

VLSI

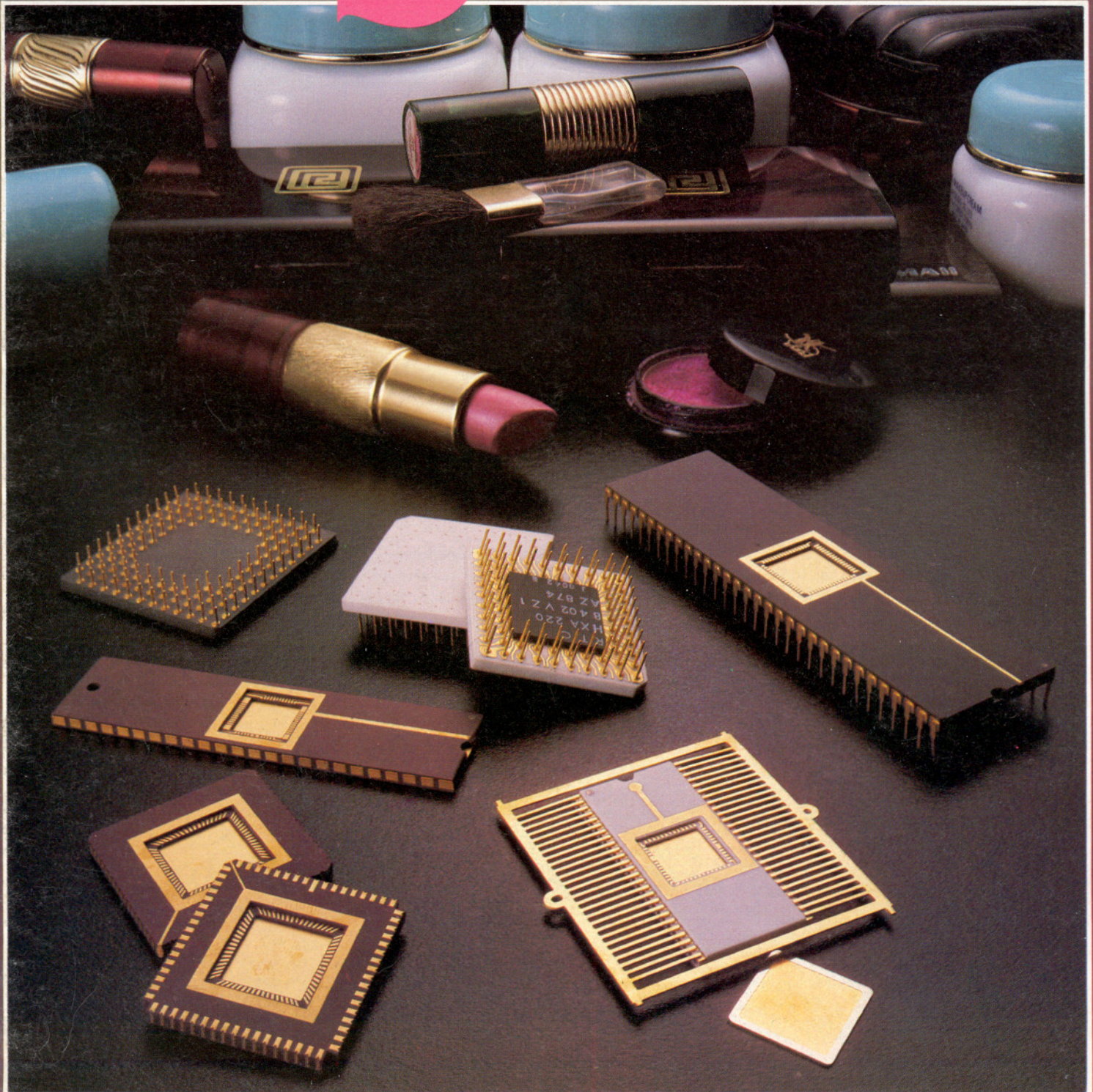
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DCNW33394304
LYNN CONWAY
XEROX CORP
3333 COYOTE HILL RD
PALO ALTO CA 94304

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VLSI packaging: the beauty is more than pin deep.

Publisher
Douglas G. Fairbairn

Editor-in-Chief
Jerry Werner

Managing Editor
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Technical Editor
Barbara Clifford

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Monica Berg

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Design Consultant
Mike Shenon

Designer
Willy Keats

Sales Representatives

West Coast	East Coast
Neal Manning	Charles Winnicky
(415) 966-8340	(201) 234-9497

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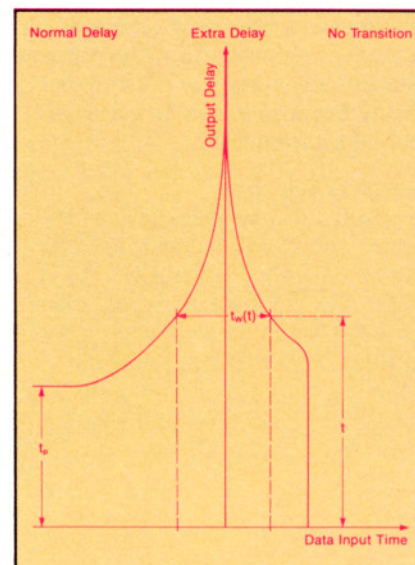
Cover

Although VLSI packages are often quite attractive, their selection is not merely a matter of cosmetics. VLSI designers must go beyond simple pin-count and package "footprint" considerations, and look into power dissipation, parasitics arising from die-to-package wiring, and the ease of mounting VLSI devices on printed-circuit boards. Cover photo by Jay Carlson, San Francisco, CA. LSI/VLSI packages provided by Signetics Corporation, Sunnyvale, CA.

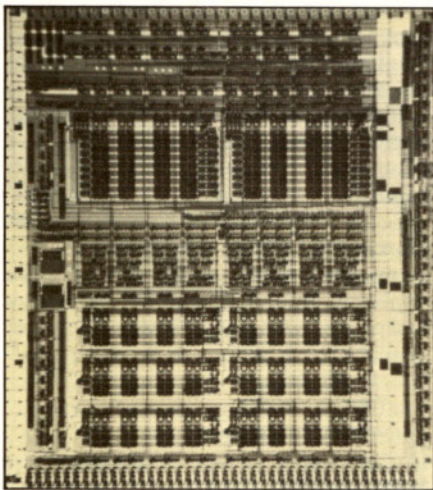


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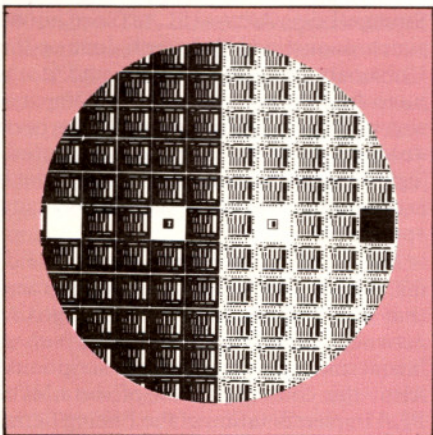
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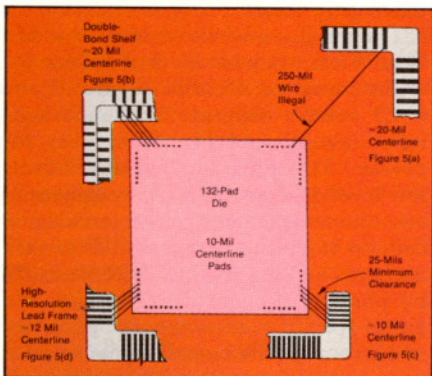
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David Bondurant, Michael Kopman, Michael Kalm, and Philip Bytheway, *Honeywell, Inc., Solid State Electronics Division*

The authors explain how and why they designed a single macro-cell-based chip that can be "configured" by metal-mask changes into several different high-performance microprocessors. Although this may *sound* like a standard gate-array approach, it's really quite different.

22 VHSIC: The Focus Shifts from Microns to Systems

Jerry Werner, *Editor-in-Chief*

The Department of Defense's Very High Speed Integrated Circuit (VHSIC) program, originally regarded as a technology effort, is now more concerned with the systems aspects of VLSI.

28 Five Pitfalls to Avoid When Obtaining Optical Photomasks

James N. Wiley and Duffy Zakaib, *Master Images, Inc.*

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36 Interfacing with E-Beam Mask Suppliers

Edward M. Morgan and Robert P. Smith, *SandCastles*

The authors explain the intricacies of doing business with electron-beam-mask suppliers. The article includes a table listing all U.S. merchant-market e-beam mask makers and their capabilities.

44 Practical Considerations in VLSI Packaging

S. Ralph Parris and John A. Nelson, *Burroughs Corporation*

Dual-inline packages (DIPs) clearly are unsuitable for LSI/VLSI devices that require more than 64 pins; but no standard package has yet emerged for high-pin-count ICs. The authors describe the design/performance ramifications of the most popular VLSI packaging alternatives.