

EMX Planar 3D Solver

High-frequency electromagnetic simulator

The Cadence® EMX® Planar 3D Solver is an electromagnetic simulator for high-frequency, RF, and mixed-signal integrated circuits. It allows designers to accurately and efficiently simulate large RF circuit blocks, characterize the behavior of passive components, and analyze the parasitics due to interconnect. The EMX Planar 3D Solver's unique emphasis is on complete automation coupled with uncompromised speed and accuracy. The EMX Planar 3D Solver has been benchmarked to be more than an order of magnitude faster than the leading finite-element and boundary element tools in the industry. The EMX Planar 3D Solver is built on a philosophy of maximal automation, with industry-standard input and output formats and automated handling of modern IC layout features. The EMX Planar 3D Solver shortens design cycles and brings to market better products with less risk.

Accurate physics

- ▶ 3D conductors and vias
- ▶ True volumetric currents
- ▶ Accurate sidewall capacitances
- ▶ Layered and lossy substrate effects
- ▶ Substrate and inter-component coupling

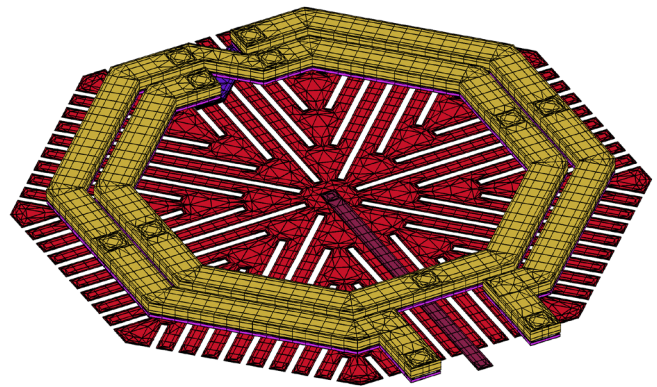


Figure 1: Inductor with shield

Applications

- ▶ Passive component libraries
- ▶ Design of spiral inductors, MOM capacitors, MIM capacitors, baluns and transformers.
- ▶ RFIC circuits, VCOs, LNAs
- ▶ Design of RF test structures
- ▶ High-Q passive-in-package filters
- ▶ Design high power distributed RF amplifiers

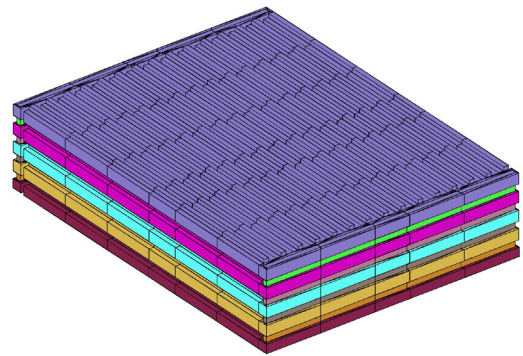


Figure 2: MoM capacitor

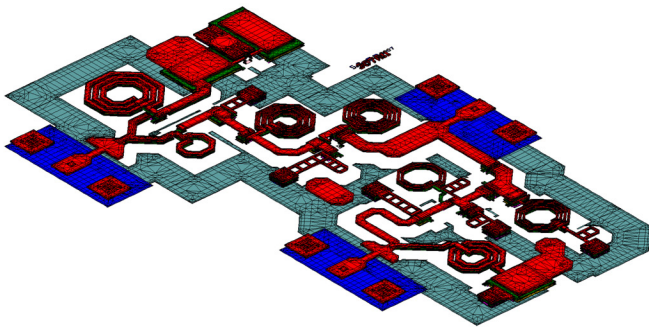


Figure 3: Full RF Circuit

Automated handling of mask-ready layout

- ▶ Automatic via merging
- ▶ Context-dependent vias
- ▶ Slotting rules, dummy fill
- ▶ Width and spacing dependent metal bias
- ▶ Scaling operations for half-nodes

Advanced numerics

- ▶ Multipole for fast matrix construction
- ▶ Exploits geometric regularity
- ▶ Compression to reduce RAM requirements
- ▶ Robust iterative solver for quick solution
- ▶ Accurate even at low frequencies
- ▶ Multi-core support for increased speed

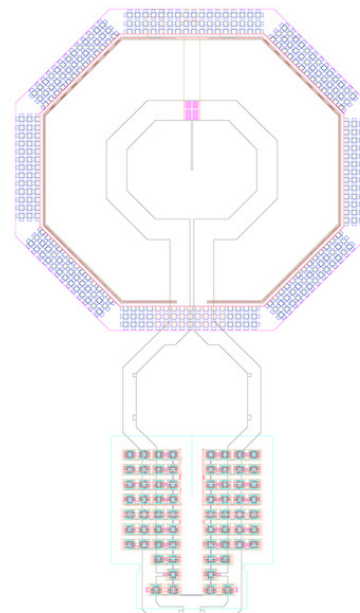


Figure 4: VCO

Integration to Virtuoso Environment

- ▶ Seamless interface to Cadence Virtuoso® Custom IC Design Platform
- ▶ Integrated plotting environment
- ▶ Automatic creation of Cadence Spectre® models
- ▶ Automated layout simplification

Cadence Services and Support

- ▶ Cadence application engineers can answer your technical questions by telephone, email, or Internet—they can also provide technical assistance and custom training.
- ▶ Cadence-certified instructors teach more than 70 courses and bring their real-world experience into the classroom.
- ▶ More than 30 Internet Learning Series (iLS) online courses allow you the flexibility of training at your own computer via the internet.
- ▶ Cadence Online Support gives you 24x7 online access to a knowledgebase of the latest solutions, technical documentation, Rapid Adoption Kits, software downloads, and more.
- ▶ For more information, please visit www.cadence.com/support for support and www.cadence.com/training for training.

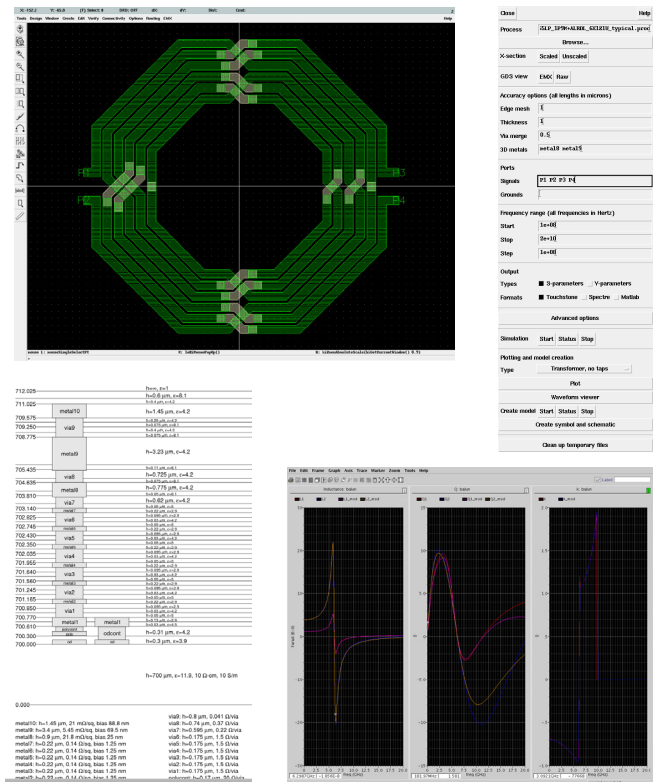


Figure 5: Interface to Cadence Virtuoso

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