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| Descrizione fisica | 1 online resource (308 p.) |
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| Soggetti | Electronic circuits<br>Electronics<br>Logic design<br>Electronic Circuits and Systems<br>Electronics and Microelectronics, Instrumentation<br>Logic Design |
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| Note generali | Description based upon print version of record. |
| Nota di bibliografia | Includes bibliographical references and index. |
| Nota di contenuto | Part I: Fundamentals -- Introduction -- Symbolic Analysis Techniques In A Nutshell -- Binary Decision Diagram for Symbolic Analysis -- Part II: Methods -- Determinant Decision Diagrams -- DD Implementation -- Generalized Two-Graph Theory -- Graph-Pair Decision Diagram -- Hierarchical Analysis Methods -- Symbolic Nodal Analysis of Analog Circuits Using Nullors -- Part III: Applications -- Symbolic Moment Computation -- Performance Bound Analysis of Analog Circuits Considering Process Variations -- Statistical Parallel Monte-Carlo Analysis on GPUS. |
| Sommario/riassunto | This book provides comprehensive coverage of the recent advances in symbolic analysis techniques for design automation of nanometer VLSI systems. The presentation is organized in parts of fundamentals, basic implementation methods and applications for VLSI design. Topics emphasized include statistical timing and crosstalk analysis, statistical and parallel analysis, performance bound analysis and behavioral modeling for analog integrated circuits . Among the recent advances, |

the Binary Decision Diagram (BDD) based approaches are studied in depth. The BDD-based hierarchical symbolic analysis approaches, have essentially broken the analog circuit size barrier. In particular, this book • Provides an overview of classical symbolic analysis methods and a comprehensive presentation on the modern BDD-based symbolic analysis techniques; • Describes detailed implementation strategies for BDD-based algorithms, including the principles of zero-suppression, variable ordering and canonical reduction; • Introduces the two successful BDD-based symbolic analysis algorithms, Determinant Decision Diagrams (DDD) and Graph-Pair Decision Diagrams (GPDD); • Discusses statistical timing and crosstalk analysis methods based on symbolic moment computation; • Includes an application of the DDD algorithm to symbolic performance bound estimations of analog circuits subject to process variations; • Presents an application of the DDD algorithm to fast parallel Monte Carlo statistical analysis with an implementation on a popular GPU platform.