

Designing Circuit Boards with EAGLE: Make High-Quality PCBs at Low Cost

By Matthew Scarpino

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"Matt Scarpino has provided a great tool for the hobbyist starting out in the circuit board design world, demonstrating all the features you'll need to create your own circuit board projects. However, the experienced engineer will also benefit from the book, as it serves as a complete reference guide to all EAGLE software configuration settings and features. His insightful guidance helps simplify difficult tasks, and his handy tips will help save you hours of trial-and-error experimentation."

--**Rich Blum**, author, *Sams Teach Yourself Arduino Programming in 24 Hours* and *Sams Teach Yourself Python Programming for Raspberry Pi in 24 Hours*

Powerful, flexible, and inexpensive, EAGLE is the ideal PCB design solution for every Maker/DIYer, startup, hobbyist, or student. Today, all open source Arduino designs are released in EAGLE format: If you want to design cost-effective new PCBs, this is the tool to learn.

Matthew Scarpino helps you take full advantage of EAGLE's remarkable capabilities. You won't find any differential equations here: only basic circuit theory and hands-on techniques for designing effective PCBs and getting innovative new gadgets to market.


Scarpino starts with an accessible introduction to the fundamentals of PCB design. Next, he walks through the design of basic, intermediate, and complex circuit boards, starting with a simple inverting amplifier and culminating in a six-layer single-board computer with hundreds of components and thousands of routed connections.


As the circuits grow more complex, you'll master advanced EAGLE features and discover how to automate crucial design-related tasks. Whatever your previous experience, Scarpino's start-to-finish examples and practical insight can help you create designs of stunning power and efficiency.

- Understand single-sided, double-sided, and multilayer boards
- Design practical circuits with the schematic editor
- Transform schematics into physical board designs
- Convert board designs into Gerber output files for fabrication

- Expand EAGLE's capabilities with new libraries and components
- Exchange designs with LTspice and simulate their responses to input
- Automate simple repetitive operations with editor commands
- Streamline circuit design and library generation with User Language programs (ULPs)
- Design for the advanced BeagleBone Black, with high-speed BGA devices and a 32-bit system on a chip (SoC)
- Use buses to draw complex connections between components
- Configure stackups, create/route BGA components, and route high-speed signals

eagle-book.com provides an archive containing the design files for the book's circuits. It also includes EAGLE libraries, scripts, and User Language programs (ULPs).

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Editorial Review

Review

"Matt Scarpino has succeeded where scores of others have failed--he's managed to make the formidable EAGLE software understandable and, more importantly, useable. His presentation is not only approachable and logical, but it's complete. When you've finished his book, you'll be able to do something meaningful with EAGLE. This book belongs on every engineer's bookshelf or tablet."

--**Bryan Bergeron**, Editor, *Nuts & Volts Magazine*

"Matt Scarpino's *Designing Circuit Boards with EAGLE* is a great resource for electronics enthusiasts who are ready to get serious and produce their own circuit boards. Matt's sensible instructions take readers through the steps to design simple and not-so-simple circuit boards, and you can really tell that he's been using EAGLE for 10 years and loves it. I'm recommending this book to all my maker friends."

--**John Baichtal**, Author of *Arduino for Beginners: Essential Skills Every Maker Needs*

"With the rising popularity of open source hardware projects, the EAGLE circuit board software has become a vital tool for both hobbyists and professional engineers alike. *Designing Circuit Boards with EAGLE* provides all the information you'll need to get up to speed with the EAGLE software, and to start creating your own circuit board designs. Matt Scarpino has provided a great tool for the hobbyist starting out in the circuit board design world, demonstrating all of the features you'll need to know to create your own circuit board projects. However, the experienced engineer will also benefit from the book, as it also serves as a complete reference guide to all the EAGLE software configuration settings and features. His insightful guidance helps simplify difficult tasks in the EAGLE software, and his handy tips will help save you hours of trial-and-error experimenting in your circuit board designs."

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About the Author

Matthew Scarpino is an engineer with more than 12 years of experience designing hardware and software. He has a Master's Degree in electrical engineering and is an Advanced Certified Interconnect Designer (CID+). He currently resides in Massachusetts where he develops software for embedded systems. In his spare time, he uses EAGLE to design accessories for his Android smartphone and the Google Glass.

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From reader reviews:

Joseph Cash:

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Shawn Hoffman:

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