7 Highly Parallel Computing: Guest Editor’s Introduction  
Leonard S. Haynes

9 A Survey of Highly Parallel Computing  
Leonard S. Haynes, Richard L. Lau, Daniel P. Stewiorek, and David W. Mizell  
VLSI and design automation tools have removed a fundamental architectural constraint.  
Designers can now implement systems in which thousands of processors work on a single problem.

27 Networks and Algorithms for Very-Large-Scale Parallel Computation  
Allan Gottlieb and J. T. Schwartz  
This pragmatic approach to parallelism relies on high-performance—but otherwise standard—microprocessor chips. It borrows from shuffle and data flow methods to achieve some promising results.

37 Why Systolic Architectures?  
H. T. Kung  
Systolic architectures, which permit multiple computations for each memory access, can speed execution of compute-bound problems without increasing I/O requirements.

47 Introduction to the Configurable, Highly Parallel Computer  
Lawrence Snyder  
Architectures for this computer family are built around a lattice of programmable switches and data paths that allows arbitrary connection patterns—an approach that preserves locality.

65 Highly Concurrent Computing Structures for Matrix Arithmetic and Signal Processing  
Hassan M. Ahmed, Jean-Marc Delosme, and Martin Morf  
Successfully matching algorithms to parallel architectures requires a fundamental understanding of problem structures and an appreciation of architectural and implementation constraints.

87 VLSI: A New Frontier for Systems Designers  
Douglas G. Fairbairn  
Highly parallel computing is becoming an important new application area for VLSI as simpler design and testing methods are employed.

105 CAD/CAM: The Need for a Broader Focus  
Ware Myers

120 The Open Channel: Some Observations, Predictions, Prejudices and Impressions About Ada  
W. E. Drissel  
Advance Programs:  
Compcon Spring 82, pp. 57-64; Tutorial Week East 82, pp. 97-104;  
Infocom 82, pp. 121-127; Tutorial Week Europe 82 (regional), pp. 136A-H.