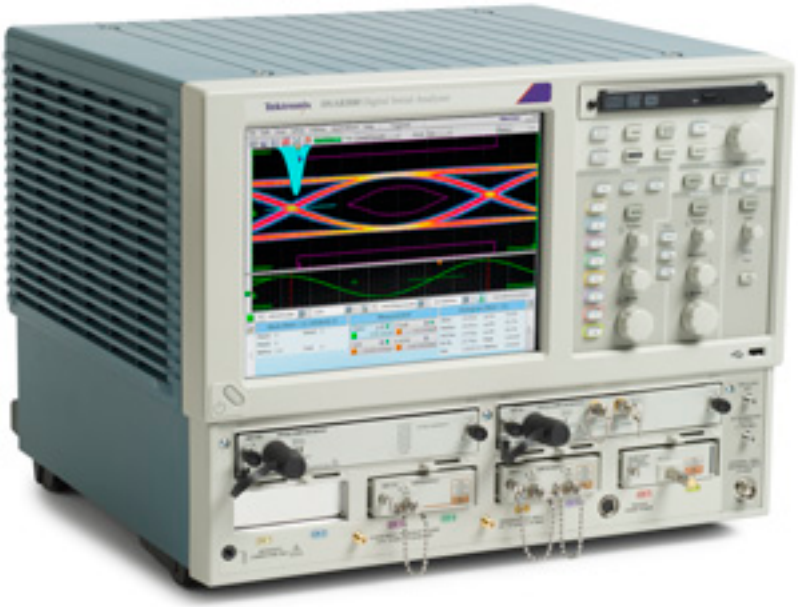
# Modules reduce instrument jitter to <100 femtoseconds



Tektronix announced a new Phase Reference Module, the 82A04B, for the DSA8300 [1] oscilloscope that when combined with new electrical sampling modules provide instrument jitter of <100 femtoseconds, typical. This represents the lowest instrument jitter of any multi-channel oscilloscope on the market, sampling or real-time, making the DSA8300 the instrument of choice for design, debug and characterization of critical 100G transmitters and links on up to 6 channels as defined in the IEEE802.3ba & 32G Fibre Channel test specifications.

For designers working on 100 (4x25) Gb/s communications systems, a key test challenge has been acquiring high bit-rate signals with sufficient fidelity to allow precise characterization of the device under test in the presence of real-world signals. As clock speeds continue to increase, the bit period at 25Gb/s is just 40 picoseconds, making it critical to minimize instrumentation jitter and noise while providing enough bandwidth to fully characterize signals.

“The new phase reference module, upgraded electrical sampling modules and other enhancements establish Tektronix as the clear leader in high-speed data communications,” said Brian Reich, general manager, Performance Oscilloscopes at Tektronix. “We offer customers significant advantages in measurement system fidelity, versatility and usability; all at very competitive price points.”

Designed for use with the DSA8300 mainframe, the new 82A04B Phase Reference

Module supports input clock frequencies from 2-32 GHz with an option available to support up to 60 GHz.

In addition to the new phase reference module, Tektronix announced 6 new electrical sampling modules that support bandwidths from 20 to 70 GHz. These modules use unique remote sampling heads that place the measurement acquisition point at or near the device under test to minimize signal degradation due to cabling. Taken together, these capabilities provide a unique combination of low vertical noise, low intrinsic jitter and bandwidth performance to enable engineers to fully characterize signals (3rd harmonic) to data rates up to > 45 GHz for the latest IEEE and Fibre Channel standards.

The DSA8300 can support simultaneous acquisition of up to three differential (or six single-ended) signals with ultra-low jitter for multi-lane system testing common in today's 100G electrical designs. In contrast, competitive alternatives can only acquire two single-ended signals, at a maximum 50 GHz and lack support for remote sampling, leading to significant signal impairment.

To boost designer productivity, Tektronix also released application software and firmware updates [2] for the DSA8300 Series to improve timing analysis, setup and test execution. Notable features include guided channel acquisition and TDR step alignment, user channel delay and TDR deskew in time units, and quantitative and descriptive information on how to get the best jitter performance when using the new 82A04B Phase Reference Module.

**Price & availability**

The new Phase Reference and Electrical Modules and other enhancements for the DSA8300 will be available by the end of 2012. US MSRP for a two-channel solution starts at $60,000.

www.tektronix.com [3]

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