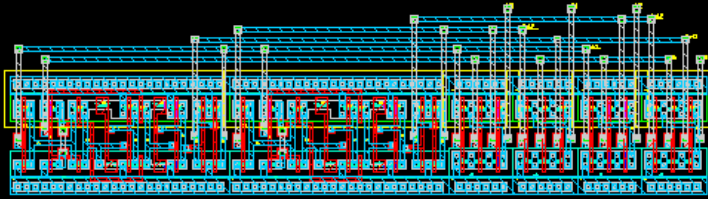


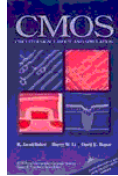
# Lasi Home Site

## Integrated Circuit Design for Windows

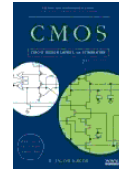


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### Associated Textbooks



"CMOS Circuit Design, Layout and Simulation"  
R.J. Baker, H.W. Li, D.E. Boyce  
IEEE Press or John Wiley & Son  
**[Original Edition]**



"CMOS Circuit Design, Layout and Simulation  
2nd Edition" R.J. Baker  
IEEE Press or John Wiley & Son  
**[2nd Edition]**  
**[First to Fourth Printings Only]**

### Resource Links

The following links are provided to share useful circuit layouts or other resources that relate to using LASI. The author of LASI and administrator of this site makes no claims as to the technical accuracy of any information. Also, no responsibility is assumed for property rights associated with the information on the sites. Anyone is invited to submit to this resource. You should contact [support@lasihomesite.com](mailto:support@lasihomesite.com)

#### Addon Drawings

**Addons** are self-installing drawing folders that can contain layouts, schematics, additional files and CHM help files that integrate into the main LASI help. Simply unzip and run the executable.

Addons now also install their help files in a browser readable form in the Lasi7/Help directory. This makes the download slightly larger but lets you read the help text if you cannot read CHM files.

**Polymumps\_rules\_setup.zip** (feedback appreciated) DRC file and design rule examples for PolyMUMPs MEMS process. For more information and to request design kits and libraries go to <http://www.memscap.com> or <http://www.mosis.com/support/mems>. Requires LASI version 7.0.42 or later. Approx 75KB.

**Textbook\_setup.zip** Basic device and schematic drawings used in associated textbook first chapters. Approx. 98KB.

**Mosis\_rules\_setup.zip** Drawings of MOSIS design rules and layer definitions. Approx. 99KB.

**Revised: Imager\_setup.zip** A simple CMOS imager IC design project. This is preliminary but is fairly elaborate and demonstrates methods for laying out and doing Spice simulations of a large and unusual type of circuit design. Approx 850KB.

**Libtutor\_setup.zip** Tutorial that shows how Spice Extraction can be done from a cell layout. Formerly included in system install, now separate. Approx. 523KB.

**Otatutor2\_setup.zip** Revised tutorial that shows how to use LasiCkt and LasiMx utilities to wire an opamp from individual CMOS transistor cells. Approx. 590KB.

**Mxtutor\_setup.zip** Tutorial that shows how to use LasiMx utility to wire an opamp from individual MOS transistor cells. Formerly included in system install, now separate. Approx. 734KB.

**Padtutor\_setup.zip** Tutorial that shows how to build a padframe cell and connect in test circuits so that the full layout can be compiled and simulated by applying power and signals only to the external pads. Contains new examples. Approx. 330KB.

**Msulib\_setup.zip** Mississippi State's original cell library suitable for educational use. It has been reworked for MOSIS SCMOS and SCMOS SUBM with stackable or non-stackable vias and for and Spice simulation. The cell layout names now have an "\_se" suffix for Submicron, Extended (metal). Approx. 865KB.

**Note:** The MsuLib cells may not meet the latest MOSIS design rules sections 5 and 6. Check with MOSIS if the library dimensions will still pass. Alternate DRC files are included.

**2uchip\_setup.zip** Although outdated, the 2UCHIP CN20 design example is still popular. The 2UCHIP download has been completely revised to work with the latest versions of LASI. The Zip file contains a self-installing executable. Approx. 426KB.

**Up\_down\_setup.zip** Up\_down counter circuit originally available from <http://www.cmosedu.com>. This is a short tutorial to show alternate ways to compile a layout or schematic into a Spice circuit file. Approx. 240KB.

**Chars\_setup.zip** Character fonts update for LASI drawing and layout text. Contains two new fonts that can be used to put text on a device or IC layouts when smashed to polygons and scaled large enough to pass DRC tests. Installs over the current \Lasi7\Chars subfolder and should place a "Chars" icon on the desktop. Read the Readme.txt file in \Lasi7\Help\Charshelp. Approx 142KB..

**Revised: Cn20\_setup.zip** CN20 process design rule drawings and examples. Obsolete – Do not use for new designs, but educational. Approx. 223KB

#### MOSIS Design Rules

[www.mosis.com/files/scmos/scmos.pdf](http://www.mosis.com/files/scmos/scmos.pdf) This is the link to MOSIS SCMOS Rules PDF file. To find design rules for the process you are using (SCMOS,

SUBM, DEEP) select the diagram of the rule by layer or rule number. This is a nice PDF document that formerly had to be viewed one rule at a time.

#### Documents and Software

[Msulib\\_chm.zip](#) Mississippi State's documentation for MsuLib cell library. This has been translated from UNIX to a Windows condensed help metafile (CHM) file. Approx. 1.85MB

[Dxf\\_14.zip](#) AutoCAD's write up of DXF format condensed into a single CHM file. Approx. 104KB.

[Cif\\_S\\_L.pdf](#) Original CIF documentation by Sproull and Lyon in PDF format.

[Starting\\_WinLASI\\_7v02.zip](#) Slightly out of date Simon Harpham's step by step introduction for using LASI. If you have not used CAD systems for IC development in general, and are just starting to use LASI, many things may be confusing. Reading this should help greatly.

#### Miscellaneous Links

<http://www.cmosedu.com/cmos1/winspice/winspice.htm> This is a link to a Spice simulator. WinSpice is available free, but after 30 days will reduce its capabilities unless you purchase a license. It will still be useful for moderate size circuits. Most of the tutorial circuits available from this site have been tested with the old version of Winspice 1.05.07 that does not expire.

**Note:** For student use you might try **Ngspice** that is available for free from **Sourceforge.net**, We have noticed that some large and complicated LASI tutorial circuits may not give exactly the same results as Winspice. We have also noticed that for Sourceforge downloads you might need Firefox or IE9 or later.

<http://www.cmosedu.com/cmos1/winlasi/lasiproj/scells.htm> Our main page at cmosedu.com for IC design course related materials. Maintained by R.J.Baker.

<http://www.cmosedu.com/cmos1/winlasi/winlasi.htm> Windows LASI page at <http://cmosedu.com> where you can download sample layouts. Maintained by R.J.Baker.

[http://www.cnf.cornell.edu/cnf\\_spie9.html](http://www.cnf.cornell.edu/cnf_spie9.html) Link to Cornell's Spie Handbook section describing GDSII format.