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**DESIGN GUIDE ON CONNECTORS**

In this Design Guide, the editors of EEWorld Online help you answer some of the "What, When, Why" questions around connectors, particularly in industrial applications—from what the coding means on M12 connectors to why D-sub connector nomenclature can vary so widely, to when sealed connectors make sense and what type to choose.

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## PCIe 6.0 transmitter/receiver test setup delivers shorter test times

SEPTEMBER 20, 2022 BY [LEE TESCHLER](#) — [LEAVE A COMMENT](#)



An intuitive new **PCIe 6.0 Receiver Test Solution** equips engineers to test PCIe 6.0 (Base) receivers and addresses ever-growing performance demands of the next generation of high performance systems. With this release, Tektronix provides a cohesive PCIe 6.0 transmitter and receiver test solution that delivers faster test times, higher-quality measurements, and an intuitive user interface.

While the recently released Gen 6.0 standard provides fast speeds to handle such workloads, testing brings a unique set of challenges to companies charged with integrating PCIe 6.0 on their devices. PCIe receiver validation is notoriously difficult due to the sensitivity of calibrating the stressed eye signal across a high loss channel. Tektronix's PCIe receiver test solutions provide confidence that designs are thoroughly tested at the required bit error rate (BER) target. The intuitive step-by-step tools provide link training routines for the Anritsu MP1900A BERT to ensure the receiver is tested accurately.



The Tektronix PCIe 6.0 Base Rx Solution includes the fastest 64 GT/sec (PAM4) Rx calibration in the industry. Novel algorithms efficiently address the new challenge of calibrating the Transmitter's additional pre-cursor added to the 6.0 Base specification.

The Tektronix PAMJET DSP tool provides critical 64 GT/sec jitter and noise measurements with advanced instrument noise compensation. This fully automated solution leverages the first-to-market 6.0 Base Tx solution techniques and enhances the capabilities to address Receiver challenges at the latest data rate introduced by the PCI Special Interest Group (PCI-SIG).

The TekRxTest automation software provides a single control panel with the power to manage a Tektronix oscilloscope and Anritsu BERT during receiver calibration. This intuitive software wizard guides users through short- and long-channel calibration steps with ease, resulting in an accurate and repeatable calibration at 64 GT/sec.

Building on the success of previous receiver test solutions, Tektronix and Anritsu started collaborating early for PCIe 6.0. "A combined solution integrating the Anritsu MP1900A and Tektronix DPO70000SX Real-Time Oscilloscopes delivers an innovative improvement to the market and a complete physical layer PCIe test system that can be expanded to PCIe 6.0 as the market continues to develop technologies for high-speed networks," said Kazuhiro Fujinuma, Director of Solution Marketing Department Service Infrastructure Division for Anritsu Corporation.

Leading electronics design and automation company Synopsys collaborated with Tektronix on early validation of their PCIe 6.0 DesignWare IP, providing early-stage prototypes for Tektronix' partnership with Anritsu.

"The PCIe 6.0 interface is instrumental to enabling real-time data connectivity with low latency and high throughput in HPC, storage, and AI applications," said John Koeter, senior vice president of marketing and strategy for IP at Synopsys. "Conducting early, accurate and efficient validation of the Synopsys silicon-proven PCIe 6.0 IP with Tektronix solutions demonstrates that the IP adheres to the latest PCI-SIG specifications, enabling designers to deliver interoperable products that include Synopsys PCIe 6.0 controller, PHY, verification, and Integrity and Data Encryption (IDE) IP faster and with less risk"

The PCIe 6.0 (64 GT/sec) automated test solution runs on the Tektronix DPO70000SX series real-time oscilloscope and the Anritsu MP1900A BERT, which features the first fully automated PCIe 6.0 Rx stressed eye calibration. High-accuracy calibration of jitter and noise is possible by compensating the instrumentation intrinsic noise floor. Full short- and long-channel 64 GT/sec Rx calibration can be completed in four hours or less. High-fidelity measurements take place using the Tektronix PAMJET DSP engine. An intuitive wizard-based GUI provides guidance at decision points to ensure efficiency.

Tektronix's PCIe 6.0 Receiver Test Solution is available for use with DPO70000SX Real-Time Oscilloscopes.

Tektronix, Inc., 13725 SW Karl Braun Dr., Beaverton, OR, 97077-0001, [www.tek.com](http://www.tek.com)

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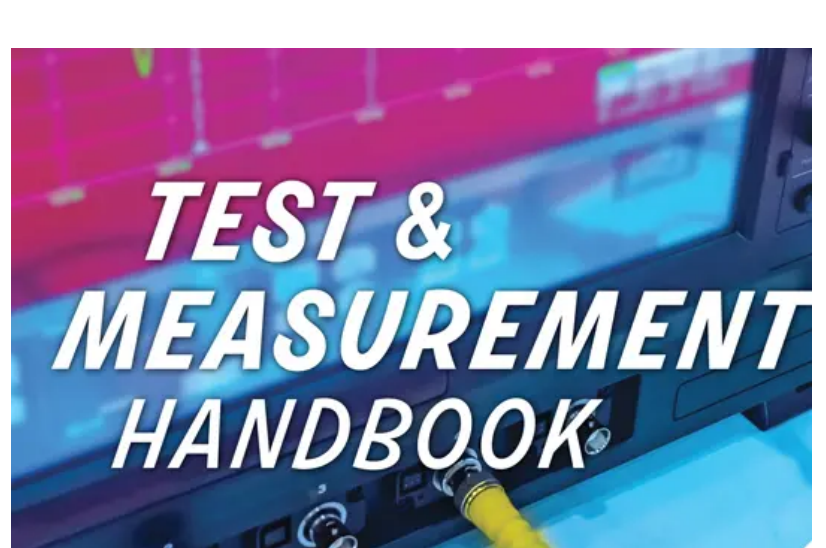
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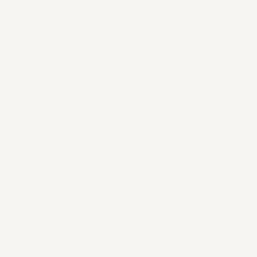
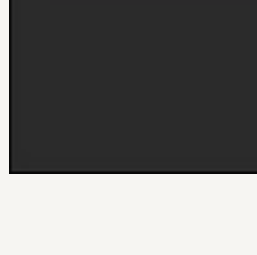
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