







Navigating 224G Host Interconnect Challenges





Innovation for the Next Generation

Outline

-  Product Overview
-  224G System Design
-  224G Host Interconnect Challenges
-  Pulsar for 224G Challenges

Product Overview

Pulsar is a 4-channel Time Domain Reflectometer that provides full SI insights, enabling the detection of impedance mismatches, discontinuities, and skew measurements for 224G systems. Pulsar is ideal for production testing as a scalable high-throughput solution for parallel measurements and optimized for testing high-density ports.

-  Automated SW with Pass/Fail Verdict
-  Direct and fast connections to switch ports
-  High Throughput
-  Report generation






224G System Design

Overcoming the 224G Routed PCBs Design






Industry Background

-  AI and ML Emergence
-  Need for higher speeds to train AI models
-  Large pressure to reduce power consumption








Data Centers Infrastructure

-  Maintaining 2RU form factor is crucial
-  Megawatts to Multi-Gigawatts
-  Doubles system bandwidth with same footprint



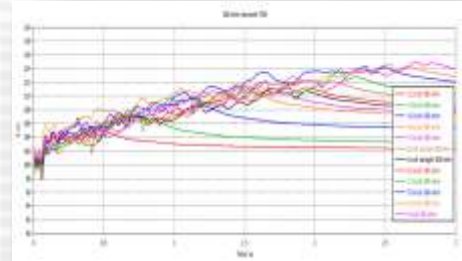
Cabled PCBs Design

-  Improved Insertion Loss
-  Increase Design Flexibility
-  Diversity of Interconnect Supply
-  Eliminate the need for Retimers
-  Reduced Power consumption

Navigating the 224G Challenges

Higher Speeds, Tighter Margins for Ensuring Optimal 224G Performance

Reduced Channel Margins
as sensitivity to mismatches increases



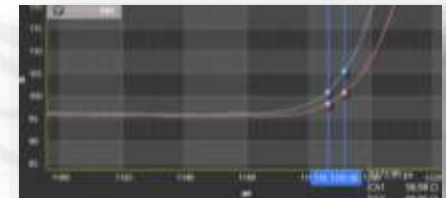
Need to Validate Every Port
as performance is crucial



Increased Routing Complexity
as compute use cases grow





Measure Intra-Pair Skew
to ensure consistent system SI

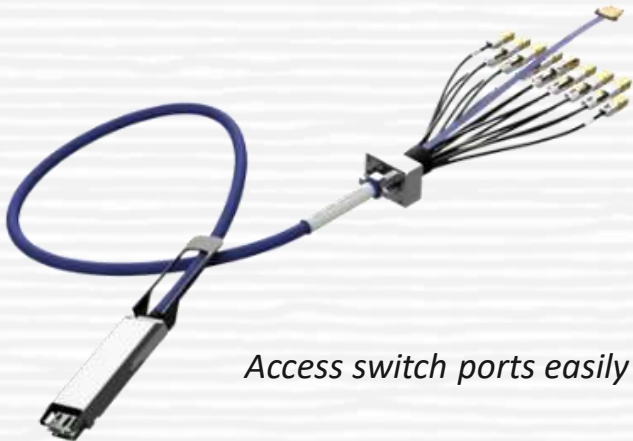


A Comprehensive Approach to Solution Design

Engineered for High-Volume Testing

Testing Challenge: Streamline cost of test without compromising coverage

-  Direct and fast connections to switch ports
-  Low cost, replaceable SMPM to QDD/OSFP cables











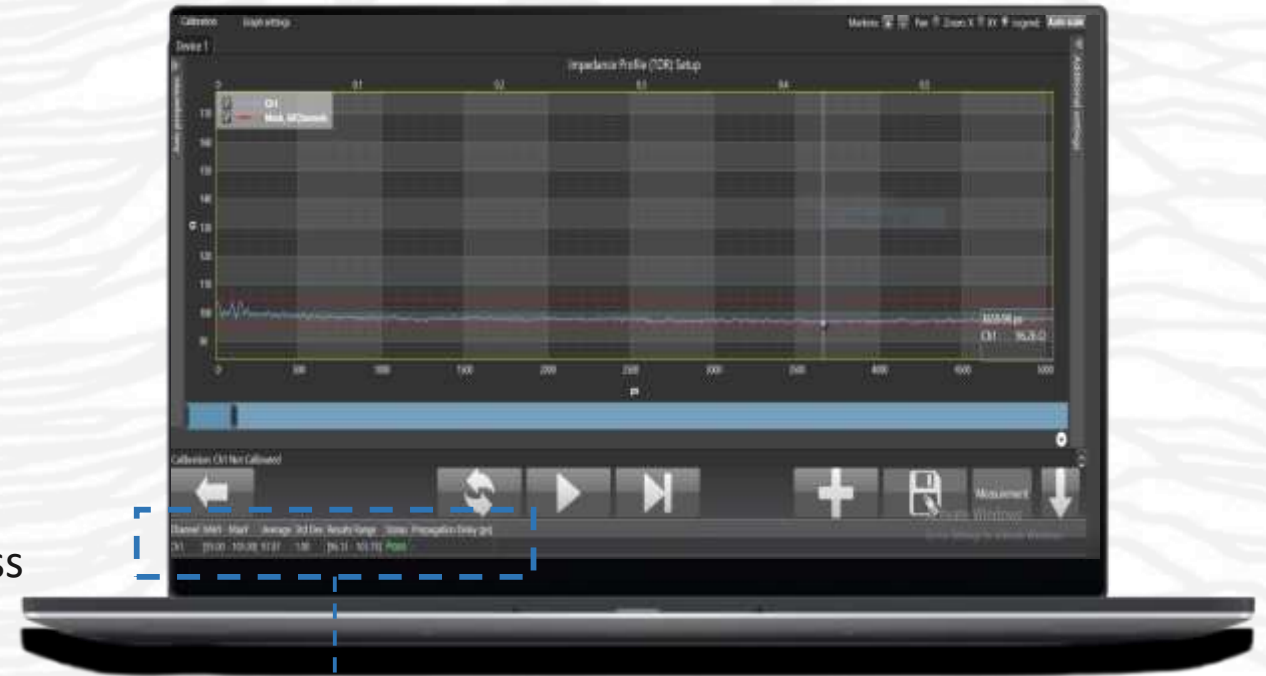
Access switch ports easily via breakout cable to OSFP or QSFP-DD



Automated Software

Engineered for High-Volume Testing






-  Fully Automated
-  High Throughput
-  Automatic Report Generation with Pass/Fail Verdict
-  Spec Defined & Custom Masks
-  Identifies minor impedance mismatches
-  Measures intra-pair skew and optimizes insertion loss
-  Allows for proactive maintenance and optimization
-  User Friendly GUI






Channel	MinY - MaxY	Average	Std Dev	Results Range	Status
Ch1	[95.00 - 105.00]	97.87	1.00	[96.13 - 103.78]	Pass

Product Overview

Key Features

-  4x 35 or 70 GHz* Lanes Sampling Scope
-  4-Lane TDR
-  12 or 7 ps* Rise Time
-  High Throughput
-  Scalable

Target Applications

-  Switch Ports Testing
-  Cables and Connectors Testing
-  Production Testing



Thank You

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