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# **Introduction To VLSI Systems**





# **Synopsis**

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## **Book Information**

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#### Customer Reviews

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This is a late-undergraduate (or possibly early graduate) textbook that teaches the black art of microprocessor design. If you've ever been curious about how CPUs are designed or actually work inside that little back-and-silver package this is the book that started it all. A fair warning: You'll need a background in electrical engineering to really make sense of this book because, at heart, you'll be dealing with layers upon layers upon layers and vast networks of transistors wired as switches and capacitors set up to store single bits. It gets wild and crazy down there and if you don't already understand the basic principles it won't make any sense. That said, this is also a fantastic book and if you want to sink your teeth into computer engineering I cannot recommend it highly enough.

Not the Bible, but certainly the old testament of VLSI and fpga design. Math intensive. Carver Mead

is the Man.

Casale-Rossi, Marco, et al. "Panel: the heritage of Mead & Conway: what has remained the same, what was missed, what has changed, what lies ahead." Proceedings of the Conference on Design, Automation and Test in Europe. EDA Consortium, 2013. Used this book in Stanford U Summer Institute VLSI course taught by UW Computer Science Professor Dr. Ted Kehl. ".. Mead presented his vision of the "tall, thin man," one who becomes accomplished in all aspects of chip design, from algorithm creation to layout, from concept to chip. Within weeks, faculty, students and engineers alike were showing off their then-state-of-the-art 6m nMOS ..."

Mead and Conway's book is still quite germane. For those of you new to VLSI, this book is one of the key texts in the field. In 1980, the authors managed to abstract the common steps in chip fabrication. In such a way that chip design could now be taught at the undergraduate level, using this book. Plus accompanying layout software. And the student's design could then be taped out and sent to a fab and actually made. This was a huge breakthrough. Prior to this book, if you wanted to actually make a chip, using a reasonably current fab, then you could not, as a university student. You had to work for a semiconductor company that had a fab. A large gap in your education. It also meant that a lot of chip knowledge was not transferable if you changed companies. In software terms, this book is a refactoring. Though this term itself did not come into use for software till the 90s. The book can still be profitably read. Its layout ideas have not become obsolete. In fact, if you were to compare this book with more current undergrad VLSI texts, there is little conceptually new introduced in the latter.

This reference continues the construction of actual integrated circuits introduced in the Feynman reference listed above. Theory behind various parts of a stored program (ie, von Neumann) computer, and its fabrication through VLSI techniques is clearly presented. As well, there are chapters on concurrent computation, for example arrays of processors to perform matrix computations, and the physics of computation. Connecting numerous components together is an important issue in biological computing architectures, and while the latter is not covered, this reference provides valuable insights with regards to the former. This reference was a classic on the subject in 1980, and its concepts still largely remain valid.

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