

VLSI

(FORMERLY LAMBDA)

JANUARY/FEBRUARY 1982



There are times when your mouse must be able to see. A single chip may be the solution.

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VLSI DESIGN was founded to
explore, expand, and define the
interrelations between very-large-
scale integrated circuits (VLSI)
and computer architecture,
design strategies, costs, and
aids, as well as the electronics
industry as a whole. VLSI
DESIGN is unique in that it is
written by and for the
participants in this dynamic
field. VLSI DESIGN intends to
be the communication focus of a
new VLSI design community,
encourage its development, and
help define its directions.

VLSI DESIGN

Volume III, No. 1 January/February 1982

Cover

Artist Charles Bragg depicts one absurd instance in which a seeing-eye mouse is indispensable. (Charles Bragg, *Salute*, 1966, oil on wood panel, 8x10".) A similar need exists in the "real world," and a custom-designed integrated circuit may meet it.



Departments

4 Letters

9 Calendar

10 From the Editor

12 People

40 Technology Insight

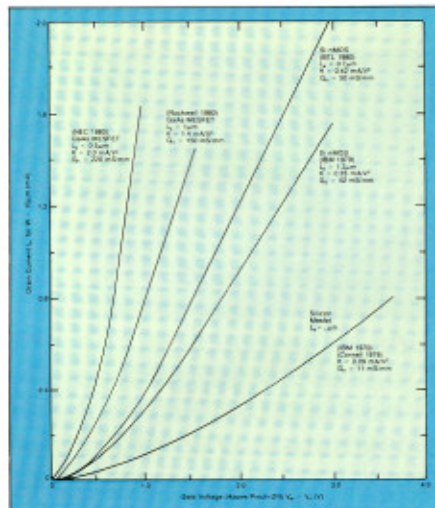
44 Literature Review

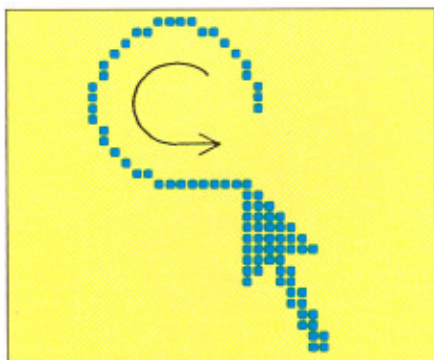
51 University Scene

54 Product Showcase

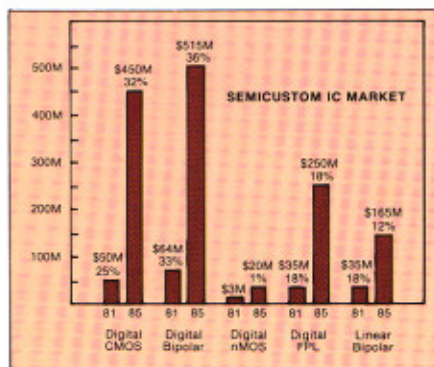
60 Classified Advertising

60 Advertisers' Index

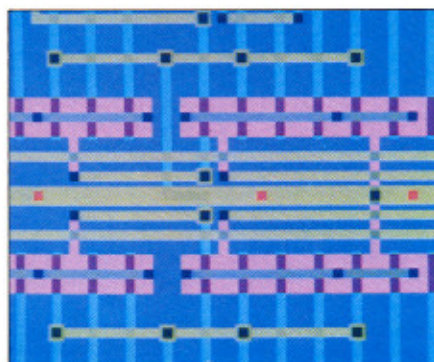




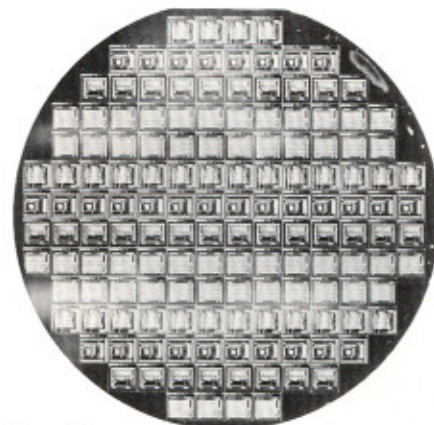
Page 20



Page 32



Page 56



Page 51

Articles

16 ISSCC '82: A Look Through VLSI-Colored Spectacles

This granddaddy of technical conferences is celebrating its 25th anniversary. Join us on a walk through the sessions that designers involved with custom/semicustom ICs and VLSI won't want to miss.

20 Designing and Testing The Optical Mouse

Richard F. Lyon, *Fairchild Advanced R&D*

Martin P. Haerberli, *Xerox Palo Alto Research Center*

A mouse is a pointing device used with interactive computer systems. The authors explain the advantages of an IC-based mouse, and the thinking behind its implementation.

32 Custom-Semicustom IC Business Report

Steve Z. Szirom, *HTE Management Resources*

In light of the current interest in gate arrays and custom chips, the author explains just how big these markets (and the leading companies in them) are, and predicts how large they will be by 1985.

46 An Integrated VLSI Design System

Michael I. Payne, *Prime Computer, Inc.*

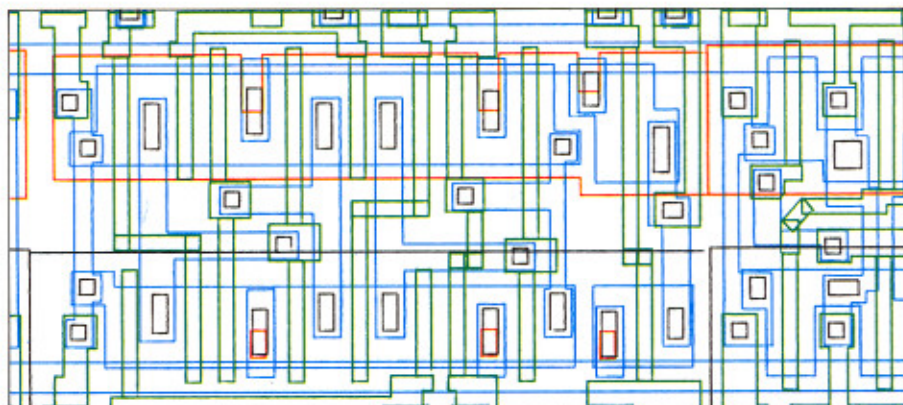
Prime Computer set out to implement a VLSI design system that would be independent of specific design procedures and semiconductor processes. This company's decisions regarding the trade-offs (for example, whether to make or to buy software) will be instructive for other high-technology firms.

56 Color Display Terminals for VLSI: Another Perspective

Bryan D. Ackland, *Bell Laboratories*

Neil H. Weste, *Microelectronics Center of North Carolina*

Based on several years' experience in using color display terminals to design ICs at Bell Labs, the authors (taking issue with an earlier article in *VLSI DESIGN*) explain the rationale behind Bell Labs' MULGA design system.



Page 46