**FPSoC using Xilinx Zynq for medical image coding**

**based on the quaternionic paraunitary filter banks**

**Petrovsky N.**

**Stankevich A.**

**Petrovsky A.**

Belarusian State University of Informatics and Radioelectronics

**Abstract.** In this paper, we have introduced a low-cost FPSoC for medical image coding and implemented to telemedicine applications based on the Xilinx Zynq. We have recently introduced a generalized block-lifting structure using the 2-D CORDIC algorithm as a block of 4- and 8-band linear phase paraunitary filter banks (LP PUFB) based on the quaternionic algebra (Q-PUFB) with one-regularity constraints on hypercomplex coefficients of the schemes for the lossy-to-lossless image coding. Its structure can implement the integer-to-integer transform (I-Q-PUFB). The parallel-pipelined efficient architecture (P2E\_Q-PUFB) has been proposed. The low latency separable image processing is implemented in the given architecture.

**Keywords:** FPGA; lossless image coding.

<http://ieeexplore.ieee.org/document/7454573/>

<https://doi.org/10.1109/HealthCom.2015.7454573>