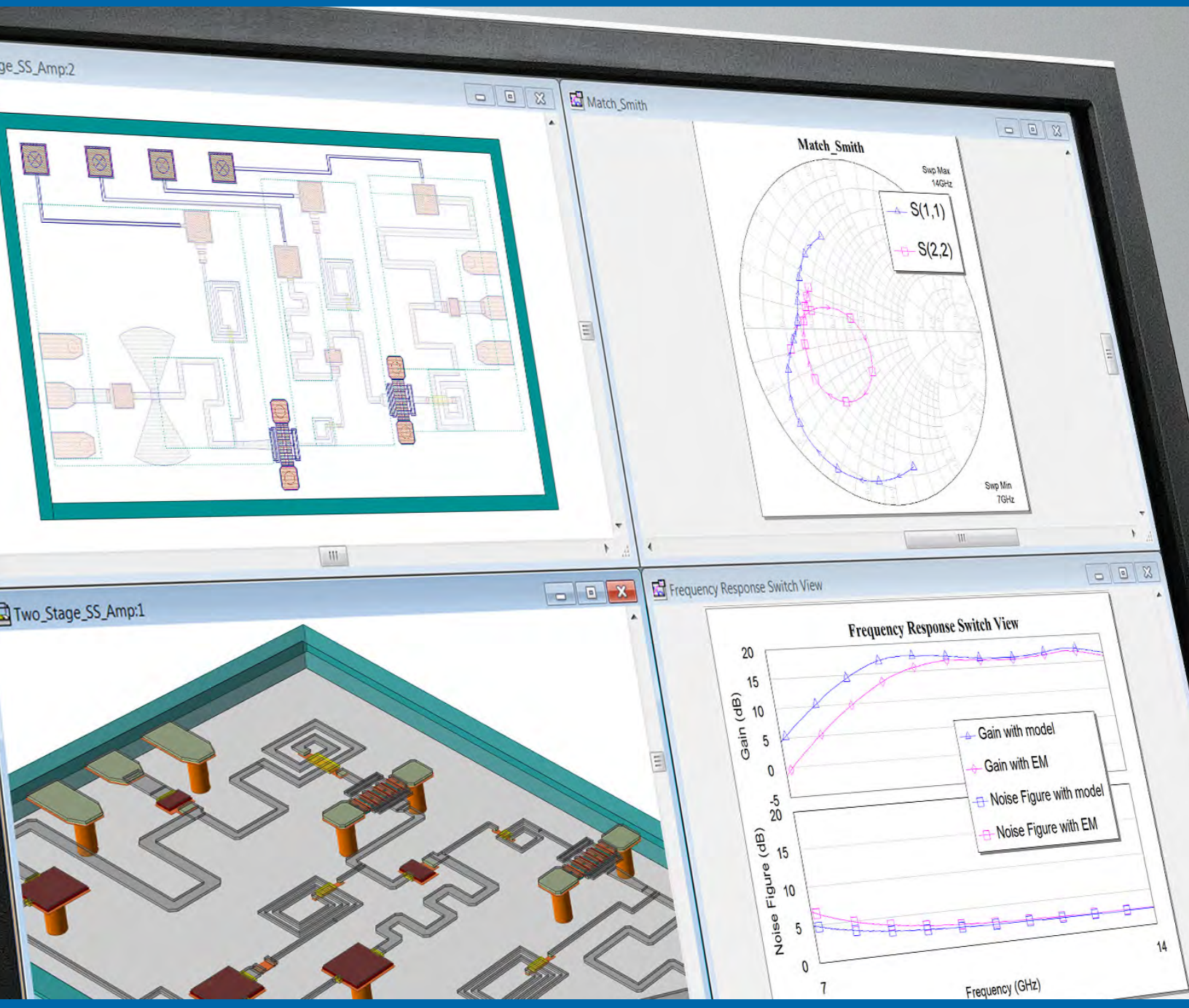
Microwave Office

RF and Microwave Circuit Design Software



cadence®

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Microwave Office is used by leading manufacturers to accelerate product development of high-frequency electronics. The intuitive interface, innovative design automation, and powerful harmonic-balance circuit simulation ensure greater engineering productivity and accelerated design cycles. Microwave Office seamlessly interoperates with Visual System Simulator™(VSS) system design and AXIEM and Analyst™ EM simulation software tools in the AWR Design Environment platform to deliver a complete RF and microwave circuit, system, and EM co-simulation environment.

AWR Design Environment

- **Microwave Office**
- Visual System Simulator
- Analog Office
- AXIEM
- Analyst

Advantages

Accelerate Design

The AWR Design Environment proprietary unified database directly links RF-aware schematic capture and design layout to help address physical design simultaneously with electrical simulation. Powerful design automation and assistance tools such as filter, mixer, passive component, transmission line, and matching network synthesis, along with industry-leading load-pull analysis for power amplifier design, provide critical support for all phases of product development.

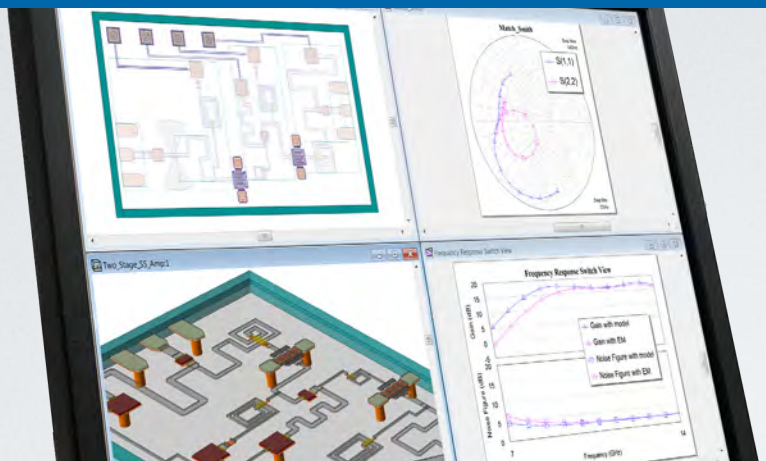
Key Analyses

Fast and accurate simulation technology offers robust circuit analysis and design insight, providing the linear/nonlinear time- and frequency-domain measurements required to properly characterize and optimize high-frequency electronics.

Simulation-Ready Models

Comprehensive libraries of high-frequency distributed transmission models, surface-mount vendor components, and process design kits from leading MMIC/RFIC foundries enable accurate simulation of designs prior to manufacture, resulting in fewer and faster design iterations.

> "Every designer faces a choice during the design cycle: do I believe the simulation results displayed by the software, or not? I trusted the predictions, and thanks to Microwave Office the new design worked perfectly. The performance we achieved is unlike any other MMIC ever produced."
>
> Christopher Marki, Marki Microwave



Features at a Glance

- Schematic/Layout – Design entry with industry-leading tuning
- APLAC – Linear and nonlinear circuit simulation
- EM Analysis – Fully integrated EM with AXIEM and Analyst
- Load-Pull – State-of-the-art load-pull analysis
- Stability – Includes both linear and nonlinear stability analysis
- DRC/LVS – Design rule checking/layout vs. schematic

Capabilities

Design Entry – The intuitive user interface is tailored to provide project management and design entry for high-frequency circuits, enabling designers to quickly build networks from a comprehensive library of RF-aware components. The library supports parameterization for tuning/optimization and hierarchical design with circuit, system, and EM co-simulation, simulation controls and result graphs for standard and user-customized RF/microwave measurements.

Automation – Powerful automation features expedite design tasks and manage network and measurement data, including labor-saving wizards to import PCB layout and/or OpenAccess schematic information from third-party tools, as well as an easy-to-use API and scripting functionality to support customization and user-defined automation.

Load-Pull Analysis – Readily develop amplifier input/output matching circuits using complex swept load-pull data sets based on either measured or simulated data. Performance contours include available output power, gain, efficiency (PAE), intermodulation distortion levels, or any amplifier-related performance metric.

Synthesis and Design Assistance – Accelerate design starts with synthesis modules and design assist wizards that generate topologies based on a set of user-specified RF/microwave performance criteria. Synthesized filters, impedance matching, mixer, and passive component networks are available for further refinement, optimization, EM verification, and physical design.

Simulation

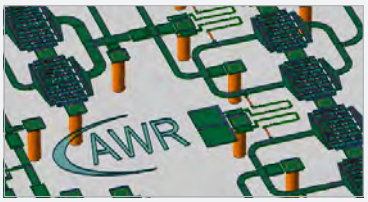
APLAC – This robust harmonic-balance (HB) simulator provides linear and nonlinear circuit analysis with powerful multi-rate HB, transient-assisted HB, and time variant (circuit envelope) analysis, supporting large-scale and highly nonlinear RF/microwave circuits.

Planar EM – AXIEM provides the speed and accuracy to characterize and optimize passive structures, transmission lines, planar antennas, and large (more than 100K unknowns) patch arrays.

3D EM – Analyst helps accelerate high-frequency product development from early physical design characterization through to full 3D EM verification. Its 3D finite element solver provides fast and accurate EM analysis of interconnects such as bond wires, vias/via fencing, and ball grids.

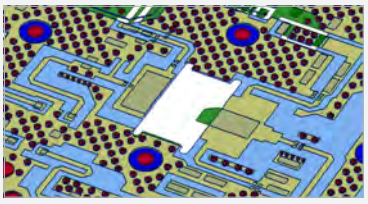
Automated Circuit Extraction – Using layout-based models for circuit extraction, ACE dramatically reduces the time required to model complex interconnects by automatically identifying transmission lines from the layout and partitioning them into existing models.

EM Socket™ – The revolutionary EM Socket interface enables integration of third-party EM point tools directly into the software.



MMIC
Microwave Office offers a front-to-back MMIC design flow that enhances engineering productivity and ensures first-pass success with PDKs from a wide range of GaAs, GaN, SiGe, and CMOS foundry partners.

Module
The software's hierarchical framework supports simulation of diverse MMIC, RFIC, and PCB processes, multi-layer interconnects, embedded passives, and surface-mounted mini-devices found within multi-chip RF modules.



PCB
Layout-driven PCB design supports accurate simulation of the entire RF signal path, including EM co-simulation for analysis of complex electrical interconnects as well as embedded and distributed passive elements.

Services and Support

Technical Support
Get started faster or work through tough issues by contacting AWR software support engineers who are ready to help via phone and email during normal business hours.

Technical Resources
Access volumes of self-help information at awr.com/support, including application tips, example projects, user forum, and more.

Online Training
Get a jump start with self-paced modular training videos on awr.com/elearning that aim to educate new users on AWR software.

Academic Resources
AWR software donations are available to support academic institutions with an emphasis on teaching and/or non-proprietary research.

Learn more at awr.com

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