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An Introductory Guide to Silver Lisco and HILO Simulators

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and T. P. Hopkins 1987

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To

Alys Rose Blundell

Μαρουσώ Δασκαλάκη

Thomas and Jean Heyes

Derek and Mella Hopkins

Contents

<i>Foreword</i>	xiii
<i>Preface</i>	xv
<i>Acknowledgments</i>	xvii
1 HARDWARE SIMULATION SYSTEMS	1
1.1 Hardware Simulators	1
1.2 Using Hardware Simulators	3
1.3 Workstations	5
1.4 About This Book	8
2 GETTING STARTED — A TOUR THROUGH SL2000	9
2.1 Loading SL2000 onto the System	9
2.2 Running SL2000	9
2.3 A Brief CASS Tutorial	10
2.3.1 Introduction	10
2.3.2 Getting Started with CASS	10
2.4 Alternative Methods of Running SL2000	15
2.5 A Brief Look at SL2000 Directories and Files	16
2.5.1 The Main SL2000 Directory	16
2.5.2 The SL2000 Sub-directory 'env'	16
2.5.3 The 'env' Sub-directory 'com'	17
2.6 Full and Limited Installation	18
2.6.1 Full Installation	18
2.6.2 Limited Installation	18
2.7 File Types Generated by SL2000	19
2.7.1 The DBF File	19
2.7.2 The HDB File	19
2.7.3 The LDT File	20
2.7.4 The LIS and LST Files	20
2.7.5 Damon Files	20
2.8 The Mouse	21
2.9 Aegis Commands from within SL2000	21
2.10 The Modification of Menu Parameters	21

3 THE STRUCTURED DESIGN SYSTEM	22
3.1 Introduction	22
3.2 Databases	22
3.2.1 DBINIT — Database Initialisation	23
3.2.2 DBUTIL — Database Utility Routines	23
3.2.3 DBDUMP and DBREST — Dump and Restore a Database	26
3.2.4 Example — Creating a New Symbols Library	27
3.3 CASS — The Computer Aided Schematic System	28
3.3.1 The CASS Menu	29
3.3.1.1 BATIN, BATOUT, USEBIC — Crash Recovery	29
3.3.1.2 BORDER	30
3.3.1.3 COLOURS	30
3.3.1.4 MAX_WINDOWS	31
3.3.1.5 METRIC	31
3.3.1.6 SHEETS	31
3.3.1.7 VECTOR.TEXT	31
3.3.2 The Schematics Editor	31
3.3.2.1 Text Commands	31
3.3.2.2 The Schematics Editor Menu	33
3.3.2.2.1 Display Commands	35
3.3.2.2.2 Window Commands	36
3.3.2.2.3 Logic Description Menu Commands	37
3.3.2.2.4 Buffer Commands	38
3.3.2.2.5 Component Commands	38
3.3.2.2.6 Connection Commands	40
3.3.2.2.7 Corner Commands	41
3.3.2.2.8 Name Commands	41
3.3.2.2.9 Attribute Commands	43
3.3.2.2.10 Text Commands	45
3.3.2.2.11 Line Commands	46
3.3.2.2.12 Locate Commands	47
3.3.2.2.13 General Commands	48
3.3.3 The Symbols Editor	49
3.3.3.1 Text Commands	49
3.3.3.2 The Symbols Editor Menu	50
3.3.3.2.1 Pin Commands	50
3.3.3.2.2 Pin Name Commands	52
3.3.3.2.3 Attribute Commands	52
3.3.3.2.4 Info Commands	53
3.3.3.2.5 Position Commands	54

3.3.4 Simulator Attributes	55
3.3.4.1 BIMOS, ANDI and SWAP Attributes	55
3.3.4.1.1 Symbol Attributes	55
3.3.4.1.2 Symbol Pin Attributes	55
3.3.4.1.3 Instance Attributes	56
3.3.4.1.4 Connection or Net Attributes	56
3.3.4.2 IHILO Attributes	56
3.3.4.3 SPICE Attributes	58
3.4 NLE — The Net List Extractor	59
3.4.1 Running NLE	60
3.4.2 NLE Commands	61
3.5 HIDEX — Hierarchical Design Expansion	61
3.5.1 Running HIDEX	62
3.5.2 HIDEX Commands	63
3.6 Interface Programs	65
3.6.1 IHILO — The Interface to HILO	66
3.6.1.1 Running IHILO	66
3.6.2 ISPICE — The Interface to SPICE	67
3.6.2.1 The ISPICE Command File	67
3.6.2.2 The SPICE Input File	68
3.6.2.3 Running ISPICE	68
3.7 A CASS Tutorial	69
3.7.1 Introduction	69
3.7.2 Using the Schematics and Symbols Editors	73
4 BIMOS, ANDI, SWAP and PPRG	76
4.1 Introduction to Simulators	76
4.2 BIMOS	76
4.2.1 Introduction to BIMOS	76
4.2.2 General Details on Running BIMOS	77
4.2.2.1 The BIMOS Command File	77
4.2.3 A BIMOS Tutorial	81
4.2.4 A Further BIMOS Tutorial	84
4.3 The ANDI Simulator	84
4.3.1 Introduction	84
4.3.2 The Route to Running an ANDI Simulation	85
4.3.3 An ANDI Tutorial – A Single Transistor Amplifier	85
4.4 The SWAP Simulator	86
4.4.1 Introduction to SWAP	86
4.4.2 Running SWAP	87

4.4.2.1	The SWAP Command File	88
4.4.3	A Simulation Session Using SWAP	89
4.5	The Graphical Post-Processor PPRG	89
4.5.1	Introduction	89
4.5.2	Using the PPRG Software	90
4.5.3	The PPRG Menus	90
4.5.3.1	The Main Command Menu	90
4.5.3.2	The Signal Selection Menu	92
4.5.3.3	The Colour Command Menu	94
4.6	References	94
5	HELIX	97
5.1	Introduction to HELIX	97
5.2	A HELIX Tutorial	98
5.3	LOGAN	111
5.3.1	Introduction to LOGAN	111
5.3.2	The MAIN Command Menu	111
5.3.3	The WAVEFORM Menu	115
5.3.4	The PLOT Menu	115
5.4	Using LOGAN to View the Results of a Simulation	117
5.5	Further Information on SIMUTIL	118
5.6	Further Information on SIMLINK	121
5.6.1	SIMLINK Commands	121
5.6.2	Simulator Control Commands	121
5.7	Writing Behavioural Models — A Tutorial	122
6	THE HILO SIMULATOR	125
6.1	Introduction to HILO	125
6.1.1	Methods of Using HILO	126
6.1.2	Getting Started	127
6.2	The HILO Filing System	127
6.2.1	Files and Subfiles	128
6.2.2	Library File Management	129
6.2.3	Line Editor	131
6.3	Circuit Description Syntax	133
6.3.1	Syntax	134
6.3.2	Style	134
6.4	The Gate Description Language	135
6.4.1	Circuit Header	136

6.4.2	Element Declarations	138
6.4.3	Primitive Elements	140
6.4.4	Wire Declaration	144
6.4.5	Gate-level Description Language Examples	145
6.5	Waveform Description Language	148
6.5.1	Waveform Declarations	149
6.5.2	Waveform Clauses	152
6.5.3	Waveform Description Language Examples	155
6.6	Fault-free Simulation	158
6.6.1	Running a Fault-free Simulation	158
6.6.2	Nested Identifiers	161
6.6.3	Simulation Delay Modes	162
6.6.4	Fault-free Simulation Examples	163
6.6.5	Format of Simulation Listings	164
6.7	Fault Simulation	165
6.7.1	Running Fault Simulations	166
6.7.2	Diagnostic Dictionary	168
6.8	Functional Modelling Language	169
6.8.1	Functional Modelling	170
6.8.2	Functional Description Examples	175
6.9	Automatic Test Pattern Generation	177
6.10	Other Tools	177
6.10.1	The Display Processor	178
6.10.2	The Menu Interface	178
6.10.3	Using the Host Operating System	178
6.10.4	IHILO	179
6.11	References	180
Appendices		181
A.	The Development of a Customised Interface to the ECAD Software Tools	181
A.1	Introduction	181
A.2	The Implementation of the Interface	182
A.2.1	System Security	182
A.2.2	Driving SL2000 via the Interface	182
B.	Using SPICE with PPRG	186
B.1	SPICE to PPRG Interface	186
B.2	Modifications to SPICE	186
B.3	A Complete Simulation Session using SPICE	192

C.	Silvar Lisco Filestore Requirements	193
D.	SDS, Version 6	194
D.1	Introduction	194
D.2	The SDS Menu System	194
D.3	The CASS Run Time Parameter Menu	194
D.4	Text Commands	197
D.5	The Schematics/Symbols Editor Menu	197
D.6	NLE Run Time Parameters	200
<i>Index</i>		201

Foreword

In 1985 the UGC announced a special initiative to improve the facilities within universities for the teaching of Computer Aided Design (CAD). As a result, some £2M was allocated to universities to buy suitable hardware and, in collaboration with the SERC, national licences were purchased for several major suites of CAD software; prominent amongst these were the Electronic CAD (ECAD) suites from Silvar Lisco and Genrad.

As a result of this injection of funds and an equivalent initiative by the DTI for the polytechnics, it is now possible to use their internationally accepted pieces of software in undergraduate teaching.

In teaching undergraduate students the techniques and potentialities of ECAD, it is important that they learn the significant aspects of the subject and do not spend too much time understanding the details of the particular workstations and software packages.

This book has been written by people involved in the teaching of ECAD and is intended to help students get the maximum value from their exposure to the hardware and software available. It does not attempt to cover all the feature of the ECAD software. More advanced users who need this level of understanding should refer to the extensive and detailed manuals available from the software suppliers.

Professor F. H. Sumner
May 1987

Preface

A recent government initiative within the United Kingdom has provided many Universities, Polytechnics and Colleges of Further Education with a wide variety of ECAD software packages together with the necessary computer facilities. The initiative has prompted us to produce this work. The reader will be introduced to some of the SL2000 software packages produced by Silvar Lisco and also to the Genrad HILO software.

A fairly large portion of the book has been devoted to the Silvar Lisco 'Computer Aided Schematic System' (CASS). This provides the designer with a powerful interactive graphics environment for the development of hierarchical electronic circuits. The simulation of circuits developed through this environment is described and a number of introductory tutorials have been included. The interfacing of CASS to non-Silvar Lisco simulators (SPICE and HILO) is also explained. Descriptions are given of the various component attributes required by the simulators.

The Silvar Lisco graphical post-processing routines (PPRG and LOGAN) provide a convenient method of viewing the results of simulations. Descriptions of these packages, together with an outline of an interface between SPICE (2G.6) and PPRG, are also presented.

This book also gives a brief overview of the SL2000 directory structure and outlines the way in which a selective installation of the various packages within the SL2000 suite may be achieved.

The GenRad HILO simulator is described in some detail. The facilities provided by HILO, including the database, editors, command syntax, and both the 'faulty' and 'fault-free' simulation modes, are outlined.

Finally, during the last few months, a simple user interface to the SL2000 and SPICE software (based on an Apollo product called Dialogue) has been developed at Manchester. This interface provides a graphical menu-driven front end to the software, thus reducing the user learning curve. The way in which such an interface may be implemented is outlined.

Barry Blundell
Costas Daskalakis
Nick Heyes
Trevor Hopkins

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We have been provided with excellent computing facilities within the Departments of Electrical Engineering and Computer Science at the University of Manchester, upon which we have been able to evaluate the software and format the text. We should therefore like to thank Dr Peter Jones and Professor Dai Edwards for making these machines available to us. Thanks also to Kathryn Howard and Jandy Blundell for typing much of the text, and to Trevor Hopkins, who formatted the book using the $\text{\TeX}$ text processing system.

We should particularly like to express our gratitude to the staff at Silvar Lisco, particularly Ed Goniszewski, Dyson Wilkes, Andy Cooper and Jeff Dean, for their help and suggestions, and for allowing material such as menus and diagrams to be included in the book. Thanks also to Mike Martin of GenRad for permission to publish certain material.

Others include Dr Warwick Clegg (Department of Electrical Engineering) and Steve Kay (Apollo Computers). Thanks also to Ted Daly (Department of Computer Science), who commented on early drafts of Chapter 6. Finally, special thanks to Jeff Snelson for contributing the CASS tutorial of Chapter 3.