

EMX[®]

3D EM Simulator

Integrand Software's EMX[®] 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. EMX's unique emphasis is on complete automation coupled with uncompromised speed and accuracy. EMX has been benchmarked by our customers to be more than an order of magnitude faster than the leading finite-element and boundary element tools in the industry. EMX is built on a philosophy of maximal automation, with industry-standard input and output formats, full scriptability from the command line, and automated handling of modern IC layout features. EMX shortens design cycles and bring to market substantially 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

Applications:

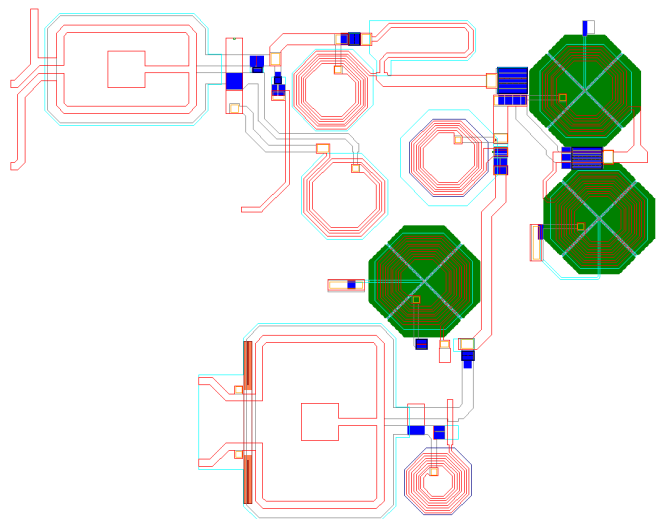
- passive component libraries
- design of spiral inductors, MOM capacitors, MIM capacitors, baluns and transformers.
- design of RF test structures
- high-Q passive-in-package filters
- extraction of complete RF circuits

Automated handling of mask-ready layout:

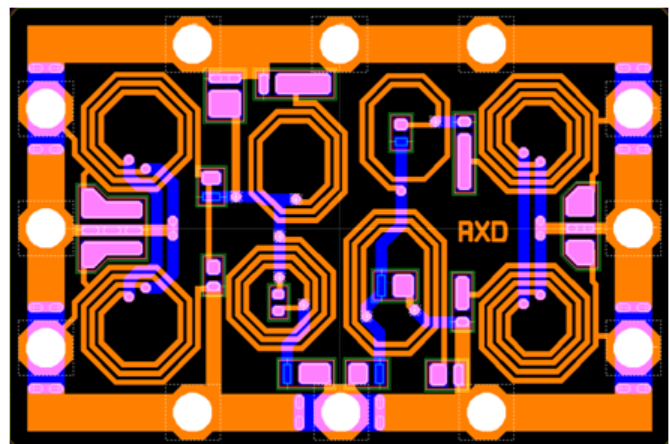
- automatic via merging
- context-dependent vias
- slotting rules
- metal and dummy fill
- boolean operations for layer generation
- width and spacing dependent metal bias
- scaling operations for half-nodes

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
- automated fast frequency sweeps



RF IC block with inductors, resistors, and MiM caps. 20 ports and 500K basis functions



802.11b diplexer in IPD technology

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