**CIF File Format**

The Caltech Intermediate Format (CIF) is a file format for the description of integrated circuits. Created by the university community, CIF has provided a common database structure for the integration of many research tools.

* [**CIF Import Options**](http://www.linkcad.com/help/5/source/docs/dialogs/CIF_Import_Options.htm)
* [**CIF Export Options**](http://www.linkcad.com/help/5/source/docs/dialogs/CIF_Export_Options.htm)
* [**Drawing Design Rules**](http://www.linkcad.com/help/5/source/docs/rules/Overview.htm)

**File Structure**

CIF provides a limited set of graphics primitives that are useful for describing the two-dimensional shapes on the different layers of a chip. The format allows hierarchical description, which makes the representation concise. In addition, it is a terse but human-readable text format. CIF is therefore a concise and powerful descriptive form for VLSI geometry.

**Data Format**

Each statement in CIF consists of a keyword or letter followed by parameters and terminated with a semicolon. Spaces must separate the parameters but there are no restrictions on the number of statements per line or of the particular columns of any field. Comments can be inserted anywhere by enclosing them in parenthesis.

There are only a few CIF statements and they fall into one of two categories: geometry or control. The geometry statements are:

* LAYER (L) to switch mask layers,
* BOX (B) to draw a rectangle,
* WIRE (W) to draw a path,
* ROUNDFLASH (R) to draw a circle,
* POLYGON (P) to draw an arbitrary figure, and
* CALL (C) to draw a symbol containing other geometry statements.

The control statements are:

* DS to start the definition of a symbol,
* DF to finish the definition of a symbol,
* DD to delete the definition of subroutines,
* 0 through 9 to include additional user-specified information, and
* END (E) to terminate a CIF file.

All of these keywords are usually abbreviated to one or two letters that are unique.

LinkCAD supports an extension to the CIF format, called Cle CIF2.0+. These are special instructions that add donuts and symbol scaling to CIF. Cle CIF2.0+ is only used by the CLE layout editor on the DOS and Windows platforms ( WieWeb Software, Borne, The Netherlands).