A Reduced High-Level-Language Instruction Set Peter C. Schultheiss
The Object Pascal Architecture provides 22 simple stack instructions which enable straightforward compilation of Pascal-like languages.

The Basis Fault-tolerant System Ernst J. Schmidt and Peter Baus
Designed for network applications, this system achieves fault tolerance by exploiting redundancies inherent in standard components.

An Efficient Software Driver for the Am9511 Arithmetic Processor Borivoje Furht and Peter Lee
This driver enables easy implementation of the Am9511 as a coprocessor in Intel 8085-based systems.

Hints for Computer System Design Butler W. Lampson
Decorated with pithy quotations from many sources, this collection of good advice and anecdotes draws upon the folk wisdom of experienced designers.

Although the functional behavior of this IC was tested in-system, the evaluation of circuit performance should not be long in coming.

Message Object Programming: An Evolutionary Change in Programming Technology Brad J. Cox
Could a marriage of the message/object model, a la Smalltalk-80 and the operator operand model, a la Unix, improve the lot of both users and programmers? Stay tuned...

Knowledge and Database Management Gio Wiederhold
Artificial intelligence techniques are effective in dealing with the complexity of large databases. Their use can move well-understood human decision-making processes into the computer system.

Verifying and Validating Software Requirements and Design Specifications Barry W. Boehm
These recommendations provide a good starting point for identifying and resolving software problems early in the life cycle—when they’re still relatively easy to handle.

Guest Editor’s Introduction: Design Automation Hillel Ofek
Improving Color CAD Systems for Users: Some Suggestions from Human Factors Studies Francine S. Fome
Human factors studies reveal that users’ perceptions of a CAD system may be quite different from the developers’ concepts.

IBM’s Engineering Design System Support for VLSI Design and Verification Larry N. Dunn
VSLI has fundamentally changed the relationship of the design automation tool developer and the product designer. IBM’s design and verification subsystem responds to that change.

N. M. Pe: A Study in University-Industry Technology Transfer Charles W. Rose, Greg M. Ondry, and Paul J. Drongowski
A good idea—in this case, new, practical techniques for controlling multiple-microprocessor and VLSI systems—and industry-academia cooperation can lead to unexpected commercial success.

The VLSI Design Automation Assistant: An IBM System 370 Design Thaddeus J. Kowalski and Donald E. Thomas
The DA assistant speeds VSLI chip design. More importantly, perhaps, it makes explicit some of the intuition and common sense that are important elements of expertise.

Fast-Transistor Simulation for Custom MOS Circuits Zeev Barzelai, Leonard M. Huissoon, Gabriel M. Silverman, Donald T. Tang, and Lin S. Won
This approach uses the Yorktown Simulation Engine to bridge the gap between electrical and gate-level simulators. It is well-suited to fault simulation and design verification.

Critical Path Tracing: An Alternative to Fault Simulation Miron A. Ahamovic, P. R. Menon, and David T. Miller
Critical path tracing detects faults without explicitly simulating them. It appears to be a more efficient alternative to conventional methods.

Derek de Solla Price: An Appreciation L. Robert Morris
A History of Calculating Machines Derek de Solla Price
Man’s attempts to devise aids to calculation are almost as old as man himself.

Interval Methods for Processing Geometric Objects S. P. Mudur and P. A. Koparkar
In this approach, the parametric form is applied without the usual computational nightmare. The key is to view the parametric range as an interval, relying on subdivision algorithms.

Users and Vendors Evaluate the Current Status and Future Prospects of CAD/CAM Datapro Research and Ware Miers
Assessment of in-place CAD/CAM systems helps potential users define their goals and achieve a high return on investment.

A Note on Rotation Matrices Jay P. Fillmore
Properly establishing the rotation between linear algebra and geometry makes it easier to obtain the three-by-three orthogonal matrix that describes a specified rotation.

High-Speed Manipulation of the Color Chromaticity of Digital Images A. F. Lehar and R. J. Stevens
Using Peano curves and digital techniques, this aid to the interpretation of complex images enhances color chromaticity while reducing processing time.

Improved Visual Design for Graphics Display Susan Smith Reilly and John W. Roach
The principles of good visual design used in advertising can help programmers design effective computer displays that will substantially improve the man-machine interface.

An Algebraic Method to Determine if a Point Is on a Spline David A. Fredricks
For this task, a method that is algebraic in nature should be faster than the usual approximate analytical technique.