Agilent EEs of EDA

Design With Confidence

Advanced Design System

Agilent Technologies
”With all of the pressures on our customers to get their new products to market quickly, Agilent is uniquely positioned to help reduce the overall design cycle by supplying both EDA tools and Test and Measurement equipment. As one company, Agilent EEsof EDA and Agilent Test Equipment will allow a more cohesive solution as design teams move from virtual simulations to building and measuring actual parts. The end result for our customers will be smoother, more complete design flows and, ultimately, shorter design cycles, allowing them to innovate more quickly.

Since our acquisition of EEsof, we have expanded our investment in EDA and have developed worldwide customer agreements and partnerships with many of the industry’s leading companies. Our focus on high-frequency EDA continues to increase.”

Ned Barnholt
President and CEO
Agilent Technologies

Agilent Technologies dates back to 1939, when Bill Hewlett and Dave Packard started Hewlett-Packard and began a legacy that has shaped Silicon Valley and the technology industry. Its Electronic Design Automation (EDA) business grew from an internal need to improve the design process for its RF and microwave instrumentation.

For more than 20 years, Agilent has led the development of new high-frequency EDA technologies such as Harmonic Balance and Circuit Envelope simulators, RF/Analog/DSP co-simulation, and behavioral models. It is technology that has proven its robustness and lasting value over time.

Today, just as Agilent engineers continue to use these EDA tools when inventing new products, you can trust that Agilent EEsof EDA supplies the breadth of technology to give you confidence in all your high-frequency designs.

World-Class Products for the Entire Development Process

Agilent EEsof EDA offers three main platforms, each with a wide range of affordable configurations.

- **Advanced Design System (ADS)**, a powerful EDA software platform, offers industry leading simulation technologies to RF and Microwave designers.

- **Device Modeling Systems**, based upon IC-CAP parameter extraction and device modeling software, provide a complete toolset for developing accurate device models.

- **ValiFire** design verification systems bridge the gap between simulation and test, with preconfigured and preracked systems that use ADS for virtual design and test instrumentation for physical design verification.

“Agilent EEsof EDA is not just a pure software company. It is part of a larger company that has RF designers, fabrication facilities, and a modeling group. Agilent understands what we are trying to do because they do it themselves. This was a big factor in choosing ADS as our exclusive RF design tool.”

— Shihab Al-Kuran, Director of Design Technology Engineering, ANADIGICS, Inc.
The Most Powerful Software for High-Frequency Design

ADS contains all of the high-performance capability you need to design the entire signal path of wireless or wireline communications products – including communications system and baseband DSP design, hybrid and RF PCB design, monolithic microwave integrated circuits (MMIC) and RFIC circuit design, and electromagnetic physical design and layout. ADS covers this breadth of technology in a single integrated environment.

The open and flexible environment of ADS ensures that many different design flows are supported. The manufacturing of RFICs or PCBs may require design-flow integration with other environments such as Cadence Design Systems® or Mentor Graphics®. ADS offers a range of integration tools and services to build streamlined design flows that combine ADS simulation technology with the power of other EDA frameworks.

Leading through Partnerships

Industry partnerships enable ADS to lead the way to efficient, streamlined design and verification. The number of partners is steadily growing, so you can be sure of an ever-expanding sphere of innovation with ADS.

• Foundry Partners – For MMIC or RFIC design, Agilent has formed strategic partnerships with many leading semiconductor foundries to provide RFIC and MMIC Design Kits that enable you to access powerful simulation technologies available in ADS.

• Application Partners – Over a dozen application partners have taken advantage of the ADS open architecture to add value by expanding on its capabilities to create DesignGuides that set up and streamline real-world circuit designs.

A growing number of leading companies offer Design Kits that support ADS.

www.agilent.com/find/eesof-foundries

“TSMC’s support for Agilent’s leading RF simulation environment reflects the strong demand by designers for state-of-the-art analysis as they prepare these products for market.”

— Genda Hu, Vice President of Corporate Marketing, TSMC.
Reduce Design Time...

The Models Layer

Accurate models are a prerequisite for any successful design flow. Without good models, designers can’t make progress or have confidence in their simulation results. Agilent offers numerous models within ADS:
- RF system models that enable mixed-signal verification with over 1500 analog, RF, and DSP models
- Design Libraries with models for the latest communication standard modulation formats
- ADS component libraries with over 100,000 parts
- MMIC/RFIC Design Kits available from leading foundries

In addition, there are several options available to let you develop customized models to meet your specific device and product requirements:
- Modeling systems for developing accurate device model extractions
- Model Composer, which uses a unique EM modeling method for customizing existing passive planar elements
- Consulting on modeling processes and model-extraction services
- Model Development Kit for generating user-defined models

The Application Layer

Ease of use is important for EDA tools, and ADS is continually being improved in this area. “Ease of design” is even more critical as it can have a direct impact on completing your designs as fast as possible. This is why the application layer in ADS is so important. DesignGuides, Design Libraries, DesignSeminars, and application training are all aimed at bridging the gap between simulation technology and your applications.

DesignGuides
Use powerful ADS simulation technologies in an application-focused way. DesignGuides include simulation setups, data displays, and documentation.

Available DesignGuides include:
- RF System DesignGuide
- Power Amplifier DesignGuide
- Mixer DesignGuide
- Oscillator DesignGuide
- Passive Circuit DesignGuide
- Filter DesignGuide
- PLL DesignGuide
- Linearization DesignGuide
cdma2000 DesignGuide
- Bluetooth® DesignGuide
- WLAN DesignGuide
- DesignGuide Developer Studio

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Design Libraries
Verify your designs against communication standards. Design Libraries include preconfigured measurement setups and built-in signal sources based on the latest standards.

Available Design Libraries include:
- CDMA Design Library
- GSM Design Library
- 5-GHz WLAN Design Library
- DTV Design Library
- 3GPP Design Library
cdma2000-Compliant Design Library
- EDGE Design Library
- 1xEV-DO Design Library

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“The Simulation Technology Layer

Designing circuits for different functional blocks often requires different simulation technologies. ADS offers the most complete spectrum of simulation technologies. When combined, they enable you to fully characterize and optimize designs under multiple conditions. The result is a product that can exceed performance requirements and be manufactured at high volumes.

ADS is an environment that tightly integrates several powerful simulation technologies. It allows you to develop or import RF, analog, and DSP intellectual property, and model key interactions.

Your DesignGuides have saved me lots of time in my daily design work. – Francis Yu, Design Engineer, Nokia Mobile Phones, Inc.
Advanced Architecture

The architecture behind ADS represents flexibility for designers. Unlike that of any other EDA vendor, our software was designed from the start for full functionality on both the PC and on UNIX workstations. This multi-platform architecture allows you to design on the road but still have complete file compatibility with the design team in the office. And because ADS runs on UNIX, it can be integrated with other EDA vendors to ensure your designs get to market fast.

The ADS platform also enhances design efficiency by facilitating co-design throughout the complete design cycle. Designers responsible for different stages of the work can use the same design platform, database, and testing environment.

EDA and Instrumentation Integration

The ability to closely integrate EDA software with test instrumentation helps you reduce design time by allowing the evaluation of hardware prototype subsystems. For example, real-world signals that include propagation effects can be modeled in ADS, input to an Agilent signal generator, and connected to a device under test for prototype testing. This is a powerful tool to remove the associated uncertainties when correlating measured results with modeled results. Designs, data, and signals can seamlessly flow between the virtual and physical worlds, ensuring that you get the best possible verification of your development investment prior to fabrication.

In addition to instrument integration, links to Agilent VEE allow instrument control and complete sharing and manipulation of data as well as automation of the test setup, enabling you to create customized design-verification solutions.

“New wireless and wireline products are the result of creative design and innovative manufacturing. ADS supports these efforts at both the circuit and system levels with accurate simulation and the capacity to handle large, complex systems.”

– Gary Breed, Former Publisher of Applied Microwave & Wireless Magazine
The Support You Need When and Where You Need It

Agilent EEsof EDA’s worldwide product support infrastructure stands ready to help you use ADS to conquer your design and development challenges. This product support includes substantial software upgrades, manual updates, and information and assistance via telephone, fax, e-mail, and the Web.

In a world where not only your product goes international but in many cases your design team is also international, you need to ensure that support will be there when and where you need it. Agilent EEsof EDA’s international support is provided by four main centers that speak the local language and work in the same time zone. Your design team members around the globe do not want to have to work in the middle of the night just to obtain real-time technical support from a North American support center. Wherever you need assistance, Agilent EEsof EDA is already there, ready to help.

www.agilent.com/find/eesof-support

Specialized Consulting Services

You can make further use of Agilent EEsof EDA’s broad expertise through its array of custom solution services designed to improve process efficiency and tool productivity in all aspects of design work:

- Design process consulting assesses design process strengths and weaknesses and recommends opportunities for improvement.
- Interfacing and translation services help to integrate Agilent EEsof EDA design tools to your design flow.
- Application customization tailors Agilent EEsof EDA tools to your specific application or use-model.
- Model customization provides modeling expertise for your special structures, from passive elements to whole systems.

An independent EDA industry survey ranked Agilent EEsof EDA #1 in customer satisfaction.
I really appreciated the Agilent EEsof training class. The presentation of ADS capabilities, such as how to simulate an entire communication link and integrate RF with Ptolemy, was excellent.

– Peter Denney, RF/Antenna Engineer, Harris Corporation