

Using LinkCAD7 for photomask design file check

The software LinkCAD 7 may be used to perform file conversion that prepares DXF or GDS compatible with our Mask Writer Instrument.

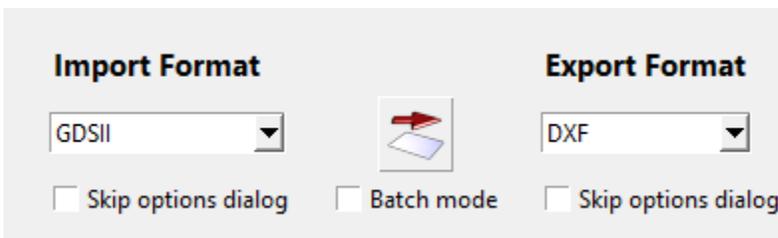
Login to the computer located at the cleanroom staff desk area at desk d outside of the cleanroom office area in RL 1.402, using your UTD NetID and password.



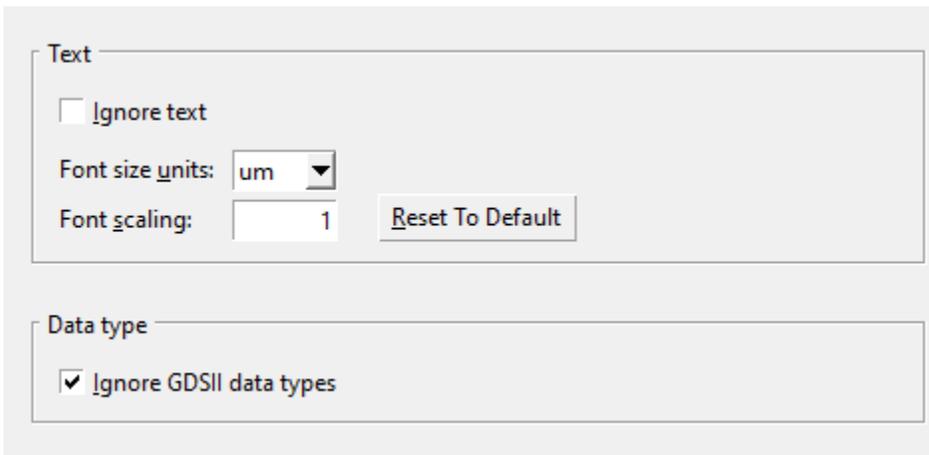
Start the software LinkCAD 7:

You may load GDS or DXF design files to LinkCAD. Below is an example of converting a GDSII file into DXF:

In the "Select File Formats" window set Import and Export File Formats:

The screenshot shows the "Select File Formats" window in LinkCAD 7. It has two main sections: "Import Format" and "Export Format". Under "Import Format", there is a dropdown menu set to "GDSII", a "Skip options dialog" checkbox (unchecked), and a "Batch mode" checkbox (unchecked). Under "Export Format", there is a dropdown menu set to "DXF", a "Skip options dialog" checkbox (unchecked), and a central icon of a red arrow pointing to a document.

In the next step, set the GDSII Stream Import Options:

The screenshot shows the "GDSII Stream Import Options" dialog box. It is divided into two sections: "Text" and "Data type". In the "Text" section, there is an "Ignore text" checkbox (unchecked), a "Font size units" dropdown menu set to "um", a "Font scaling" input field set to "1", and a "Reset To Default" button. In the "Data type" section, there is an "Ignore GDSII data types" checkbox (checked).

In the next step, set the DXF Export Options:

Units and scaling factor

1 DXF unit =

Scale drawing: times

Arc resolution

Precision:

Treat round polyline end caps as...

Round Flat Square extended

Text

Explode text into polygons

File options

DXF Version: Binary DXF

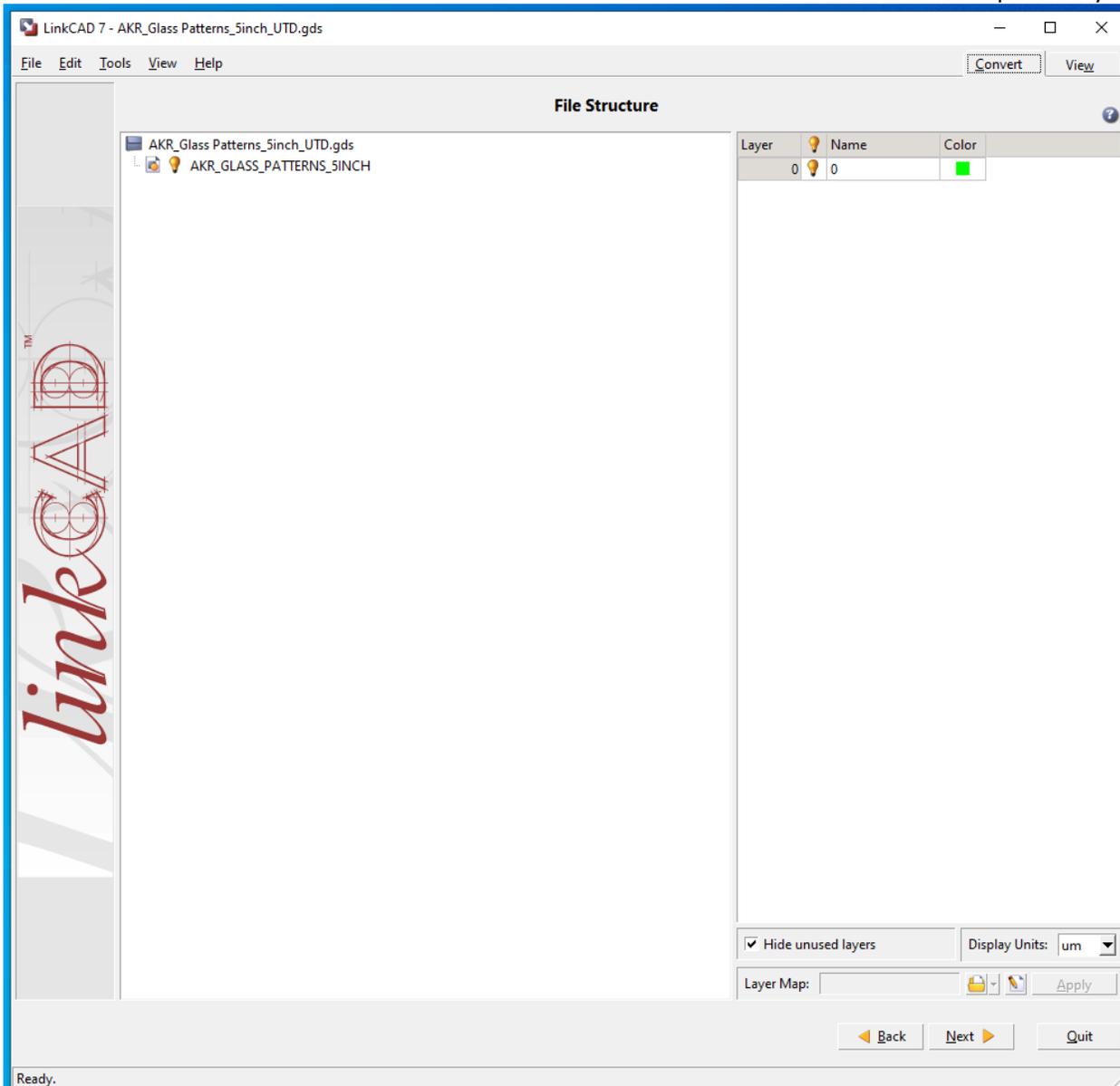
Fill polygons using HATCH

Triangulate and fill polygons using SOLIDS

Export polygons as REGION entities (requires DXF version 14 or later)

Flatten file structure

In the next step, select your Import File (**please transfer design files through the campus network instead of USB memory sticks**). After importing your design file, its file structure will be shown. The View tab allows for checking if all patterns have been successfully imported. In the Convert tab, press Next:



In the next step, enter the Export Filename and save the converted DXF file.

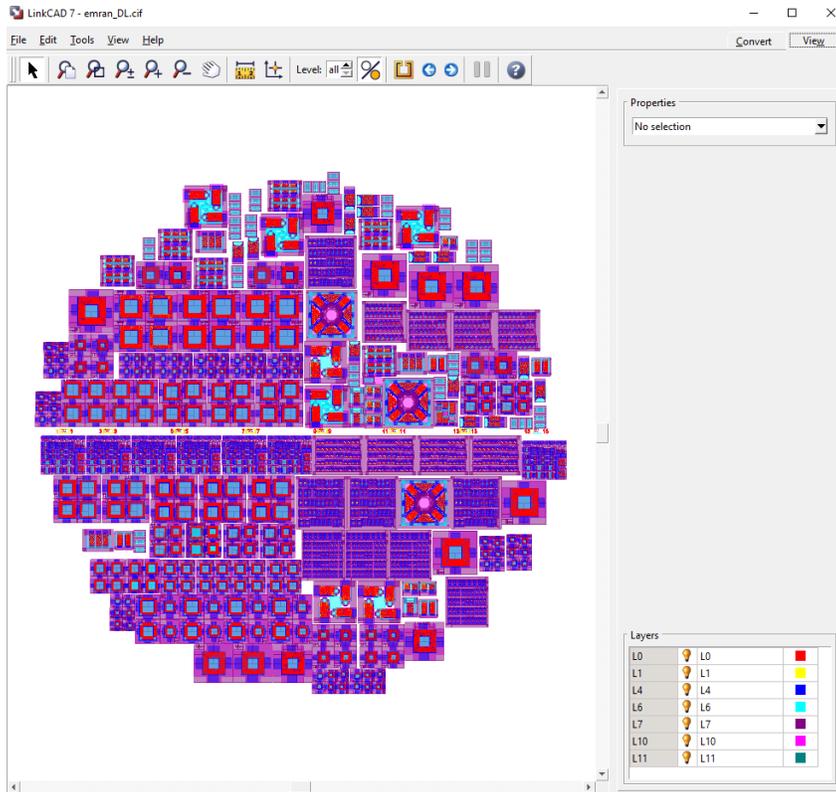
Upload this DXF file to the Mask Request Form at <https://redcap.utdallas.edu/surveys/?s=48JMWYPPYE>

Available input file formats in LinkCAD 7 are ASCII Data, CIF, Compass Layout, DXF, GDS-TXT, GDSII, Image, LASI TLC and PostScript.

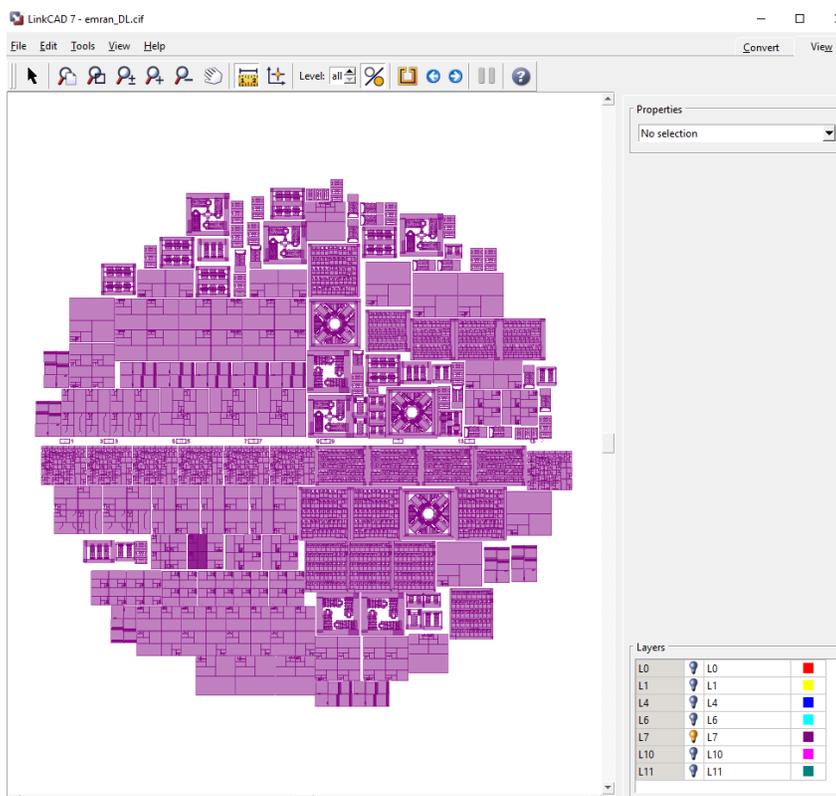
In order to reduce file size, individual layers can be easily separated and saved in LinkCAD 7:

Appropriate layers may be turned ON or OFF from either the File Structure View or from the Layout View panels. By default, all layers are ON. Click the light bulb to turn off layers. During file conversion, only layers that are turned ON will be included in the new file.

For example:



can be turned to



Layer selection can also be done in File Structure View:

The screenshot shows the LinkCAD 7 File Structure View for a file named 'emran_DL.cif'. The interface includes a menu bar (File, Edit, Tools, View, Help) and a 'File Structure' panel. The panel displays a tree view of components, with 'MAINSYMBOL (#309)' expanded to show various sub-components like 'SWIMMING_DESIGN (#207)', 'TEST_ACTUATOR_LENGTH (#210)', etc. On the right, a 'Layer' table is visible, listing layers L0 through L11 with their respective names, colors, and comments. Below the table, there are controls for 'Hide unused layers', 'Display Units' (set to 'um'), and a 'Layer Map' section. At the bottom, there are navigation buttons for 'Back', 'Next', and 'Quit'.

Layer	Name	Color	Comment
L0	L0	Red	DL_first_mask
L1	L1	Yellow	1 oxide_pattern/Of
L4	L4	Blue	poly_protect_step
L6	L6	Cyan	Backside_etch
L7	L7	Purple	DL_second_mask
L10	L10	Magenta	Nitride_removal_la
L11	L11	Teal	Layer 11