River Publishers

Acceleration of Biomedical Image Processing with Dataflow on FPGAs

Authors:

Frederik Grüll, Goethe University Frankfurt, Germany

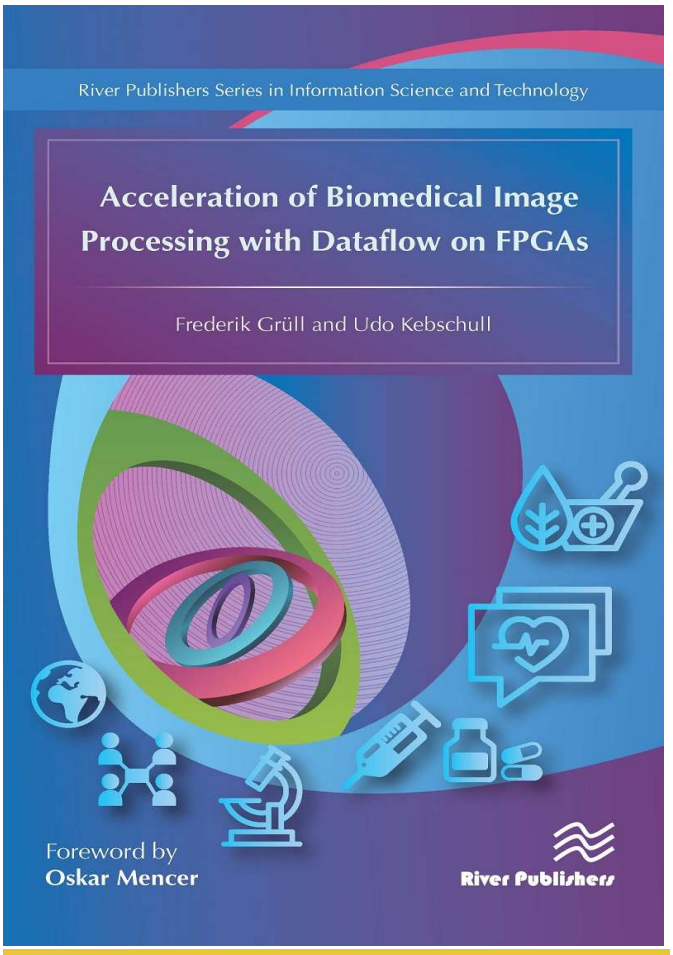
Udo Kebschull, Goethe University Frankfurt, Germany

Short compute times are crucial for timely diagnostics in biomedical applications, but lead to a high demand in computing for new and improved imaging techniques. In this book reconfigurable computing with FPGAs is discussed as an alternative to multi-core processing and graphics card accelerators. Instead of adjusting the application to the hardware, FPGAs allow the hardware to also be adjusted to the problem.

Acceleration of Biomedical Image Processing with Dataflow on FPGAs covers the transformation of image processing algorithms towards a system of deep pipelines that can be executed with very high parallelism. The transformation process is discussed from initial design decisions to working implementations. Two example applications from stochastic localization microscopy and electron tomography illustrate the approach further.

Topics discussed in the book include:

- Reconfigurable hardware
- Dataflow computing
- Image processing
- Application acceleration



River Publishers Series in Computing and Information Science and Technology

ISBN: 9788793379367
e-ISBN: 9788793379350
Available From: June 2016
Price: € 65.00 $ 82.99

KEYWORDS:
FPGAs, reconfigurable hardware, dataflow computing, image processing, high-performance computing

www.riverpublishers.com
marketing@riverpublishers.com