

Table of Contents

Chapter 1 • An overview of EAGLE Software	12
Introduction	12
What is EAGLE and what does it produce?	12
Chapter 2 • The EAGLE User Interface	13
The EAGLE Control Panel	13
Library Summary	14
Design Rules	16
User Language Programs and Scripts	16
CAM Jobs	17
Projects	17
Menu Bar	19
The Schematic Editor Window	31
The Title Bar	33
The Menu Toolbar	33
The Action Toolbar	33
The Command Toolbar of the Schematic Editor	35
Schematic Editor Menu Toolbar Sub-menus	38
Layout Editor	43
The Command Toolbar of The Layout Editor	44
Layout Editor Menu Toolbar	46
The Library Editor Window	49
The Library Editor Toolbars	49
Library Sub-menu	50
The Package Editing Mode	52
The Symbol Editing Mode	52
The Device Editing mode	53

The CAM Processor Window	54
Starting the CAM Processor	54
Loading or Creating Job Files	56
Loading Board Files	56
Setting Output Parameters	57
Starting Output	57
The Text Editor Window	57
Chapter 3 • Working with EAGLE	59
Command Input Alternatives and Navigating Around EAGLE.	59
Icons for Commands	59
Use of Mouse Buttons & Wheel	59
Function Keys	62
Keyboard and Mouse Combinations	63
Basic Screen Functions.	65
Context Menus	66
Drag & Drop	67
Managing Grids and Units.	68
The Concept of Layers in EAGLE Drawings	70
Forward&Back Annotation.	72
Configuring EAGLE.	73
The <i>eagle.scr</i> File	73
The <i>eaglerc</i> File.	75
EAGLE Project File	76
Configuration Menus & Commands	76
Importing and Exporting Data within EAGLE.	83
Importing Data	83
Exporting Data	86
Naming of Objects in EAGLE	93
Name Length	93
Forbidden and Special Characters	93

Chapter 4 • EAGLE Window Commands	94
Commands for Changing Modes or Files	94
Commands to Change the Screen Display and User Interface	104
Commands for Editing Drawings or Libraries	130
Commands for Editing Boards	200
Commands for Editing Schematics	234
Commands for Editing Libraries	253
Miscellaneous Commands	272
Chapter 5 • Using EAGLE’s Library Manager & Editor	294
Library and Component Management	294
Overview of Defining a Complex Device or Component	295
Creating a new or use an existing library	295
Creating the housing or packaging	295
Creating the logic symbol	297
Create the power supply symbol	298
Associating the Packages and Symbols to form a Device set	299
Creating a New Library	300
Manipulating Existing Libraries	302
Manipulating Library Elements	302
Copying Library Elements within a Library	303
Copying Library Elements between Libraries	305
Deleting and Renaming Library Elements	308
Updating Packages in Libraries	310
Creating New Components – A Tutorial	311
Creating the New Library	312
Creating the ‘Quirkistor’ Component	312
Creating the ‘Kunda Buffer’ Component	325
Creating the ‘GizzyGate’ Device	338
Labeling and Text Variables	352
Characteristics of Names	352

Creating Package Variants	353
Use of the Addlevel & Swaplevel Parameters.	355
The Addlevel parameter	355
The Swaplevel parameter	356
Multiple Pad to One Pin Connections	357
Chapter 6 • Using EAGLE’s ROUTE command and Follow-Me router	359
The ROUTE command	359
ROUTE Parameters	359
The Snap Function.	361
Using the ROUTE command to place wires (tracks) manually	361
The Follow-me router.	362
Setting Options and configuring the router.	362
Setting routing parameters.	363
Starting and using the Follow-me router	364
Chapter 7 • Using New EAGLE V7 Features	367
Autorouter Features.	367
Hierarchical Schematics in EAGLE	368
Working with the Hierarchical Schematics Elements	369
Using the Context Menu to edit modules from the Sheet toolbar	373
Appendix 1 • Useful Industry References	380
Standards in PCB design manufacture	380
Copper Foil in PCB Manufacture.	382
Thermal design of PCB Traces	382
Lead and Hole sizes	398
Metric to Imperial Conversion	402
Electrical Conductor Spacing	403

Appendix 2 • Common Component Packaging Specifications	405
SMD Resistor and Capacitor Packages	405
Through -hole axial resistor packages	406
Inductor Package Outlines	407
Standard Package Diode Outlines	408
Standard Package Microelectronic Outlines	411
Selection of Small Outline Transistor Packages	416
Appendix 3 • EAGLE User Language Reference Manual	424
Index of Figures and Illustrations	597
Index of Tables	602
Alphabetical Index	603