

# Real-time DSP implementation for optical coherent receiver

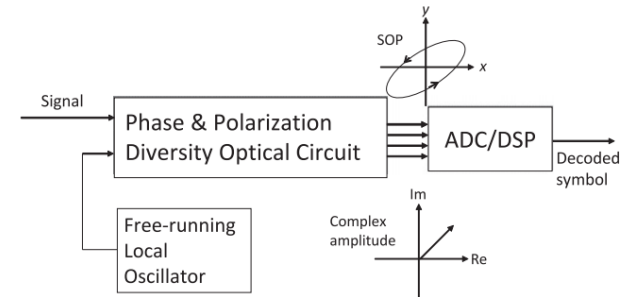
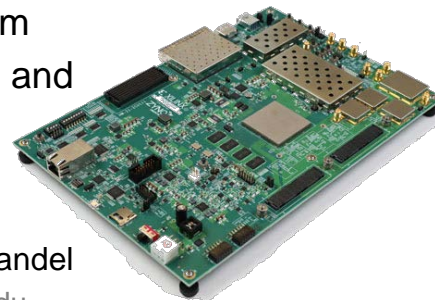
Digital signal processing (DSP) applied to a coherent optical receiver provides superior receiver sensitivity and tolerance against transmission impairments such as chromatic dispersion, polarization-mode dispersion, and laser phase noise. The recent development of high-speed analog-to-digital converters (ADCs) and DSP engines implemented in field programmable gate arrays (FPGAs) make it possible to demonstrate multi-Gbit/s transmission in the lab in real time. The position will involve the design, implementation, and the test of optimized algorithms on a Xilinx RFSoc platform.

## Position:

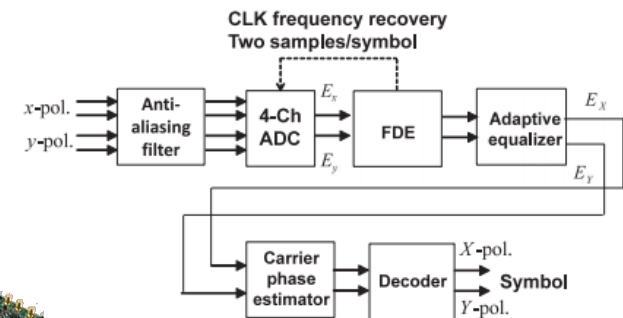
- 40h/month, Possible extension to a master thesis

## Your Tasks:

- Logic circuit implementation in VHDL/Verilog
- Design verification using QuestaSim/ModelSim
- Hardware implementation using Xilinx Vivado and Xilinx FPGA Evaluation Kit



**Fig. 1** Basic configuration of a digital coherent receiver [1]



**Fig. 2** Typical sequence of DSP for decoding symbol [1]

## Interested? For more information contact:

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[1]: Kikuchi, JLT, Vol. 34, No. 1, 2016