TestCenter Ultra Ethernet (UET) Validation Solution

Industry-Leading 800G and 1.6T Testing Solutions

Overview

The VIAVI B3 800G and D2 1.6T testing solutions provide the industry's first field-demonstrated platforms for validating next-generation AI fabrics based on the Ultra Ethernet Consortium (UEC) specification 1.0. As AI workloads continue to scale exponentially, traditional Ethernet architectures face critical limitations in latency, determinism, and congestion management that threaten performance at scale. The industry is undergoing a strategic transition away from InfiniBand, driven by the need for open, scalable, and interoperable networking solutions capable of meeting the demands of hyperscale AI and HPC environments.

The TestCenter UET solution addresses these challenges head-on. Delivered as a software license for VIAVI's high-performance high-scale B3 800G and D2 1.6T appliance platforms for 100G, 200G, 400G 800G and 1.6T testing, this solution enables comprehensive testing across Transport and Link Layers, supporting both current deployments and future silicon innovations.

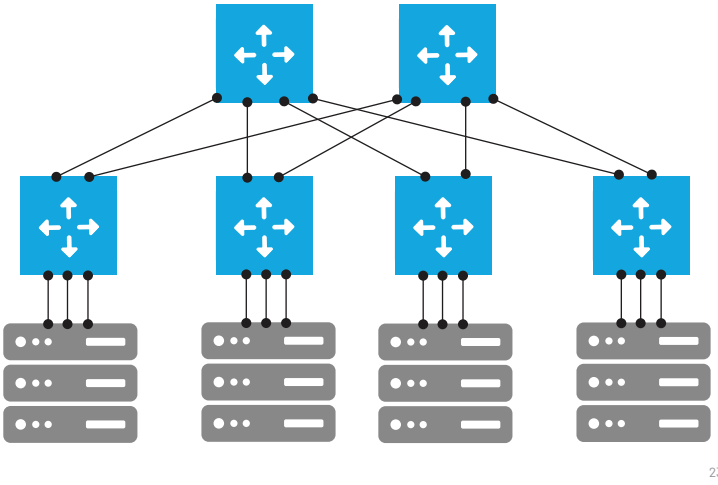
The solution provides comprehensive Ultra Ethernet Transport testing up to 1.6T, supporting current deployments while preparing organizations for future silicon innovations. With the UEC 1.0 specification introducing revolutionary features like Programmable Congestion Management (PCM), In-Network Collectives (INC), and adaptive congestion control mechanisms, validation becomes critical for successful deployments.

Key Benefits

- **First Field-Demonstrated UET Solution:** Proven in real-world environments, providing confidence in UET validation and deployment readiness.
- **Accelerates the Transition to Ethernet AI Fabrics:** Enables organizations to validate migration from proprietary InfiniBand networks to open, scalable Ultra Ethernet architectures while maintaining performance requirements
- **UEC 1.0 Conformance Test Suite:** Includes more than 50 built-in test cases validating Packet Delivery Sub-layer functionality, helping vendors, hyperscalers, and neoclouds verify compliance and interoperability before deployment.
- **Scalable AI Fabric Validation:** Supports functional, performance, and scale testing from lab environments to large-scale pre-deployment validation.
- **Future-Ready Investment:** Supports current and emerging AI fabrics, including next-generation UET silicon, and integrates seamlessly with the VIAVI TestCenter ecosystem and reporting framework.

The necessity for UET testing is increasingly evident as organizations transitioning from InfiniBand to validated Ethernet solutions can realize significant cost savings and operational efficiencies over time, particularly in large-scale AI deployments such as 512-GPU clusters. However, this transition requires rigorous validation to ensure performance parity and reliability. VIAVI's UET solution empowers developers, silicon vendors, hyperscalers, and neoclouds to validate fabric behavior, optimize switch performance, and ensure compliance with evolving UEC standards.

Ultra Ethernet Transport for AI Fabric



Ultra Ethernet Transport for Improved Scale Out Efficiencies and Network Resiliency

Advanced 800G and 1.6T Ethernet Testing Capabilities for AI Infrastructures

UET Testing Excellence

UEC testing is supported on VIAVI's B3 800G and D2 1.6T platforms, enabling multi-rate Ethernet validation from 100G to 1.6T with full UEC stack emulation for AI fabrics. Link Layer functionality with built-in error insertion enables comprehensive testing of link layer capabilities across both 224G and 112G SerDes fabrics.

Transport layer emulation at scale, supporting Reliable Ordered Delivery, Reliable Unordered Delivery, and both NSCC and RCC congestion control, enables testing of key AI fabric functionalities including load balancing, switch buffer management, and congestion notifications.

Support for "Packet Trimming" and "Dynamic Entropy change/Multi pathing support" allow testing of early congestion detection and congestion avoidance functionalities of the AI fabric.

AI workload emulation using CCL and LLM traffic patterns, at scale, enable testing of the AI fabric in production scenarios. Exhaustive AI fabric benchmarking includes: JCT, Tail Latency (P95/P99/P99.9), BusBW, packet latency (histogram), out-of-sequence and more.

UEC Conformance Test Suite

VIAVI's TestCenter UET solution now includes a dedicated UEC conformance test suite, with over 50 test cases. The suite allows silicon vendors, switch and NIC manufacturers, hyperscalers, and neoclouds to systematically validate their implementations against the UEC 1.0 specification, helping ensure interoperability across multi-vendor AI fabrics and reducing risk ahead of large-scale deployment.

Initial coverage validates the Packet Delivery Sub-layer (PDS), spanning configuration, delivery modes, PDC lifecycle management, ACK/NACK and retransmission management, and trimming management. The conformance suite complements VIAVI's existing AI workload functional, scale, and performance testing modes, giving organizations a single, integrated platform to move from specification compliance through full-scale fabric validation.

Enhanced Autonomous Flow Tracking for Scale-Out Validation

Advanced Autonomous Flow Tracking enables precise monitoring of traffic patterns and performance metrics across the fabric. This capability becomes increasingly important as AI workloads scale to support up to one million hosts coordinating on a single job, requiring sophisticated monitoring and observability tools to maintain performance.

Comprehensive AI Infrastructure Testing and Validation

Scale-Out Testing for Modern AI Environments

Organizations can leverage advanced AI Infrastructure Testing to validate fabric behavior and optimize switch performance in environments where AI workloads involve massive data transfers between GPUs, necessitating ultra-high bandwidth links of 200G, 400G, 800G and 1.6T. The solution addresses the critical need for non-blocking network designs using fat-tree architectures that eliminate oversubscribed points and prevent bottlenecks.

The B3 and D2 platforms can scale to assess terabit router capabilities for hyperscale environments, enabling validation of configurations that mirror production deployments. This testing capability is essential as organizations transition from InfiniBand-dominated environments to Ethernet-based solutions that offer equivalent performance with significantly lower total cost of ownership.

Technical Specifications

- **Platform Support:** VIAVI B3 800G and D2 1.6T appliances with optional UET software license
- **Speed Support:** 100G, 200G, 400G, 800G and 1.6T testing capabilities
- **Layer Coverage:** Transport Layer testing, Link Layer testing
- **Compliance:** UEC 1.0 specification validation
- **Testing Modes:** Functional testing, scale testing, compliance testing
- **Load Balancing:** ECMP, Adaptive Packet Spraying, Flowlet switching validation
- **Integration:** Compatible with existing VIAVI test ecosystem
- **Reporting:** Detailed analysis with pass/fail metrics, latency profiles, throughput statistics

Ordering Information – Ultra Ethernet Transport (UET)

Contact VIAVI Solutions for detailed product part numbers and licensing options for the TestCenter Ultra Ethernet (UET) solution. The solution is delivered as a software license for the B3 800G and D2 1.6T appliance platforms, enabling immediate deployment and testing capabilities.

Part Number	Description
For B3 800G QSFP-DD and OSFP Appliances	
HWO-B3-UET-800-8	UET 800G for B3-800-QD or B3-800-OSFP. 4X 800G PAM4 ports total per test module.
HWO-B3-UET-400-8	UET 400G for B3-800-QD or B3-800-OSFP. 8X 400G PAM4 ports total per test module.
HWO-B3-UET-1500A	UET 800G/400G/200G/100G Suite for B3-800-QD or B3-800-OSFP. 4 port B3: 4 X 800G PAM4 or 8 X 400G PAM4 or 8 X 200G PAM4 or 8x100G PAM4 ports. 8 port B3:4 X 800G PAM4 or 8 X 400G PAM4 or 16 X 200G PAM4 or 16x100G PAM4 ports total per test module.
HWO-B3-UET-1200A	UET 800G/400G Suite for B3-800-QD or B3-800-OSFP. 4 port B3:4 X 800G PAM4 or 8 X 400G PAM4 ports 8 port B3:4 X 800G PAM4 or 8 X 400G PAM4 ports total per test module.
HWO-B3-UET-600A	UET 400G/200G Suite for B3-800-QD or B3-800-OSFP. 4 ports B3 8 X 400G PAM4 or 8 X 200G PAM4 ports 8-ports B3 8 X 400G PAM4 or 16 X 200G PAM4 ports total per test module.
HWO-B3-UET-500A	UET 400G/100G Suite for B3-800-QD or B3-800-OSFP. 4-port B3: 8 X 400G PAM4 or 8 X 100G PAM4 ports. 8-port B3: 8 X 400G PAM4 or 16 X 100G PAM4 ports total per test module.
HWO-B3-UET-300A	UET 200G/100G Suite for B3-800-QD or B3-800-OSFP. 4-port B3: 8 X 200G PAM4 or 8 X 100G PAM4 ports. 8-port B3: 16X 200G PAM4 or 16 X 100G PAM4 ports total per test module.
HWO-B3-UET-200-8	UET Transport Layer-400G/100G Suite for B3-800-QD or B3-800-OSFP. 4-port B3: 8 X200G PAM4 ports. 8-port B3: 16 X 200G PAM4 ports total per test module.
HWO-B3-UET-100-8	UET 400G/100G Suite for B3-800-QD or B3-800-OSFP. 4-port B3: 8 X100G PAM4 ports. 8-port B3: 16 X 100G PAM4 ports total per test module.

Ordering Information – Ultra Ethernet Transport (UET) continued

Part Number	Description
For D2 1.6T OSFP Appliance	
HWO-D2-UET-1600-4	UET 1600G for D2-1600-OSFP. 4X 1600G PAM4 ports total per test module.
HWO-D2-UET-800-8	UET 1600G for D2-1600-OSFP. 8X 800G PAM4 ports total per test module.
HWO-D2-UET-400-16	UET 1600G for D2-1600-OSFP. 16X 400G PAM4 ports total per test module.
HWO-D2-UET-200-32	UET 1600G for D2-1600-OSFP. 32X 200G PAM4 ports total per test module.
HWO-D2-UET-3000A	UET 1600G/800G/400G/200G Suite forD2 1600G-OSFP. 4 ports D2 4 X 1600G PAM4 or 8 X 800G PAM4 or 16 X 400G PAM4 or 32 X 200G PAM4 ports total per test module.
HWO-D2-UET-2800A	UET 1600G/800G/400G Suite for D2 1600G-OSFP. 4 ports D2 4 X 1600G PAM4 or 8 X 800G PAM4 or 16 X 400G PAM4 ports total per test module.
HWO-D2-UET-2400A	UET 1600G/800G Suite for D2 1600G-OSFP. 4 ports D2 4 X 1600G PAM4 or 8 X 800G ports total per test module.
HWO-D2-UET-2000A	UET 1600G/400G Suite forD2 1600G-OSFP. 4 ports D2 4 X 1600G PAM4 or 16 X 400G PAM4 ports total per test module.
HWO-D2-UET-1800A	UET 1600G/400G Suite for D2 1600G-OSFP. 4 ports D2 4 X 1600G PAM4 or 32 X 200G PAM4 ports total per test module
HWO-D2-UET-1200A	UET 800G/400G Suite for D2 1600G-OSFP. 4 ports D2 8 X 800G PAM4 or 16 X 400G PAM4 ports total per test module.
HWO-D2-UET-1000A	UET 800G/400G Suite for D2 1600G-OSFP. 4 ports D2 8 X 800G PAM4 or 32 X 200G PAM4 ports total per test module.
HWO-D2-UET-600A	UET 400G/200G Suite for D2 1600G-OSFP. 4 ports D2 16X 400G PAM4 or 32 X 200G PAM4 ports total per test module.
AON-D2-UET-3000A	AION UET 1600G/800G/400G/200G SUITE for D2 1600G-OSFP. 4 ports D2 4 X 1600G PAM4 or 8 X 800G PAM4 or 16 X 400G PAM4 or 32 X 200G PAM4 ports total per test module.
HWO-D2-UET-LL-1600-4	UET Link Layer 1600G for D2-1600-OSFP. 4X 1600G PAM4 ports total per test module.

Ordering Information – Ultra Ethernet Transport (UET) continued

Part Number	Description
For D2 1.6T OSFP Appliance continued	
HWO-D2-UET-LL-800-8	UET Link Layer 1600G for D2-1600-OSFP. 8X 800G PAM4 ports total per test module.
HWO-D2-UET-LL-400-16	UET Link Layer 1600G for D2-1600-OSFP. 16X 400G PAM4 ports total per test module.
HWO-D2-UET-LL-200-32	UET Link Layer 1600G for D2-1600-OSFP. 32X 200G PAM4 ports total per test module.
HWO-D2-UET-LL-3000A	UET Link Layer 1600G/800G/400G/200G SUITE for D2 1600G-OSFP. 4 ports D2 4 X 1600G PAM4 or 8 X 800G PAM4 or 16 X 400G PAM4 or 32 X 200G PAM4 ports total per test module.
HWO-D2-UET-LL-2800A	UET Link Layer 1600G/800G/400G Suite for D2 1600G-OSFP. 4 ports D2 4 X 1600G PAM4 or 8 X 800G PAM4 or 16 X 400G PAM4 ports total per test module.
HWO-D2-UET-LL-2400A	UET Link Layer 1600G/800G Suite for D2 1600G-OSFP. 4 ports D2 4 X 1600G PAM4 or 8 X 800G ports total per test module.
HWO-D2-UET-LL-2000A	UET Link Layer 1600G/400G Suite for D2 1600G-OSFP. 4 ports D2 4X 1600G PAM4 or 16 X 400G PAM4 ports total per test module.
HWO-D2-UET-LL-1800A	UET Link Layer 1600G/400G Suite for D2 1600G-OSFP. 4 ports D2 4X 1600G PAM4 or 32 X 200G PAM4 ports total per test module.
HWO-D2-UET-LL-1200A	UET Link Layer 800G/400G Suite for D2 1600G-OSFP. 4 ports D2 8 X 800G PAM4 or 16 X 400G PAM4 ports total per test module.
HWO-D2-UET-LL-1000A	UET Link Layer 800G/400G Suite for D2 1600G-OSFP. 4 ports D2 8 X 800G PAM4 or 32 X 200G PAM4 ports total per test module.

Ordering Information – Ultra Ethernet Transport (UET) continued

Part Number	Description
For D2 1.6T OSFP Appliance continued	
HWO-D2-UET-LL-600A	UET Link Layer 400G/200G Suite for D2 1600G-OSFP. 4 ports D2 16X 400G PAM4 or 32 X 200G PAM4 ports total per test module.
AON-D2-UET-LL-3000A	AION UET AION UET Link Layer 1600G/800G/400G/200G Suite for D2 1600G-OSFP. 4 ports D2 4 X 1600G PAM4 or 8 X 800G PAM4 or 16 X 400G PAM4 or 32 X 200G PAM4 ports total per test module. Link Layer for D2 1600 4/800G 8/400G 16/200G 32 Bundle.

For more information about VIAVI's TestCenter UET solution and how it can accelerate your AI fabric validation initiatives, contact our technical sales team or visit our website for detailed specifications and deployment guidance.



Contact Us: +1 844 GO VIAVI | (+1 844 468 4284). To reach the VIAVI office nearest you, visit viavisolutions.com/contact

© 2026 VIAVI Solutions Inc. Product specifications and descriptions in this document are subject to change without notice. Patented as described at viavisolutions.com/patents

tc-uetvalidation-ds-hse-nse-ae
30195100 902 0926

viavisolutions.com