Hurdle the Gigabit-Per-Second Barrier

Agilent EEsof EDA

Agilent ADS for Signal Integrity Analysis

- Complete high-speed serial link analysis for IC, package, and high-speed board designs.
- Accurate models for channel interconnects.
- Fast, mixed-signal simulation for predicting link-level performance.

Increasing consumer and business demand for digital entertainment and information transmission is driving the need for high-speed systems such as routers, servers, mass storage systems, and PCs. These products include high-speed serial links such as:

- PCI Express
- DDR
- Display Port
- S-ATA
- XAUI

At multi-gigabit-per-second data rates and with channel flight times longer than a bit period, signal integrity is a major concern. Under these conditions, high-speed analog effects, previously only seen in high-frequency RF and microwave engineering, can impair the signal quality and degrade the link bit error rate.

Today's signal integrity designers are discovering the power of the Advanced Design System (ADS), which has been the industry standard RF EDA tool for over two decades. ADS provides complete serial link analysis for IC, package, and high-speed board designs.

Features at a Glance

ADS allows you to perform signal integrity analysis of designs involving Infiniband, PCI Express, RapidIO, Serial ATA, DDR3, 10 Gigabit Ethernet, and more.

- Channel simulator produces megabit eye measurements from an ADS project in less than a minute.
- Powerful on-the-fly eye-diagram and jitter measurements.
- ADS transient-convolution simulator — Beyond SPICE, the industry's fastest circuit simulator.
- Causal multilayer transmission lines with Djordjevic loss model.
- IBIS I/O models.
- Link with Cadence Allegro.
- Integrated full-wave Method of Moments and Finite-Element EM solvers.
- Jitter and BER analysis using Agilent's patented EZJIT Plus technology.
- Links to Agilent test & measurement equipment (VNA, TDR, oscilloscopes, and logic analyzers).
- HSPICE compatibility—direct simulation of HSPICE driver/receiver netlists.
- Native Verilog-A simulation and Verilog-AMS co-simulation— accurate simulation of SERDES models.
- SERDES components (8B10B, 64B66B encoder/decoders, decision feedback and feedforward equalizers).
- Batch mode eliminates hard-to-maintain scripts.
- Patented broadband SPICE model generator.
- W-element model simulation.
- Access encrypted HSPICE models via co-simulation.

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Products

ADS can be purchased as individual elements, or bundles of elements.

Bundles

Bundles are pre-configured combinations of software targeted to a specific design workflow. Bundles for signal integrity include the following.

ADS core, transient convolution bundled (W2210). This bundle provides time-domain circuit analysis of high-speed digital channels. Using channel simulator and eye probe, eye diagram measurements can be performed on any ADS circuit. IBIS I/O models, broadband SPICE model generator, and jitter and BER simulation capabilities are included.

ADS core, transient convolution, layout, Momentum G2 bundled (W2211). In addition to the capabilities listed above, this bundle includes layout, full-wave EM analysis of multi-layer planar structures, and popular layout translators.

ADS core, transient convolution, layout, Momentum G2, EMDS, Ptolemy bundled (W2212). In addition to the capabilities listed above, this bundle includes finite-element-based fullwave 3D electromagnetic simulation, a timed data flow simulator for digital signal processing, and Stateye-based BER simulation.

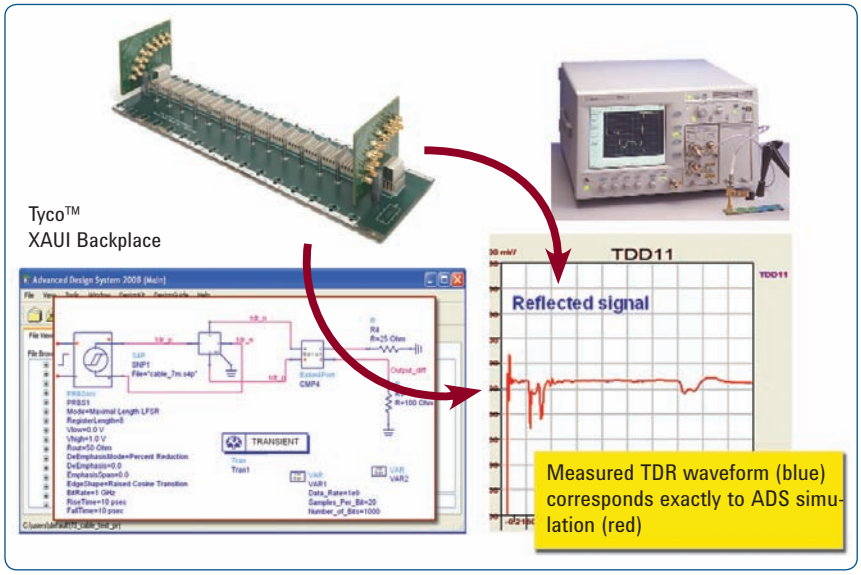
Elements

Elements bring additional capabilities to ADS core (W2200) or to bundles, allowing designers and enterprises to customize the configuration of ADS to suit their design needs.

In addition to the elements in the bundles above, signal integrity engineers will benefits from the capabilities of the following elements.

Overcome the Simulation Challenge:

ADS transient-convolution simulator



Momentum turbo element (E8948). Accelerate large Momentum G2 simulations of complex boards or packages by over 6x via parallel computing.

Electromagnetic professional design system (EMPro) (W2101L). Perform EM simulation using the finite difference time-domain method.

Verilog-A element (W2303). Simulate Verilog-A models in ADS. This compiler-based solution results in simulation times comparable to built-in models.

Verilog-AMS element (W2304). Simulate end-to-end system behavior with analog and digital components by co-simulation with ModelSim from Mentor or NC-Sim from Cadence.

ADS transient convolution GT (W2500). Accelerate ADS transient convolution on NVIDIA GPU-enabled computers.

Contact your Agilent EEsof EDA field sales engineer for more information or for a free evaluation.

For general information about Agilent EEsof EDA, visit: **www.agilent.com/find/eesof.**

For more information about applying Agilent's Advanced Design System to signal integrity challenges, visit: **www.agilent.com/find/signal-integrity.**

For information about Agilent's ADS signal integrity bundles, visit: **www.agilent.com/find/eesof-si-products.**

To request an evaluation of Agilent's signal integrity solutions, visit: **www.agilent.com/find/eesof-si-demo-software-request.**

Product specifications and descriptions in this document subject to change without notice.

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