



Next-Generation Chip and System Solutions

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Abstract: Technology scaling is power-limited, so compute energy efficiency improvements have to come from chip and system architectures. Increasing application diversity also argues for a more flexible compute architectures, further emphasizing the need for energy efficient design methods. This includes not just chips, but system solutions and dealing with miniaturization and complexity considerations. This talk will therefore discuss design methods for digital chip and system design, provide a detailed example of fixed-function accelerator architecture study, discuss several chip examples for baseband communications processing, and discuss system integration techniques ranging from next-generation medical implants to next-generation wafer-scale chip packaging. These applications further reveal opportunities in system-level design automation that would help address design productivity and system assembly challenges.

Bio: Dejan Marković is a Professor of Electrical and Computer Engineering at the University of California, Los Angeles. He completed the Ph.D. degree in 2006 at the University of California, Berkeley, for which he was awarded 2007 David J. Sakrison Memorial Prize. His current research is focused on implantable neuromodulation systems, domain-specific compute architectures, embedded systems, and design methodologies. He serves on the technical program committee for the ISSCC and VLSI Circuits Symposium. Dr. Marković co-founded Flex Logix Technologies, a semiconductor IP startup, in 2014. He received an NSF CAREER Award in 2009. In 2010, he was a co-recipient of ISSCC Jack Raper Award for Outstanding Technology Directions. Most recently, he received 2014 ISSCC Lewis Winner Award for Outstanding Paper.