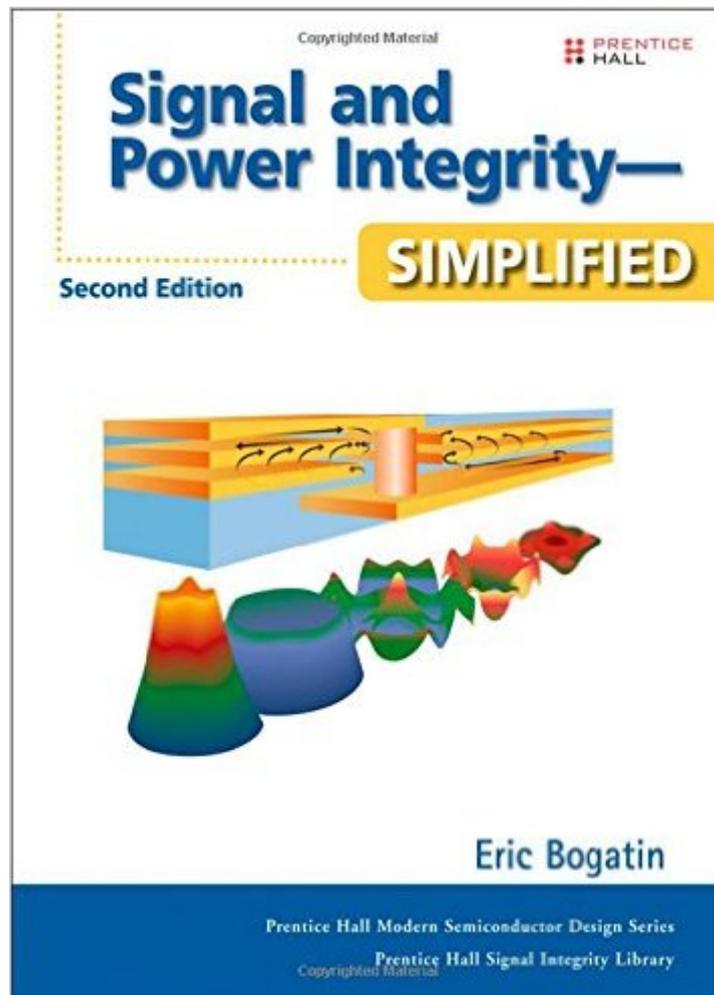


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# Signal And Power Integrity - Simplified (2nd Edition)



## Synopsis

The #1 Practical Guide to Signal Integrity Design "Now Updated with Extensive New Coverage! This book brings together up-to-the-minute techniques for finding, fixing, and avoiding signal integrity problems in your design. Drawing on his work teaching more than five thousand engineers, world-class signal and power integrity expert Eric Bogatin systematically reviews the root causes of all six families of signal integrity problems and shows how to design them out early in the design cycle. This edition's extensive new content includes a brand-new chapter on S-parameters in signal integrity applications, and another on power integrity and power distribution network design topics at the forefront of contemporary electronics design. Coverage includes

- A fully up-to-date introduction to signal integrity and physical design
- How design and technology selection can make or break the performance of the power distribution network
- Exploration of key concepts, such as plane impedance, spreading inductance, decoupling capacitors, and capacitor loop inductance
- Practical techniques for analyzing resistance, capacitance, inductance, and impedance
- Solving signal integrity problems via rules of thumb, analytic approximation, numerical simulation, and measurement
- Understanding how interconnect physical design impacts signal integrity
- Managing differential pairs and losses
- Harnessing the full power of S-parameters in high-speed serial link applications
- Ensuring power integrity throughout the entire power distribution path
- Realistic design guidelines for improving signal integrity, and much more

Unlike books that concentrate on theoretical derivation and mathematical rigor, this book emphasizes intuitive understanding, practical tools, and engineering discipline. Designed for electronics industry professionals from beginners to experts it will be an invaluable resource for getting signal integrity designs right the first time, every time.

## Book Information

Hardcover: 792 pages

Publisher: Prentice Hall; 2 edition (July 27, 2009)

Language: English

ISBN-10: 9780132349796

ISBN-13: 978-0132349796

ASIN: 0132349795

Product Dimensions: 7.1 x 1.2 x 9.2 inches

Shipping Weight: 2.2 pounds (View shipping rates and policies)

Average Customer Review: 4.7 out of 5 stars See all reviews (23 customer reviews)

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## Customer Reviews

Usually I don't write superlative reviews, but I wonder how can an engineer simply not fall in love with this book. In my opinion, this book is the definitive authority in exposing a critical set of principles, rules of thumb, and numerical approximation formulas in the field of signal integrity. Despite its apparent simplicity, the author clearly spared no efforts in making the subject at hand extremely clear to understand, especially for a hurried reader. Second, the book introduces conciseness and discipline in discussing basic terminology that is often presented in a confusing manner (such as defining various types of impedance, replacing the "thinking" around ground with one based on return paths). Also, the author is careful to point out certain conflicting notations/inconsistencies from various vendors that persist in the industry, for example when dealing with S-parameter notations. This book is simply how all the engineering books need to be written. That said, be aware that the book has a very practical focus by distilling the subject into various tips, rules and guidelines that can be applied later on. It is certainly not a theoretical treatise, and you'll search in vain classical EM stuff like deriving the telegrapher's equations from Maxwell's or solving them. The author magically walks around the theoretical stuff, by being able to give very simple and intuitive explanations to potentially complex subjects like time analysis of transmission lines. If you really want to understand the theory, you need to complement this book with "deeper" books such as Brian Young's book (Digital Signal Integrity: Modeling and Simulation with Interconnects and Packages) or Stephen Hall's book (Advanced Signal Integrity for High-Speed Digital Designs).

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