



IRIS&iModeler

RF /Analog IC Design

On-chip EM Modeling and Simulation Platform

Highlights

1

With the continuous advancement of semiconductor manufacturing processes, the design of on-chip passive structures at advanced process nodes relies increasingly on 3D electromagnetic field simulations.

2

For advanced process nodes, specialized EM simulation technology has been employed and certified by multiple leading manufacturers, with widespread adoption among various design firms.

3

The modeling and simulation tool can be seamlessly integrated into mainstream IC design platforms, with streamlined data transmission for simulations.

4

By providing a rich set of built-in passive component templates or Importing external PCell library files, this tool enables PDK engineers and circuit designers to quickly generate device PCell models.

5

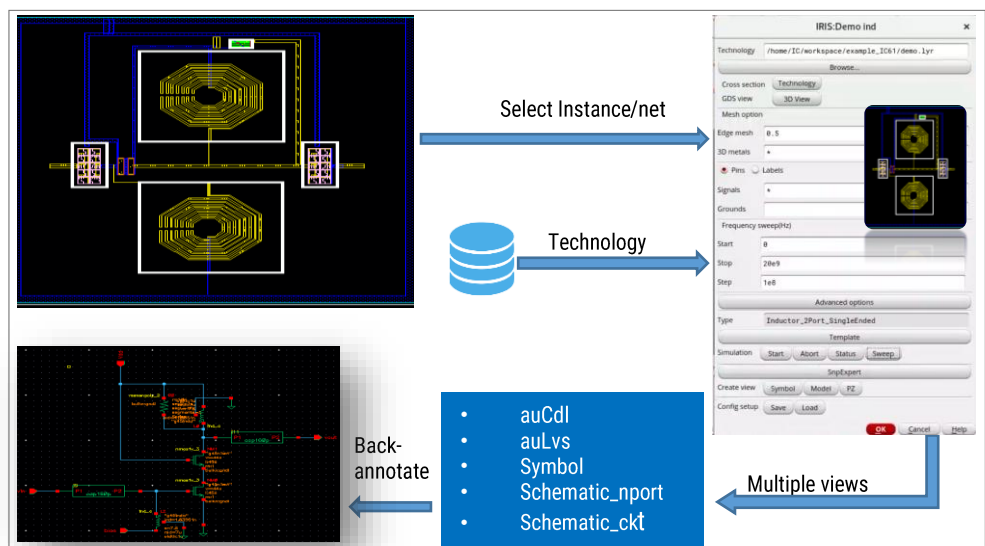
The platform offers a comprehensive suite of passive component templates, including Inductors, MOM caps, MIM caps, Transmission Lines, Transformers, Baluns, T-coils, and more, catering to diverse application scenarios.

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An AI-based automatic modeling platform for PDK devices, which takes in device structures and physical parameters, utilizes AI hybrid algorithms and neural network algorithms, providing rapid and accurate modeling training and inference capabilities for the creation of passive and active PDKs.

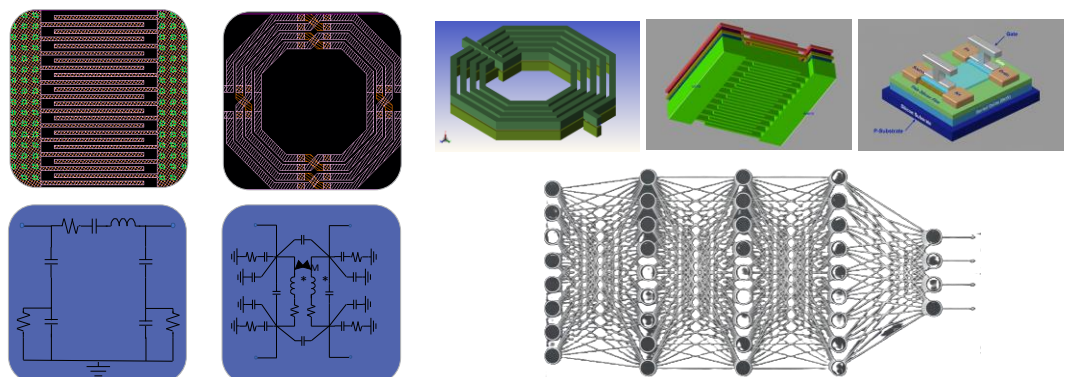
Xpeedic EDA simulation Solution for RF/analog IC Design

- 3D full-wave EM solver.
- Seamlessly integrated in Cadence Virtuoso.
- Accelerated MoM technology, Multi-core parallel.
- Supports EM simulation for various on-chip passive devices and interconnection structures.



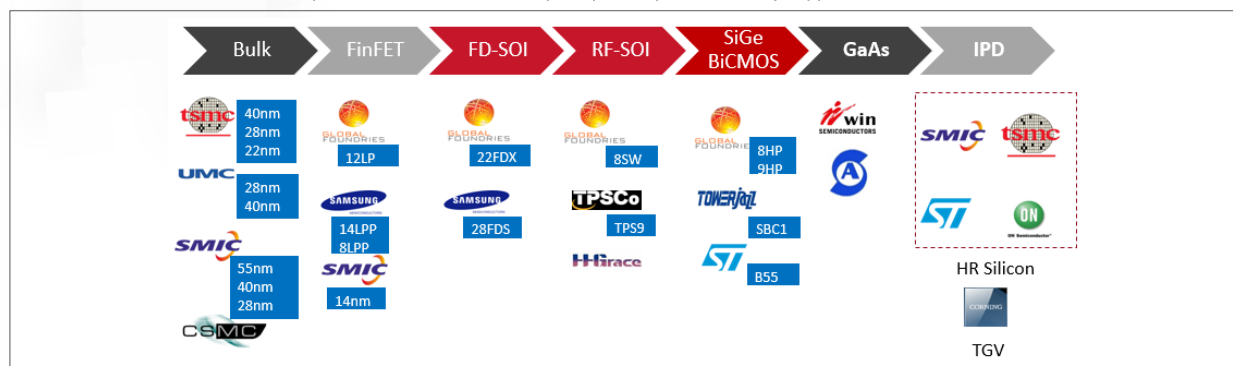
Xpeedic EDA PDK Modeling Solution for RF/analog IC Design

- Seamlessly integrated in Cadence Virtuoso, Support UI operation workflow
- Training the PDK pcell model using a variety of built-in passive component parameterization templates
- Using neural network algorithms to enhance the efficiency and accuracy of PDK modeling



Adapted to various process nodes used in integrated circuits

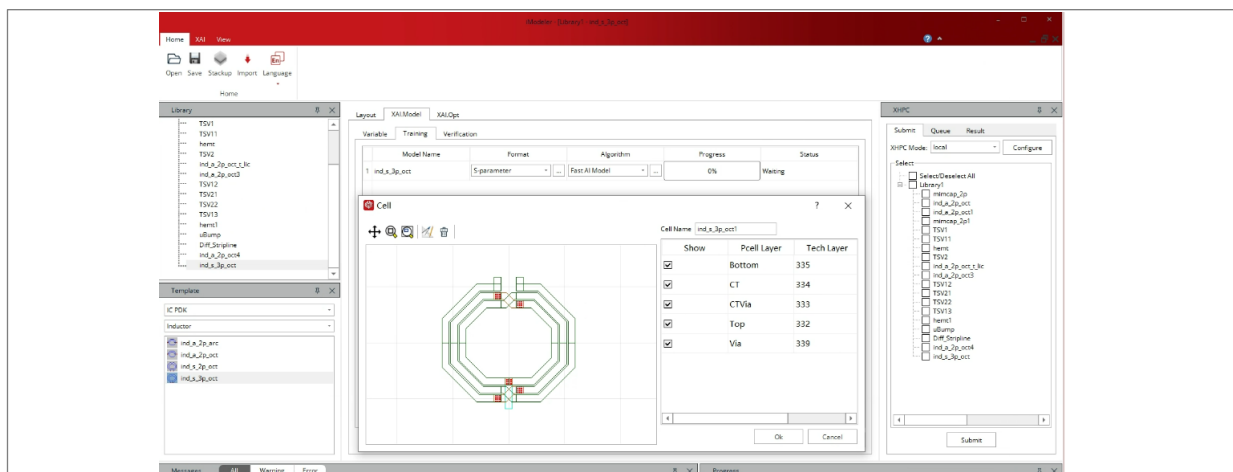
The platform software can analyze and convert process files from leading foundries for electromagnetic field simulation, has been certified across various advanced process nodes, and is widely adopted in practical design applications.



Automated PDK Pcell modeling workflow

The platform integrates comprehensive parameterized models for various on-chip passive components, including on-chip spiral inductors, transformers, transmission lines, MOM and MIM capacitors, T-coils, and other passive structures. Users can freely select and train corresponding pcell models as needed.

The software platform utilizes an active learning-based small-sample rapid modeling machine learning algorithm, capable of intelligently identifying parameter space regions with complex pattern changes and then intelligently supplementing data. The AI model modeling speed of the platform is faster than that of equivalent circuits, with higher accuracy, millisecond-level prediction speed, and support for continuous learning due to parameter range expansion or insufficient accuracy, maximizing the efficient use of simulation data.



Comparison of accuracy in simulation results for passive structures on the chip

The software simulation process is simple and user-friendly, with simulation results that closely match actual measured values at each process node.

