

Contents

1	The Evolution of Software-Defined Radio: An Introduction	1
	Waqar Hussain, Jouni Isoaho, and Jari Nurmi	

Part I Architectures, Designs and Implementations

2	Design Transformation from a Single-Core to a Multi-Core Architecture Targeting Massively Parallel Signal Processing Algorithms	7
	Waqar Hussain, Henry Hoffmann, Tapani Ahonen, and Jari Nurmi	
3	The CoreVA-MPSoC: A Multiprocessor Platform for Software-Defined Radio	29
	Gregor Sievers, Boris Hübener, Johannes Ax, Martin Flasskamp, Wayne Kelly, Thorsten Jungeblut, and Mario Porrmann	
4	Design and Implementation of IEEE 802.11a/g Receiver Blocks on a Coarse-Grained Reconfigurable Array	61
	Sajjad Nouri, Waqar Hussain, Diana Göhringer, and Jari Nurmi	
5	Reconfigurable Multiprocessor Systems-on-Chip	91
	Diana Goehringer	
6	Ninesilica: A Homogeneous MPSoC Approach for SDR Platforms ..	107
	Roberto Airoidi, Fabio Garzia, Tapani Ahonen, and Jari Nurmi	

Part II Software-Based Radio Cognition and Implementation Tools

7	Application of the Scalable Communications Core as an SDR Baseband	123
	Anthony Chun and Jeffrey D. Hoffman	
8	HW/SW Co-design Toolset for Customization of Exposed Datapath Processors.....	147
	Pekka Jääskeläinen, Timo Viitanen, Jarmo Takala, and Heikki Berg	
9	FPGA-Based Cognitive Radio Platform with Reconfigurable Front-End and Antenna.....	165
	Aitor Arriola, Pedro Manuel Rodríguez, Raúl Torrego, Félix Casado, Zaloa Fernández, Mikel Mendicute, Eñaut Muxika, Juan Ignacio Sancho, and Iñaki Val	
10	Synchronization in NC-OFDM-Based Cognitive Radio Platforms ...	189
	Farid Shamani, Tapani Ahonen, and Jari Nurmi	
11	Towards Adaptive Cryptography and Security with Software Defined Platforms	209
	Antti Hakkala, Jouni Isoaho, and Seppo Virtanen	
12	The Future of Software-Defined Radio: Recommendations	237
	Waqar Hussain, Jouni Isoaho, and Jari Nurmi	
	Bibliography	239

Computing Platforms for Software-Defined Radio

Hussain, W.; Nurmi, J.; Isoaho, J.; Garzia, F. (Eds.)

2017, XII, 240 p. 19 illus., 9 illus. in color., Hardcover

ISBN: 978-3-319-49678-8