

Serial Communications Testing Solutions

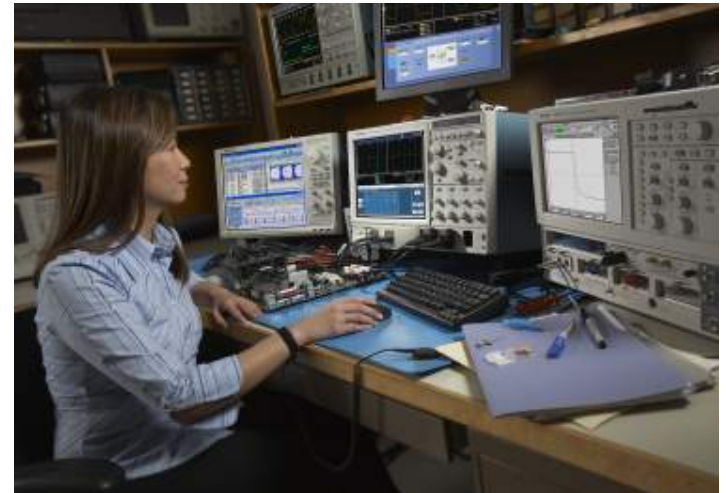
Support for Testing of Transmitter, Receiver, and Interconnect

Application Fact Sheet

Serial data buses provide the networking, interconnect, and communication capability necessary to connect computers and embedded devices through industry-accepted interfaces. Tektronix provides a powerful and comprehensive test instrument portfolio for a variety of standards, including: USB, PCI EXPRESS®, Ethernet, CAN/LIN/FlexRay, I²C, I²S, MIPI, and more.

Serial Communications Testing Challenges:

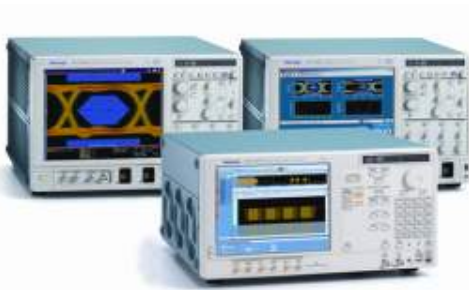
Electrical Design Validation and Compliance	<ul style="list-style-type: none">▪ Finding and fixing jitter sources▪ Comprehensive analysis for determining the health of performance from an electrical/PHY perspective▪ Determining the impact of design variances on signal integrity performance▪ Correlating jitter results with signal changes and other design parameters▪ Automation of compliance test sequences and simplified documentation of results
Digital Validation and Debug	<ul style="list-style-type: none">▪ Simplifying protocol decode of transaction, data link, and physical layers▪ Gaining complete system visibility with time-correlated, integrated analog and digital data on one display▪ Determining the cause of a data errors or performance problems
Signal Path Characterization	<ul style="list-style-type: none">▪ Determining sources of impedance/reflection on cables and connectors▪ Identifying signal integrity issues, including bit errors, channel loss, jitter, ground bounce, crosstalk, EM interference and susceptibility▪ Accounting for any reflections that result from higher frequency effects on connector or cable designs



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Electrical Design Validation and Compliance

DPO/MSO7000 Series Oscilloscopes, AWG7000 Series AWG, BERTScope Bit Error Rate Testers, Fixtures, Probes, and Software

- Highly accurate oscilloscopes with full sample rate across all four channels for the greatest flexibility
- DPOJET analysis software decomposes jitter and isolates random jitter components from deterministic jitter (periodic, clock and data-dependent)
- AWG's enable real world signal generation for receiver limit and stress testing
- BERTScope Bit Error Rate Tester for deep eye pattern mask analysis and PRBS31 caliber testing
- SerialXpress offers the industry's only integrated waveform creation tool to directly generate receiver test signals
- TekExpress enables efficient automation of compliance testing, thus reducing test times



Digital Validation and Debug

TLA7000 Series Logic Analyzers, Logic Analyzer Modules, Logic Protocol Analyzer Modules, Probes, and Software

- Gain complete system visibility with time-correlated, integrated analog and digital data, for extensive cross-bus analysis
- Validate all protocol layers of PCI EXPRESS® designs from the physical layer to the transaction layer
- Avoid missing events completely in either timing or state acquisition mode with higher sampling resolution on all channels
- Eliminate double probing with simultaneous digital and analog acquisition through a single logic analyzer probe
- Flexible connectivity solutions including mid-bus probes, slot interposers, and solder-down probes



Signal Path Characterization

DSA8300 Series Sampling Oscilloscopes, IConnect® Advanced Application Software, and Probes

- DSA8300 sampling oscilloscope supports both time domain and frequency domain measurements with an approved method of implementation for cable testing
- Highly accurate TDR modules for pinpointing locations of signal imperfections in cable/connector designs
- IConnect software provides S-Parameters for additional frequency-based analysis of reflective signal behaviors