On the cover
Juggling a multitude of tasks is no small chore for most computer systems. Multiprocessors, however, handle multiple tasks with speed and at a fraction of the cost of a mainframe.

Photo from The Image Bank
Cover: Jay Simpson and Larry Keiser
Article design/production: Alexander Torres and Miriam Wiegel
Typesetting: Fagen Graphics

In the next issue
Digital Signal Processing
See p. 80.

FEATURE ARTICLES
MULTIPROCESSING

5
Guest Editor's Introduction
Barry W. Johnson

6
A Microprocessor-based Hypercube Supercomputer
John P. Hayes, Trevor Mudge, Quentin F. Stout, Stephen Colley, and John Palmer
Each node in the NCUBE/ten parallel processor is organized around a custom, VAX-like, 32-bit CPU chip. With 1024 nodes, the NCUBE/ten provides a throughput of 500 MFLOPS.

18
The TX16: A Highly Programmable Multi-Microprocessor Architecture
Jean-Luc Gaudiot, Michel Dubois, Liang-Teh Lee, and Nadim G. Tohme
A modular multiprocessor merges existing chip sets and a sophisticated, functional programming approach to solve computationally intensive algorithms at mainframe speeds—at a fraction of the cost.

32
A Facility for Simulating Multiprocessors
James M. Butler and A. Yavuz Oruc
Simulation models are better than analytical ones for understanding systems that behave unpredictably. But no such models have been available for asynchronous parallel systems—a situation the Euclid simulator corrects.

SPECIAL FEATURE

45
The PAL20RA10 Story—The Customization of a Standard Product
Marc A. Baker and Vincent J. Coli
A new, registered, asynchronous PAL device originated with suggestions from the manufacturer's customers.