

Challenges in Ultra Deep Submicrometer High Performance VLSI Circuits

Professor Eby G. Friedman

Department of Electrical and Computer Engineering
University of Rochester

Abstract

Fundamental trends specific to high speed, high complexity systems are reviewed, emphasizing many of the primary issues that constrain existing and future digital and mixed-signal integrated systems. These issues are discussed in terms of the evolving criteria that affect each aspect of the VLSI design and synthesis process. Attention is placed on distinguishing between local vs. global issues. Topics such as dual V_t CMOS circuits and on-chip interconnect noise, determined by the local nature of the circuit structures, are compared and contrasted with larger issues that focus on the global nature of VLSI-based systems such as synchronization styles and clock and power distribution networks.

