

## Preface

The 2nd Edition of *A Guide to LSI Implementation* is a compendium of information on the realization of LSI system designs. It is our hope that this report will enable a wider group of designers in universities and small systems firms to have their LSI chip designs implemented in an economical and timely way. This document also serves to establish some of the context for future SSL reports on research now underway concerning implementation systems for the remote-entry, fast-turnaround implementation of large numbers of VLSI designs.

The first edition of *A Guide to LSI Implementation* was hastily written in the summer of 1978 by a combination of PARC researchers, consultants and summer student employees. Among those contributing material were Wayne Wilner, Dick Lyon, and Rick Davies (PARC), Maureen Stone (Xerox-ASD), Bob Baldwin (MIT), Peter Dobrowolski (U.C. Berkeley) and Steve Trimberger (Caltech). Lynn Conway, Carver Mead and Doug Fairbairn each spent hours carefully reviewing drafts and offering suggestions. The eleventh hour efforts of all of these people allowed us to finish the first edition in time for Lynn's fall 1978 MIT VLSI design course.

In the year since that course we have had time to evaluate the strengths and especially the shortcomings of the first edition. In reorganizing and trimming it of irrelevant information, we hope to have improved the readability and utility of the work. New material has been added. The availability of electron-beam mask manufacturing facilities has made 5-day mask turnaround possible; we have included information to allow chip implementors to take advantage of this service. Largely through the efforts of Bob Sproull (CMU) and Dick Lyon (PARC), we have been able to address the many questions that have arisen about CIF 2.0. Chapter 7 is now a complete description of CIF 2.0 and serves as the official reference document. A new section has been contributed by MIT graduate student Jim Cherry sharing his experience from the successful 1978 MIT course. This edition has been further improved by input from SSL researchers Martin Newell and Alan Bell.

Xerox Corporation, Carnegie-Mellon University and the Advanced Research Projects Agency of the Department of Defense have been generous in their support of this work. Terri Doughty handled administration, editing, and much of the figure preparation. We are especially grateful to Dick Lyon, who helped us with sound advice and worked many hours solving the less than interesting problems of putting a report of this size together. He and Joe Maleson are responsible for the color plates. Finally, special thanks go to Lynn Conway for her enthusiastic support and encouragement of our work.

Bob Hon  
Carlo Sequin

Palo Alto, California  
18 January 1980