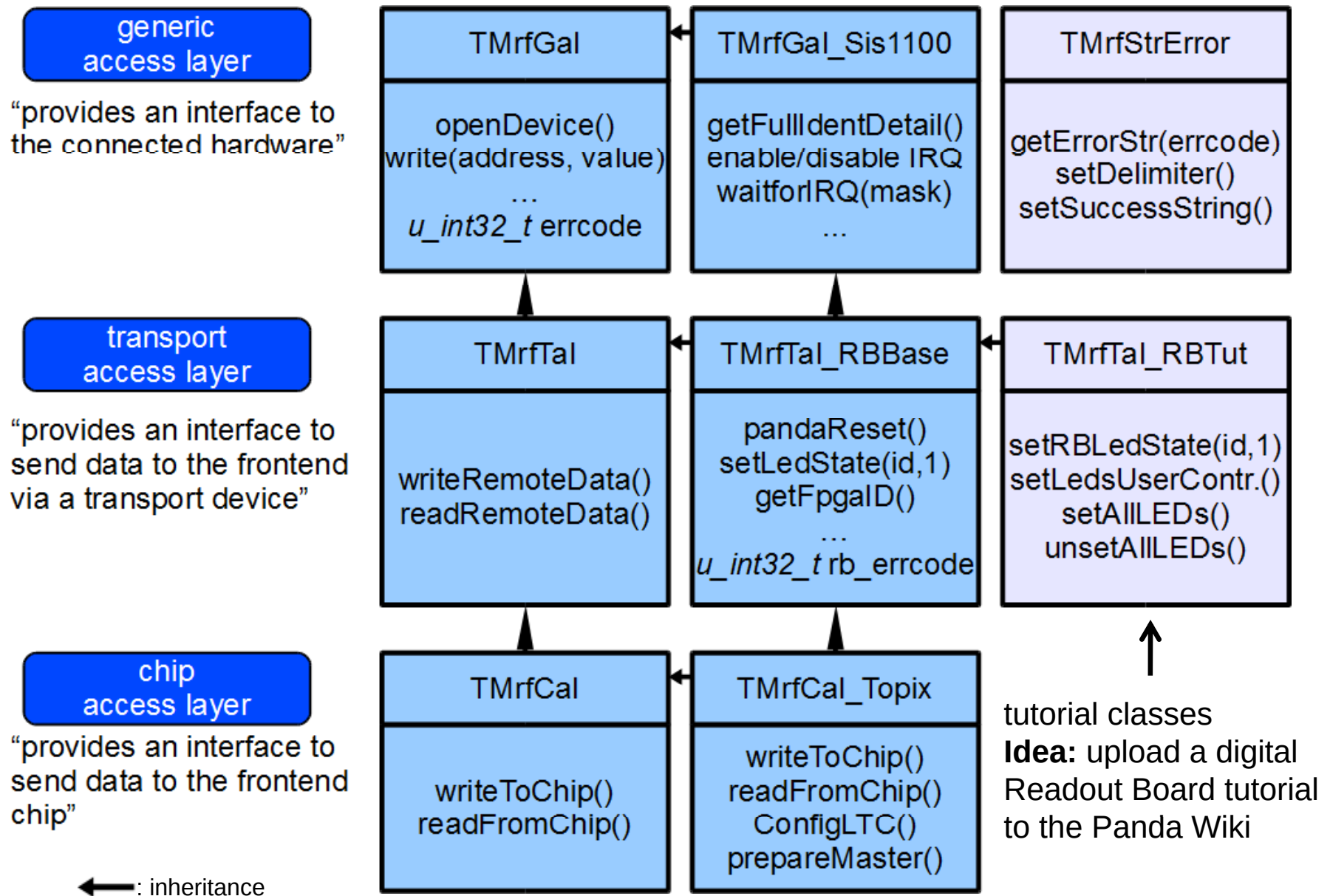
Conceptual overview



FPGA ToPix2 Firmware modules

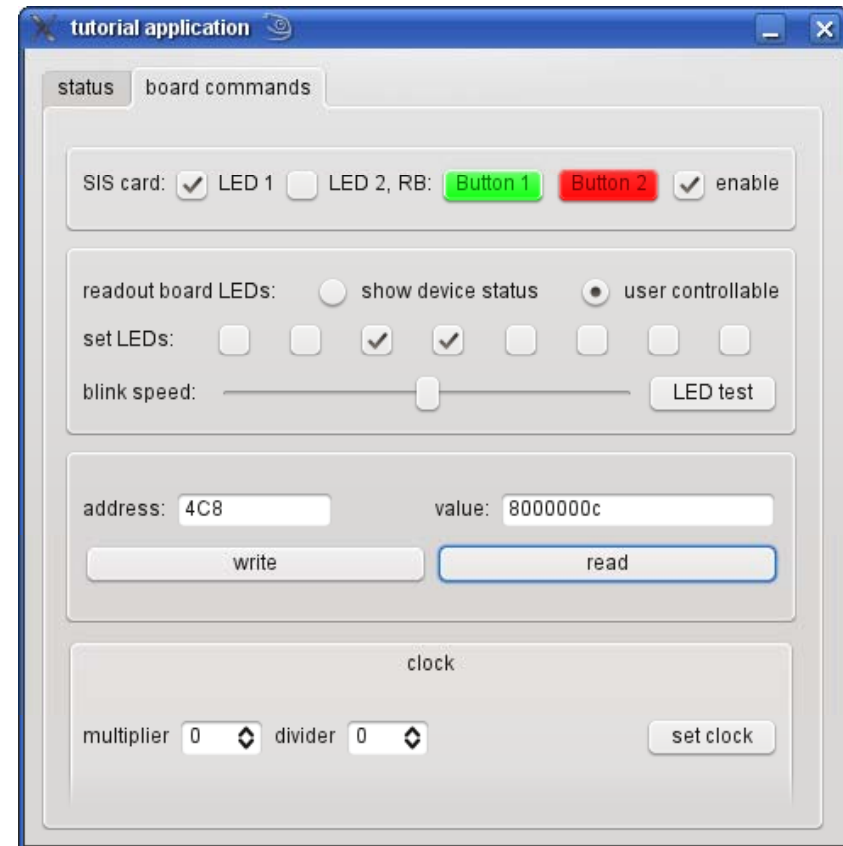
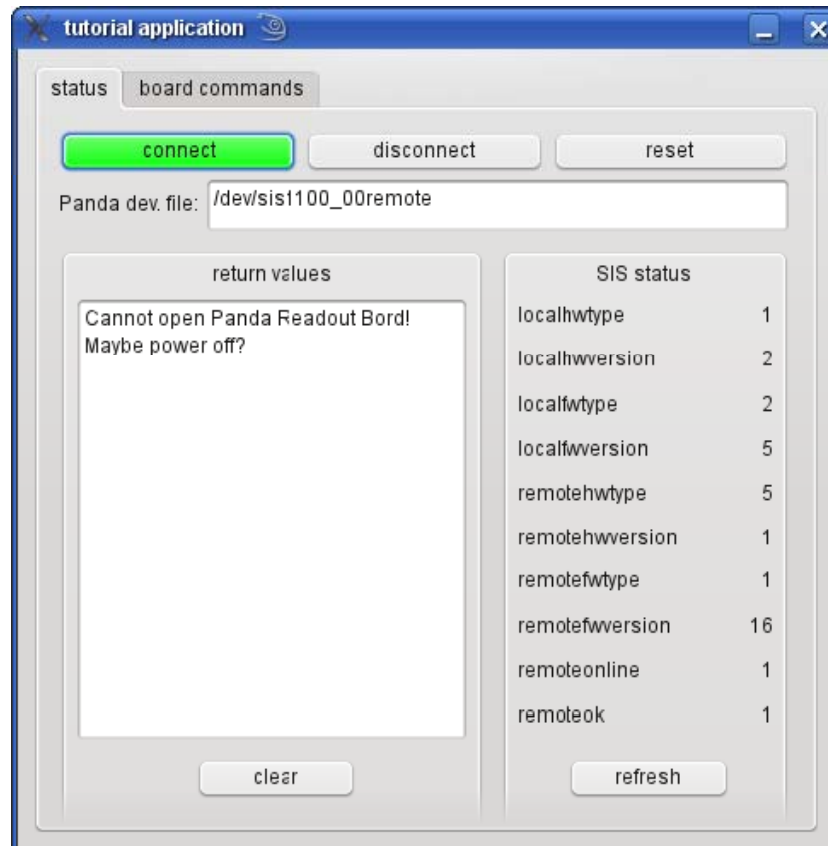


MVD readout framework + tutorial addition

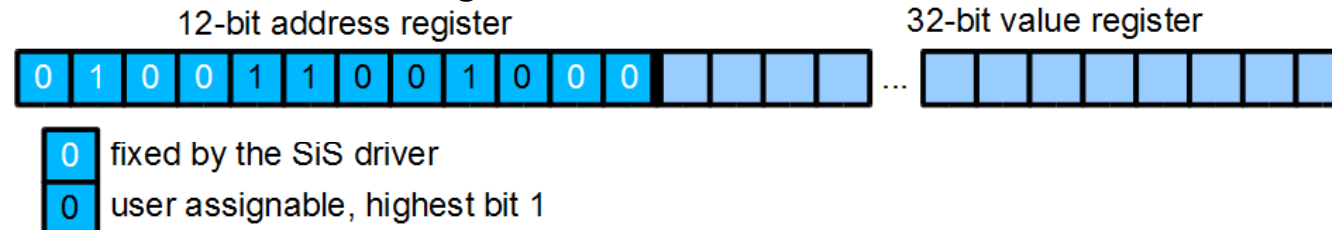


Readout board tutorial (in C++, Qt, VHDL)

readout application



FPGA code: define additional registers



Summary

- able to set the ToPix2 voltage levels via DAC
- communication with the ToPix2 works
e.g. write/read data words, start the counter

Outlook

- test the chip behavior with different parameters
e.g. voltages, clock frequencies
- measure the time over threshold for different pixels at different threshold levels

Thank you for your attention!