

# Jitter and Timing Analysis Solutions

## Fast, Accurate and Complete Jitter Measurements and Timing Analysis

Application Fact Sheet

Jitter degrades system performance and eludes troubleshooting efforts just when you can't afford the time to track it down. Dealing with jitter is now a mandatory part of any high-speed design and many serial data standards require extensive jitter compliance tests as well. Whether you need a quick clock jitter measurement or a thorough analysis of a BER performance problem, Tektronix' comprehensive test instrumentation portfolio enables you to meet your design goals and compliance requirements.

### Jitter Measurement and Timing Analysis Challenges:

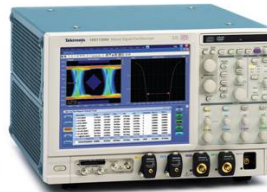
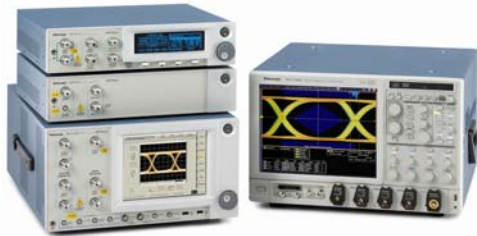
Finding and Fixing Jitter Sources	<ul style="list-style-type: none"><li>▪ Finding periodic jitter effects and harmonic jitter relationships</li><li>▪ Viewing jitter results as Phase Noise plots and Eye Diagrams</li><li>▪ Determine jitter decomposition using accurate convolution models or use industry specific dual-dirac models</li></ul>
Obtaining Standard-specific Compliance	<ul style="list-style-type: none"><li>▪ Ensuring compliance with standard-specific Jitter and Eye Diagrams</li><li>▪ Performing reliable margin measurements and limits testing</li><li>▪ Simplifying pass/fail measurements and real-time mask testing</li></ul>
Finding and Fixing Effects of Jitter and Noise	<ul style="list-style-type: none"><li>▪ Understanding channel effects and improving reliability</li><li>▪ Understanding equalization effects at the receiver</li><li>▪ Predicting BER contours at the receiver</li><li>▪ Completing channel emulation including equalization to observe the actual eye at the receiver's comparator</li></ul>



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### Debug & Design Verification

**DPO/DSA/MSO Series Oscilloscopes, BERTScope Bit Error Rate Testers, Probes, and Jitter Application 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)
- Quickly find intermittent events with DPX® acquisition technology that displays up to 300,000 wfms/s
- Industry's only analysis tool to include spectral averaging and peak detection to find low probability and low level jitter
- BERTScope Bit Error Rate Tester for deep eye pattern mask analysis and PRBS31 caliber testing

### Compliance Testing

**DPO/DSA/MSO Series Oscilloscopes, Probes, and Jitter Application Software**

- Compliance test software to cover the latest serial data standards
- Industry's most accurate and most accepted real-time TJ@BER results
- Oscilloscopes and measurement software for complete physical layer compliance testing
- Industry's only solution that performs differential clock to data "dual port" capture and measurements (no probes required)
- Capture of required Unit Intervals with a single acquisition
- Industry's only real-time OneTouch Jitter Wizard and Jitter Guide for built-in expertise

### Signal Path Characterization

**DSA Series Sampling Oscilloscopes, Probes, and Advanced Application Software**

- Reduce measurement errors resulting from test fixture signal degradation with IConnect® software's integrated TDR and S-Parameter measurements
- Accurately analyze signal paths to predict crosstalk and jitter to ensure reliability with Serial Data Network Analysis (SDNA)
- Determine precise causes of eye closure with jitter, noise, and BER analysis, plus maximize the eye opening at the receiver by quickly evaluating various FFE/DFE equalization setups using Serial Data Link Analysis (SDLA)