

**NAME**

hyp2mat – convert hyperlynx files to octave/matlab scripts for electromagnetic simulation.

**SYNOPSIS**

**hyp2mat** [*-h*] [*-o outfile*] [*-f pdf/csxcad*] [*-n net*]... [*OPTIONS*]... [*-v*] [*infile*]

**DESCRIPTION**

hyp2mat 0.0.9

Converts Hyperlynx Signal–Integrity Transfer Format files to Octave/matlab scripts.

**OPTIONS**

**-h, --help**

Print help and exit

**-V, --version**

Print version and exit

**-o, --output=filename**

Output file. (default='–')

**-f, --output-format=ENUM**

Output file format. (possible values="csxcad", "pdf" default='pdf')

**Processing options:**

**-n, --net=STRING**

Import net. Repeat to import several nets. Default is importing all nets.

**-l, --layer=STRING**

Import layer. Repeat to import several layers. Default is importing all layers.

**-e, --epsilon=DOUBLE**

Set dielectric epsilon r.

**-x, --xmin=DOUBLE**

Crop pcb. Set lower bound of x coordinate.

**-X, --xmax=DOUBLE**

Crop pcb. Set upper bound of x coordinate.

**-y, --ymin=DOUBLE**

Crop pcb. Set lower bound of y coordinate.

**-Y, --ymax=DOUBLE**

Crop pcb. Set upper bound of y coordinate.

**-z, --zmin=DOUBLE**

Crop pcb. Set lower bound of z coordinate.

**-Z, --zmax=DOUBLE**

Crop pcb. Set upper bound of z coordinate.

**-g, --grid=DOUBLE**

Set output grid size. (default='10e–6')

**-p, --arc-precision=DOUBLE**

Set maximum difference between perfect arc and polygonal approximation. (default='0')

**-c, --clearance=DOUBLE**

Set default trace–to–plane clearance. (default='0.0002')

**-F, --flood**

Flood plane layers with copper. (default=off)

**PDF output options:**

- hue=DOUBLE**  
Set PDF color hue. Range 0.0 to 1.0 (default='0')
- saturation=DOUBLE**  
Set PDF color saturation. Range 0.0 to 1.0 (default='0.6')
- brightness=DOUBLE**  
Set PDF color brightness. Range 0.0 to 1.0 (default='0.9')

#### Debugging options:

- r, --raw**  
Raw output. Do not join adjacent or overlapping copper. (default=off)
- d, --debug**  
Increase debugging level. Repeat for more detailed debugging.
- v, --verbose**  
Print board summary.

Hyperlynx input files conventionally end in **.hyp**.

*hyp2mat* reads input from file *infile*. If no input file is specified input is read from standard in.

If no output file is specified output is to standard out.

If a syntax error occurs during conversion, error recovery is attempted. *hyp2mat* exits with zero status if conversion was succesful and non-zero if not.

The **--verbose** option can be used to list board dimensions.

If only a small region of the board needs to be simulated the **--xmin --xmax --ymin --ymax --zmin** and **--zmax** options can be used to crop the board to a smaller region.

If not all layers of the board need to be simulated, the **--layers** option may be used to specify layers of interest.

If not all nets of the board need to be simulated, the **--nets** option may be used to specify nets of interest. The option **--net=?** lists all available nets.

Circles and arcs are approximated by polygons. By default a circle is approximated by an octagon. If higher accuracy is needed, set **--arc-precision** to the desired precision. This will increase the number of line segments used to draw circular, oval and oblong pads, amongst others.

The **--flood** option floods power and ground planes with copper. The flooded copper respects trace-to-plane clearances. Copper net name is identical to layer name.

Typical use of *hyp2mat* is with simulation packages such as OpenEMS.

All lengths are in meters.

#### FILES

**/usr/share/hyp2mat/matlab/**  
Supporting matlab routines for OpenEMS.

**/usr/share/hyp2mat/eagle/**  
Examples and tutorial.

#### EXAMPLES

Convert pcb.hyp to pdf:  
*hyp2mat -o pcb.pdf pcb.hyp*

Examine original Hyperlynx file:  
`hyp2mat -o pcb.pdf --raw pcb.hyp`

Draw arcs with an accuracy of 10 mil or better:  
`hyp2mat -o pcb.pdf --arc-precision 0.000254 pcb.hyp`

## NOTES

Board outlines and copper polygons should not be self-intersecting.

Common causes of syntax errors are unquoted strings, and unassigned component values.

### Unquoted strings

Error: *syntax error, unexpected STRING at 'Logo'*

Source:  
(? REF=My Logo BOT1 L=Bottom\_Layer)

Cause: An unquoted string contains a space ( ' ').

Solution:  
Edit the .hyp file and put the string between double quotes:  
(? REF="My Logo BOT1" L=Bottom\_Layer)

### Unassigned component values

Error: *syntax error, unexpected L, expecting FLOAT or STRING at 'L'*

Source:  
(R REF="R1" VAL= L="Top")

Cause: Component has not been assigned a value (VAL=).

Solution:  
Edit the .hyp file and assign a value to resistor R1:  
(R REF="R1" VAL=0 L="Top")  
or assign the resistor a value in the schematics editor and re-export to HyperLynx.

## AUTHOR

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## SEE ALSO

*octave*(1)  
*OpenEMS*, a free and open-source electromagnetic field solver using the FDTD method.