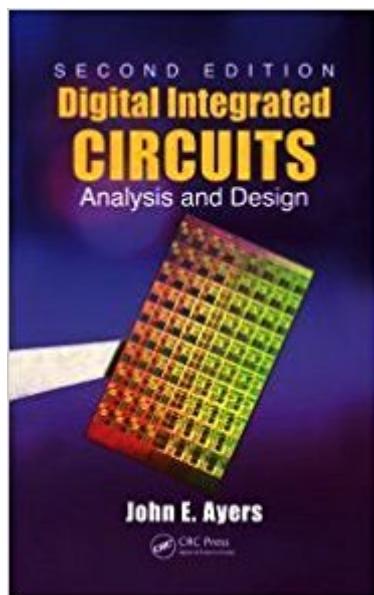


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Digital Integrated Circuits: Analysis And Design, Second Edition



Synopsis

Exponential improvement in functionality and performance of digital integrated circuits has revolutionized the way we live and work. The continued scaling down of MOS transistors has broadened the scope of use for circuit technology to the point that texts on the topic are generally lacking after a few years. The second edition of Digital Integrated Circuits: Analysis and Design focuses on timeless principles with a modern interdisciplinary view that will serve integrated circuits engineers from all disciplines for years to come. Providing a revised instructional reference for engineers involved with Very Large Scale Integrated Circuit design and fabrication, this book delves into the dramatic advances in the field, including new applications and changes in the physics of operation made possible by relentless miniaturization. This book was conceived in the versatile spirit of the field to bridge a void that had existed between books on transistor electronics and those covering VLSI design and fabrication as a separate topic. Like the first edition, this volume is a crucial link for integrated circuit engineers and those studying the field, supplying the cross-disciplinary connections they require for guidance in more advanced work. For pedagogical reasons, the author uses SPICE level 1 computer simulation models but introduces BSIM models that are indispensable for VLSI design. This enables users to develop a strong and intuitive sense of device and circuit design by drawing direct connections between the hand analysis and the SPICE models. With four new chapters, more than 200 new illustrations, numerous worked examples, case studies, and support provided on a dynamic website, this text significantly expands concepts presented in the first edition.

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Customer Reviews

John E. Ayers grew up eight miles from an integrated circuit design and fabrication facility, where he worked as a technician and first developed his passionate interest in the topic. After earning a BSEE degree from the University of Maine (Orono, Maine) in 1984, he worked as an integrated circuit test engineer for National Semiconductor (South Portland, Maine). He worked for six years at Rensselaer Polytechnic Institute (Troy, New York) and Philips Laboratories (Briarcliff, New York) on semiconductor material growth and characterization, earning the MSEE in 1987 and the PhDEE in 1990, both from Rensselaer Polytechnic Institute. Since then, he has been employed in academic research and teaching at the University of Connecticut (Storrs, Connecticut), where he has taught the course on digital integrated circuits for a number of years. He has been honored with the Electrical and Computer Engineering Best Teacher Award (2003â “2004 and 2004â “2005) and the School of Engineering Outstanding Teaching Award (2000â “2001) and is a University of Connecticut Teaching Fellow (1999â “2000). Ayers has authored more than 60 journal and conference papers as well as three books. He is a member of Eta Kappa Nu, Tau Beta Pi, and Phi Kappa Phi and is a senior member of the Institute of Electrical and Electronics Engineers. He lives in Ashford, Connecticut, and enjoys running, hiking, and bicycling with his wife and three children.

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