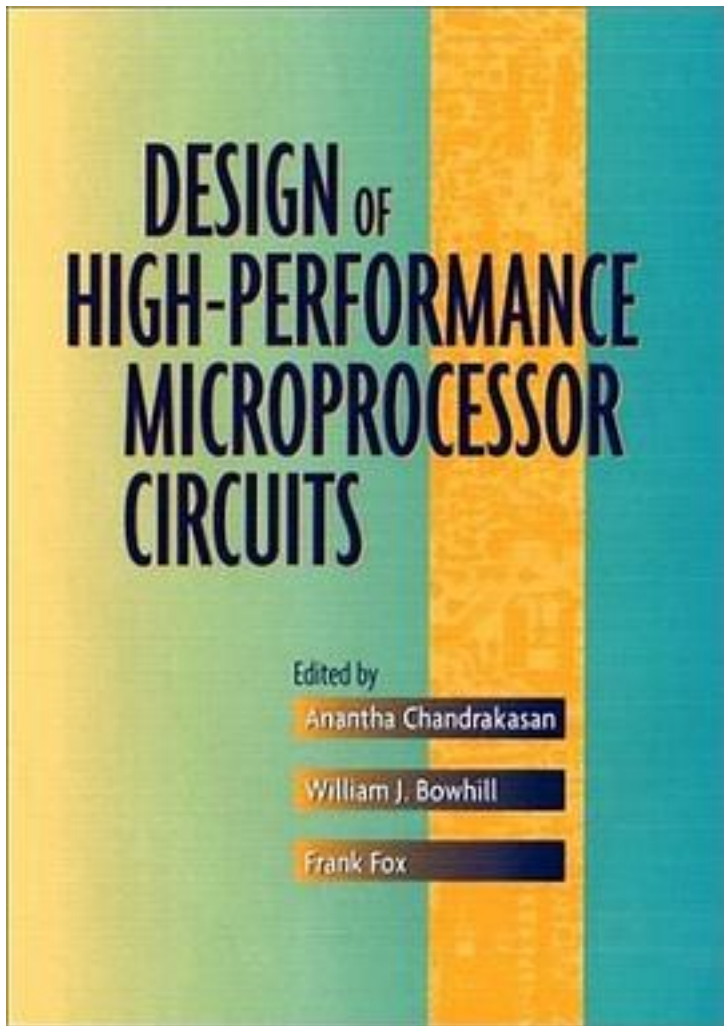


# Design of High-Performance Microprocessor Circuits



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This book covers the design of next generation microprocessors in deep submicron CMOS technologies. The chapters in Design of High Performance Microprocessor Circuits were written by some of the world's leading technologists, designers, and researchers. All levels of system abstraction are covered, but the emphasis rests squarely on circuit design. Examples are drawn from processors designed at AMD, Digital/Compaq, IBM, Intel, MIPS, Mitsubishi, and Motorola.

Each topic of this invaluable reference stands alone so the chapters can be read in any order. The following topics are covered in depth:

Architectural constraints of CMOS VLSI design

Technology scaling, low-power devices, SOI, and process variations

Contemporary design styles including a survey of logic families, robust dynamic circuits, asynchronous logic, self-timed pipelines, and fast arithmetic units

Latches, clocks and clock distribution, phase-locked and delay-locked loops

Register file, cache memory, and embedded DRAM design

High-speed signaling techniques and I/O design

ESD, electromigration, and hot-carrier reliability

CAD tools, including timing verification and the analysis of power distribution schemes

Test and testability

Design of High-Performance Microprocessor Circuits assumes a basic knowledge of digital circuit design and device operation, and covers a broad range of circuit styles and VLSI design techniques. Packed with practical know-how, it is an indispensable reference for practicing circuit designers, architects, system designers, CAD tool developers, process technologists, and researchers. It is also an essential text for VLSI design courses.

作者介绍:

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