edXact
A SILVACO Group Company

Brenner

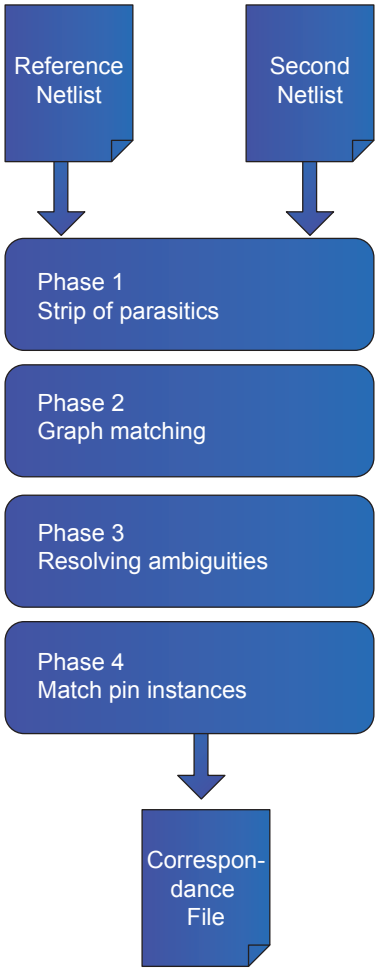
Netlist Matching

Brenner is a utility tool that matches two different netlists. The netlists may be in different formats and may contain parasitics or not. The intention of the tool is to find all correspondances between the two netlists. The tool is used as a preparational step together with Belledonne, but it can also be used as a standalone tool.

Methodology

Comparing two netlists is a commonly known task, which is regularly carried out in backend physical verification of integrated circuits. It is typically tightly linked to the extraction of a layout in order to verify if the layout implementation corresponds to the schematic netlist. This step is called “Layout-versus-Schematic” (LVS) and is used in all backend flows.

Brenner is independent of any extraction tool and can be used by feeding the extracted netlists with or without the parasitics into the tool. Brenner has been tested with Assura QRC, Calibre XRC, Star RCXT.



Phases of Brenner.

Input netlists can be in different formats: DSPF (with instances), SPEF, CalibreView, Spectre, Hspice, Eldo, Spice, extView

- Phase 1 consists in stripping off the parasitics from the netlists in order to have two netlists containing only the designed circuit elements. The netlists are transferred into a graph-based database.
- In phase 2 subgraph isomorphism techniques are applied in order to match the topologies of the two graphs.
- Phase 3 takes care of the ambiguities. It is common to see that several possibilities of matching exist. Brenner exploits device coordinates, parameters and other means in order to solve the ambiguities.
- Phase 4 especially takes care of transistor fingers, which are from a topological point of view all in parallel. The goal of phase 4 is to match the pins of the device instances.

The output of Brenner is a file that contains all correspondances of pins and nets needed by Belledonne.

LPE qualification flow

A straightforward connection has been made between Brenner™, Belledonne™ and Viso™ to execute the "LPE qualification flow" to quickly detect (BRENNER and BELLEDONNE) and explain (VISO) differences between two extracted netlists (see figure 2).

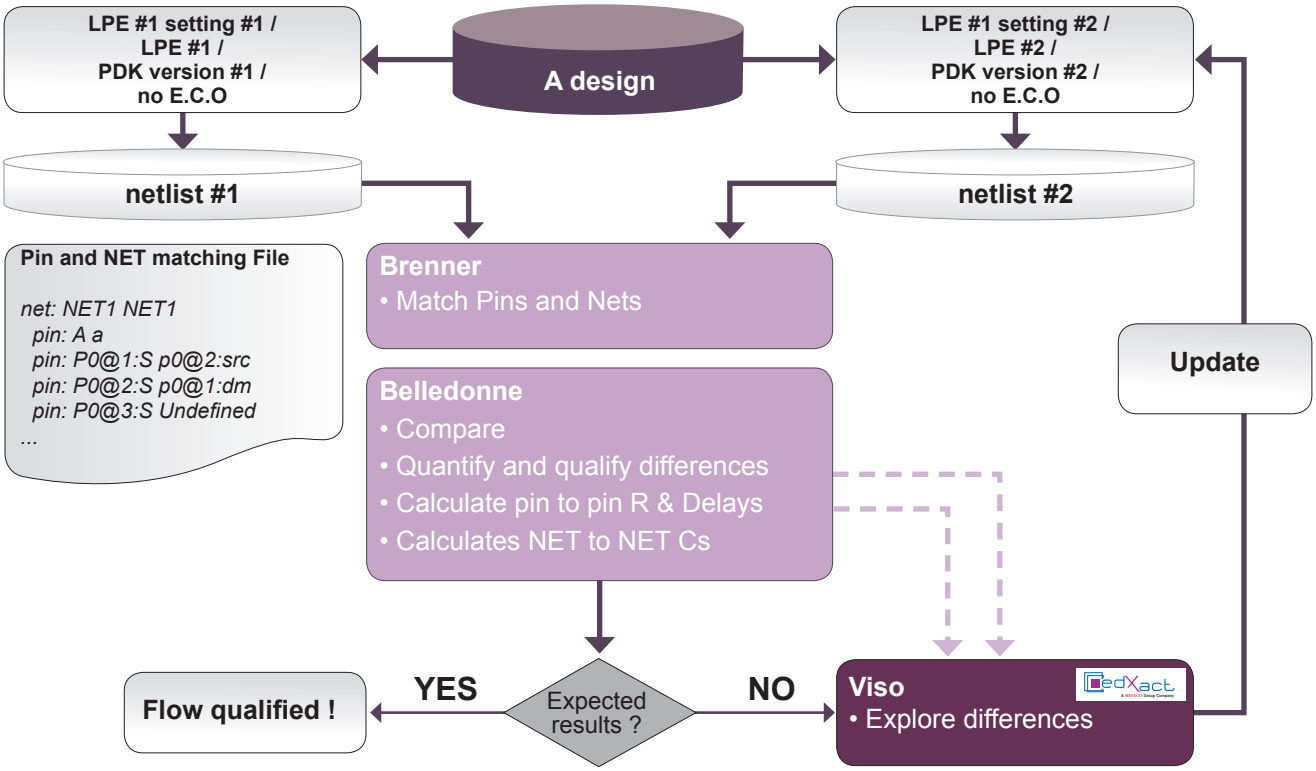


Figure 2: LPE qualification flow

Supported platforms

- Red Hat Enterprise Linux 5, 6: x86, x86_64
- SuSE Enterprise Linux 11: x86, x86_64

NOTE: Brenner 1.5 is currently bundled in the offer of Belledonne.

edXact
A SILVACO Group Company

HEADQUARTERS
4701 Patrick Henry Drive, Bldg. 2
Santa Clara, CA 95054 USA
Phone: 408-567-1000
Fax: 408-496-6080

CALIFORNIA sales@silvaco.com
MASSACHUSETTS masales@silvaco.com
TEXAS txsales@silvaco.com

JAPAN jpsales@silvaco.com
EUROPE eusales@silvaco.com
FRANCE eusales@silvaco.com

KOREA krsales@silvaco.com
TAIWAN twsales@silvaco.com
SINGAPORE sgsales@silvaco.com
CHINA cnsales@silvaco.com

WWW.SILVACO.COM