

# The Electronic Design Automation Handbook

**Dirk Jansen et al. (Eds.)**

**Foreword by Daniel D. Gajski**



**EDA**

# Electronic Design Automation Handbook

**Charles J. Alpert, Dinesh P.  
Mehta, Sachin S. Sapatnekar**



## **Electronic Design Automation Handbook:**

*The Electronic Design Automation Handbook* Dirk Jansen, 2010-02-23 When I attended college we studied vacuum tubes in our junior year At that time an average radio had vacuum tubes and better ones even seven Then transistors appeared in 1960s A good radio was judged to be one with more than ten transistors Later good radios had 15-20 transistors and after that everyone stopped counting transistors Today modern processors running personal computers have over 10 million transistors and more millions will be added every year The difference between 20 and 20M is in complexity methodology and business models Designs with 20 transistors are easily generated by design engineers without any tools whilst designs with 20M transistors can not be done by humans in reasonable time without the help of Prof Dr Gajski demonstrates the Y chart automation This difference in complexity introduced a paradigm shift which required sophisticated methods and tools and introduced design automation into design practice By the decomposition of the design process into many tasks and abstraction levels the methodology of designing chips or systems has also evolved Similarly the business model has changed from vertical integration in which one company did all the tasks from product specification to manufacturing to globally distributed client server production in which most of the design and manufacturing tasks are outsourced

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**Tools** Rajanish K. Kamat, Santosh A. Shinde, Pawan K. Gaikwad, Hansraj Guhilot, 2011-10-03 With the proliferation of VHDL the reference material also grew in the same order Today there is good amount of scholarly literature including many books describing various aspects of VHDL However an indepth review of these books reveals a different story Many of them have emerged simply as an improved version of the manual While some of them deal with the system design issues they lack appropriate exemplifying to illustrate the concepts Others give large number of examples but lack the VLSI system design issues In nutshell the fact which gone unnoticed by most of the books is the growth of the VLSI is not merely due to the language itself but more due to the development of large number of third party tools useful from the FPGA or semicustom ASIC realization point of view In the proposed book the authors have synergized the VHDL programming with appropriate EDA tools so as to present a full proof system design to the readers In this book along with the VHDL coding issues the simulation and synthesis with the various toolsets enables the potential reader to visualize the final design The VHDL design codes have been synthesized using different third party tools such as Xilinx Web pack Ver 11 Modelsim PE Leonrado Spectrum and Synplify Pro Mixed flow illustrated by using the above mentioned tools presents an insight to optimize the design with reference to the spatial temporal and power metrics

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