

Formal Methods for Custom Cell Characterization

Current static timing analysis tools are unable to provide adequate support for rapid characterization of mixed-signal custom cells due to their inability to handle the analog components. New formal methods developed by the Formal-V group enable automatic stimulus generation for such custom cells. The tool is aware of the sensitizing conditions for various types of characterization tests, and generates appropriate stimuli to drive the circuit to the desired sensitized states.

A recent version of this tool is able to read transistor level (CDL) netlists and extract out the functionality of the circuit. This information is then used by the formal tool for generating custom cell characterizations tests.

The group also has developed a new style of analyzing the timing and power of custom cell designs. The new method, called *Symbolic Event Propagation* is able to eliminate false paths and predict the delay and power of a circuit against given delay and power models of the components.