Interconnect and Network Performance Tester 1600GE (2nd Gen Hardware)

Validating 212Gb/s Electrical Lane Silicon, Interconnects, and Network Equipment

For decades, validating network interconnect performance was a manual, time-consuming process with limited or no automation and required advanced programming skills to write scripts. That process lacked a centralized system to organize and store interconnected data and reports, making tracking and replicating tests and configurations difficult and time-consuming.

With the increased diversity and scale of AI and data center interconnects, traditional testing methods cannot accurately predict and measure the reliability of today's complex production networks. These traditional methods, while effective, often struggle to keep up with the rapid advancements and increasing complexity of modern AI and data center networks.

Future-Proofing Data Centers with Advanced Testing

Scalable infrastructure is crucial for data centers to manage the increasing demands of AI workloads and evolving technology. Scaling data centers demands more than component-level error-performance validation. Interoperability, performance, reliability and efficiency are system-level metrics that are only measurable under real-world network conditions. Test strategies must incorporate both physical-layer testing, error performance characterization, and upper-level protocol and feature testing capable of optimizing system-level performance.

By focusing on scalable network infrastructure, data centers can achieve higher efficiency, reliability, and performance, supporting the rapid advancement of distributed High-Performance Computing (HPC) and AI technologies.

KEYSIGHT

The Solutions

The Interconnect and Network Performance Tester 1600GE (INPT-1600GE-C) is the latest innovation in 1.6 Terabit Ethernet (1.6TE) hardware test platforms for traffic generation and analysis. It provides functional, performance and interoperability benchmarks over a broad range of communication chips, interconnects, and networking equipment.

The INPT-1600GE-C, with Keysight's new Interconnect Test System software (ITS), delivers a holistic solution that organizes, stores, and uses data intelligently to automate interconnect error performance and Common Management Interface Specification (CMIS) validation for high-speed Ethernet networks and data centers.

The ITS software addresses all these challenges, making it easier to qualify and validate interconnect performance. ITS, an advanced, cohesive software solution is designed to validate AI infrastructure interconnects, network components, and data center interconnects from 200GE to 1600GE, expanding on the capabilities of the Interconnect and Network Performance Tester 800GE benchtop (INPT-800GE). The ITS software runs on both the 800GE and 1600GE INPT hardware platforms.

Deploy a Versatile High-Speed Ethernet Platform to Increase Test Plan Coverage

- Select a benchtop unit or rackmount chassis.
  - **Benchtop unit:** Offers two OSFP1600 front panel ports in a portable, lightweight, and office-quiet form factor. This model enables manufacturers of 1.6T silicon chips, optical transceivers, and cables to validate interconnection media for data center and AI network infrastructures.
  - **Rackmount model:** Supports regression test beds to validate released products as firmware and software updates are applied to the ASICs, switches and routers. This chassis is best suited for manufacturers of 1.6T switch / router ASICs and networking equipment to help them meet the extensive test requirements for high-speed interconnects in AI data centers.
- Support 1x1600GE, 2x800GE, 4x400GE, and 8x200GE configurations.

  Rackmount model also supports high port count 1600GE test beds, up to 32x1600GE ports.

- Test reliability, stability, performance, and interoperability of Ethernet devices and interconnects that use 212 Gb/s electrical lane interfaces, including silicon chips, optical transceivers, active optical and copper cables, and networking equipment.
- Facilitate high power consumption optical transceivers by delivering up to 40 watts of power and cooling per port.

Drive Faster Innovation

- Empower manufacturers and operators to run more tests simultaneously with the platform's multi-user capability.
- Accelerate the data center infrastructure validation process, to improve reliability and ensure faster deployment of network equipment and AI fabric.

Optimize Interconnect Performance

- Offers the Keysight traditional Layer 1 Bit Error Rate Testing (BERT).
- Provides additional lower layer test capabilities for the Physical Coding Sublayer (PCS), Forward Error Correction (FEC), and Frame Loss Ratio (FLR) validations, ensuring interconnects are ready for production network deployment. This includes:
  - Coherent optical transceivers — used for Data Center Interconnect (DCI) applications with reach ranges up to 120 kilometers.
  - Fully Retimed Optical Transceivers (FRO) — supports network equipment for 500-meter to 10-kilometer applications.
  - Low Power Optics (LPO) — used in high-density network switches for shorter-reach applications up to 500 meters, conserving power consumption
  - Linear Receive Optics (LRO) — enables high-density switch equipment for reach applications up to 2000 meters that also conserve power.
  - Active Electrical Cables (AECs) — deployed in data center racks and for intra-rack applications extending up to several meters.
  - Active Copper Cables (ACC) — used in data center racks and for intra-rack applications reaching up to several meters that reduce costs and conserve power.
  - Passive Copper Direct Attach Cables (DAC) — installed within network racks for 1-meter reach applications that are inherently low power and highly dependable.
- Addresses lab test beds for Layer 2 and Layer 3 RFC benchmarks, network, and internetworking protocol emulation for scale and performance validation (with the rackmount chassis).
- Inter-Sublayer Link Training (ILT) automatically optimizes transmit and receive settings between silicon, optical transceivers, and cables before normal traffic begins.
- Uses extensive CMIS features to enable efficient read/write configuration and reporting tasks. The platform automatically detects Application Selection Code settings and monitors digital optical signals to help ensure optimal performance and easier management. With Interconnect Test System software, engineering teams can further organize CMIS data, interconnect measurements, test records, reports, and configuration information to support repeatable optical and copper interconnect qualification.

Highlights

- Delivers a lightweight, office quiet, portable, benchtop chassis for the instrument bench with 2-port OSFP1600-C model.
- Provides Layer 1 BERT to Layer 3 IP testing from 200GE to 1.6TE PAM4 with 212 Gb/s and electrical lane signaling in a single test system.
- Expands interconnect validation workflows with Interconnect Test System software for automated, repeatable Layer 1 testing and data-driven optical and copper interconnect qualification.
- Completes Layer 2 and Layer 3 RFC benchmark, network, and internetworking protocol emulation scale and performance testing with the IxNetwork software application with Rest API and RestPy test automation support.
- Improves your interoperability, link stability, and robustness testing with Keysight-developed intellectual property for the critical test elements of 1.6TE, 800GE, 400GE and 200GE: MAC, PCS, FEC symbol error correction distribution, FEC error injection and statistics, and PAM4 Rx Eye Histogram analysis.
- Supports up to 40 watts per port for high power consumption coherent optical transceivers on the benchtop chassis.
- Complies with IEEE P802.3dj 200 Gb/s, 400 Gb/s, 800 Gb/s, and 1.6 Tb/s specifications.
- Supports major interconnects: Active optical, active copper electrical, and passive copper cable.

Specifications

Part Number	941-0132	941-0133
Product Description	**Interconnect and Network Performance Tester 1600GE-C OSFP1600 2-Port Benchtop Chassis**	**Interconnect and Network Performance Tester 1600GE-C OSFP1600 2-Port Rackmount Chassis**
Hardware Fixed Chassis System Specifications		
Number of ports	2-port OSFP1600 chassis	
Physical interfaces	Native OSFP1600 physical front panel pluggable ports	
Supported per port speeds	Default speeds included with the chassis: • 1x1600GE, 2x800GE, 4x400GE, and 8x200GE per port, PAM4 over 212 Gb/s electrical lanes • Optical transceiver and fiber cable interconnect support for all speeds • Active and passive copper cable interconnect support for all speeds • (Planned) 1x800GE, 2x400GE, 4x200GE, and 8x100GE per port, PAM4 over 106 Gb/s electrical lanes	
Number of users	2 users per chassis (1 user per front panel physical port ownership)	
Interface protocols specifications for 1600GE/212 Gb/s electrical lane support	IEEE P802.3dj Media Access Control Parameters for 1.6 Tb/s and Physical Layers and Management Parameters for 200 Gb/s, 400 Gb/s, 800 Gb/s, and 1.6 Tb/s Operation	
Layer 1 support 1600GE PAM4 speeds for 212 Gb/s electrical lanes	• PAM4, 1600/800/400/200GE speeds • KP4 (RS-544, 514) Ethernet Forward Error Correction, IEEE 802.3 Clause 119 • Inter-Sublayer Link Training (ILT) - automated Tx/Rx setting optimization between link partners prior to data traffic • FEC Correctable and uncorrectable statistics per-port • FEC symbol error injection for all speeds • FEC Codeword symbol error correction distribution statistics • Pre-FEC BER and Frame Lose Ratio (FLR) measurements • FEC degrade • PCS Rx per lane and port statistics • Layer 1 BERT with PRBS-7Q, PRBS-9Q, PRBS-11Q, PRBS-13Q, PRBS-15Q, PRBS-23Q, PRBS-31Q and Rx-side statistics and analysis. Additional test, pattern controls and pattern detection are included.	
OSFP1600 optical transceiver support	• Supports OSFP1600 specification-compliant optical transceivers up to 40 W per port on native front-panel OSFP1600 ports	• Supports OSFP1600 specification-compliant optical transceivers up to 33 W per port on native front-panel OSFP1600 ports
	• Note: Module support depends on module power, thermal design, airflow, ambient temperature, Keysight qualification, and vendor case-temperature limits. • INPT-1600GE-C hardware supports these transceiver types: Fully retimed optic (FRO). Low Power Optic (LPO), Linear Retimed Optic (LRO, aka RTRL) optic. • Please consult the factory for additional transceiver support information from various manufacturers • See Optical Transceivers under the Ordering Information section of this data sheet for purchasable optical transceivers for this product	
OSFP1600 Active and Passive Electrical Cable support	Active Electrical Cable (AEC) Active Copper Cable (ACC) Passive Copper Direct Attached Cable (DAC) Please consult the factory for specific support information	
Common Management Interface Specification (CMIS)	• Supports CMIS 4.0, 5.0, 5.3, and 5.4 specifications including read/write access to all CMIS pages and registers • Supports C-CMIS 1.5 (Coherent CMIS) • Supports Application Selection Code (AppSel) feature of CMIS with auto-detection and transceiver configuration support • CMIS will operate with optical and copper interconnect media to the extent they are supported by the interconnect manufacturer • CMIS is exposed through the Interconnect Test System software option (930-3360) with REST API/Python and Interconnect Library, and the built-in IxExplorer application and Tcl test automation support	

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Digital Optical Monitoring (DOM)	Automatically provides information from the interconnect device plugged into the test port, along with the device status, electrical power, temperatures, power class, laser power and various Loss of Lock (LOL) and Loss of Signal (LOS) threshold and alarm monitoring information. The DOM also provides feedback when alarms and thresholds are exceeded. This capability is provided with the IxExplorer and IxNetwork applications.	
1600ZR Coherent Optics Transceiver support	• CMIS 5.0, 5.3, and 5.4 and C-CMIS 1.5 (Coherent CMIS) provide Read/Write access to all management pages and Versatile Diagnostics Monitoring (VDM) registers via IxExplorer GUI and Tcl test automation programming interface • Supports the Application Selection Code (AppSel) feature of CMIS with auto-detection and configuration support • The IxExplorer application supports the Digital Optical Monitoring (DOM) feature that automatically monitors and reports the module case temperature, temperature warning limits, and the maximum temperature threshold limits. It is highly recommended that the DOM feature be active to monitor the temperature behavior of installed high power consumption optical transceivers before conducting long duration tests.	
Fixed chassis system dimensions	• 17.0″ (L) x 10.86″ (W) x 8.06″ (H) • 431.8 mm (L) x 275.7 mm (W) x 204.8 mm (H)	• 26.95″ (L) x 8.64″ (W) x 3.34″ (H) • 684.5 mm (L) x 219.4 mm (W) x 84.8 mm (H)
Fixed chassis system weights	• Hardware only: 22.0 lbs. (10.0 kg)	• Hardware only: 25.0 lbs. (11.3 kg)
Fixed chassis system electrical power	100-127 V/200-240 V, 50/60 Hz, 12/10 A	
Temperature (ambient air)	• Operating: 41 °F to 95 °F (5 °C to 35 °C) • Storage: -4 °F to 122 °F (-20 °C to 50 °C)	
Humidity (ambient air)	• Operating: 5% to 85% RH, non-condensing • Storage: 5% to 85% RH, non-condensing	
Safety	• IEC 62368-1 • EN IEC 62368-1+A11 • UL 62368-1 / CSA C22.2 No. 62368-1	
Emissions and immunity	• FCC Part 15B, Class A • ICES-003(A)/NMB-003(A) • EN 55032 Class A, EN 55035, EN 61000-3-2, EN 61000-3-3 • AS/NZS CISPR 32, Class A • KS C 9832 Class A, KS C 9835 • VCCI – CISPR 32, Class A	
Regulatory approvals	• UL (USA, Canada) • CE (Europe) • UKCA (United Kingdom) • RCM (Australia) • KCC (Korea) • VCCI (Japan)	
Environmental	• RoHS Directive 2011/65/EU, Directive (EU) 2015/863 • WEEE Directive 2012/19/EU • China RoHS	
Chassis Synchronization Extendibility		
Maximum number of chassis in single test topology	The Metronome Timing System (942-0090) is used for synchronizing a total of eight or more chassis at one time.	
	Sub nano-second time sync through PTP dedicated port enables large number of ports in the same time domain. (Planned) Sub nano-second time sync through WR-PTP dedicated port.	

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Product Description	Interconnect and Network Performance Tester 1600GE-C OSFP1600 2-Port Benchtop Chassis	Interconnect and Network Performance Tester 1600GE-C OSFP1600 2-Port Rackmount Chassis

Transmit Feature Specifications	
Transmit engine	Wire-speed packet generation with timestamps, sequence numbers, data integrity, and packet group signatures
Max. streams per port and 1600GE PAM4 speeds	• 1x1600GE: 64 (per FPP) • 2x800GE: 64 (per fan-out) • 4x400GE: 64 (per fan-out) • 8x200GE: 64 (per fan-out)
Stream controls	• Rate and frame size change on the fly • Advanced stream scheduler • Sequential stream scheduler
Minimum frame size	• 1600GE, 800GE, 400GE and 200GE PAM4 speeds: • 64 bytes at full line rate • 61 bytes at less than full line rate (approximately 90% utilization)
Maximum frame size for 1600GE PAM4 speeds	14,000 bytes
Maximum frame size in data center Ethernet	9,216 bytes for all speeds
Priority flow control (4:1) for 1600GE PAM4 speeds	• 4 line-rate-capable queues, each supporting up to 9,216-byte frame lengths • 1 line-rate-capable queue, non-blocking supporting up to 9,216-byte frame length
Frame length controls	Fixed, increment by user-defined step, weighted pairs (up to 16K for 1600GE/800GE and up to 8K for lower speed), uniform, repeatable random, IMIX, and Quad Gaussian
User-Defined Fields (UDF)	• Fixed, counter (increment or decrement by user-defined step), value list, and random configurations. • Up to 6 UDFs supporting fixed, nested counter, random configurations (32-bit or 2x16-bit wide), or value list configurations (64-bit, 2x32-bit, 4x16-bit, or 4x8-bit wide). • Up to 4 additional UDFs supporting fixed, counter, random configurations (32-bit, or 2x16-bit wide). • Split UDFs (for example, 2x16 configuration) support different byte offset per UDF segment.
Value lists (max.) per port for 1600GE PAM4 speeds	• 1x1600GE: 64K / port /UDF • 2x800GE: 64K / port /UDF • 4x400GE: 128K /2-port /UDF • 8x200GE: 128K / 4-ports /UDF
Sequence (max.) for 1600GE PAM4 speeds	• 1x1600GE: 16K / port /UDF • 2x800GE: 32K /port /UDF • 4x400GE:32K /port /UDF • 8x200GE: 32K / 2-ports /UDF
Error generation (FEC and standard Keysight L2/3 Ethernet in 1600GE PAM4 mode only)	• FEC symbol error-injection allows the user to inject FEC symbol errors using various weighted methods to achieve specific bit error rates (BER) • Generate good CRC or force bad CRC, undersize and oversize standard Ethernet frame lengths, and bad checksum
Hardware checksum generation	Checksum generation for IPv4, IP over IP, ICMP/GRE/TCP/UDP, L2TP, GTP, and multilayer checksum; support for protocol verification for control plane traffic
Link fault signaling for all speeds	• Reports, no fault, remote fault, and local fault port statistics • Generate local and remote faults with controls for the number of faults and order of faults • Option to have the transmit port ignore link faults from a remote link partner and send traffic anyway
Latency measurement resolution for 1600GE PAM4 speeds	• 1600GE: 0.312 ns • 800GE and 400GE: 0.625 ns • 200GE: 1.25 ns
Intrinsic latency compensation	Removes inherent latency error from the port electronics for all speeds
Parts-per-million (ppm)	Ability to adjust the ppm line frequency: +/- 105 ppm on all the ports of the fixed chassis system for all speeds

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Product Description	Interconnect and Network Performance Tester 1600GE-C OSFP1600 2-Port Benchtop Chassis	Interconnect and Network Performance Tester 1600GE-C OSFP1600 2-Port Rackmount Chassis

Receive Feature Specifications	
Receive engine	Wire-speed packet filtering, capturing, real-time latency, and inter-arrival time for each packet group, with data integrity, and sequence checking capability
Trackable receive flows per port without Sequence checking and with Tx/Rx synch for 1600GE PAM4 Ethernet speeds	• 1600GE: 16K full statistics • 800GE, 400G, 200GE: 32K full statistics
Trackable receive flows per port with and without Sequence checking and no Tx/RX synch for 1600GE PAM4 Ethernet speeds	• 1600GE: 16K full statistics • 800GE, 400G, 200GE: 32K full statistics
Filters (user-defined statistics, UDS)	2 SA/DA pattern matchers, 2x16-byte user-definable patterns. 6 UDS counters are available with offsets for start of frame
Hardware capture buffer	1 MB available per front panel OSFP1600 port and for the fan-out modes on that port
Standard statistics and rates	Link state, line speed, frames sent, valid frames received, bytes sent/received, fragments, undersize, oversize, CRC errors, 6 user-defined stats, capture trigger (UDS 3), capture filter (UDS 4), data integrity frames, data integrity errors, sequence checking frames, sequence checking errors, ARP, and PING requests and replies
FEC statistics for 1600GE PAM4 Ethernet speeds	1600GE PAM4 speeds: • FEC port statistics: Total Bit Errors, Max Symbol Errors, Corrected Codewords, Total Codewords, Uncorrectable Codewords, Frame Loss Ratio, Pre-FEC Bit Error Rate, and Codeword error distribution analysis. • FEC per lane Rx statistics: FEC Symbol Error Count, Corrected Bits Count, Symbol Error Rate, Corrected Bit Rate
Latency / jitter measurements	Cut-through, store and forward, forwarding delay, latency/jitter, MEF jitter, and inter-arrival time
Receive-side PCS lanes port statistics counters for all speeds	PCS: Sync Errors, Illegal Codes, Remote Faults, Local Faults, Illegal Ordered Set, Illegal Idle, and Illegal SOF
PCS receive-side statistics and indicators for 1600GE PAM4 Ethernet speeds	• Per-lane PCS receive capabilities include: • Receive — per-lane PCS receive statistics, Physical Lane assignments, Lane Marker Lock, Lane Market Map, Relative Lane Skew, Lane Marker Error Count • Receive — per-lane FEC receive statistics; FEC Symbol Error Count, FEC Corrected Bits Count, FEC Symbol Error Rate, FEC Corrected Bit Rate
Advanced Rx Eye Histogram Analysis	(Planned) Advanced Rx Eye Histogram Analysis provides in-depth, user-selected, per lane PAM4 signal shape histogram analysis, SER statistics, comparison of signal quality between lanes and an array of eye closure measurements.

Interconnect and Network Performance Tester 1600GE-C Chassis Models
IxExplorer: Layer 1-3 wire-speed traffic generation, capture, and analysis with Layer 1 BERT, Forward Error Correction analysis and error injection with statistics, PCS Lanes Tx/Rx with statistics and reporting capability. IxTcl API for custom user script development for Layer 1–3 testing using the IxExplorer features
IxNetwork: Wire-rate traffic generation with service modeling that builds realistic, dynamically controllable data-plane traffic. IxNetwork offers the industry's best test solution for functional and performance testing by using comprehensive emulation for routing, switching, MPLS, IP multicast, broadband, authentication, Carrier Ethernet, and data center Ethernet protocols. Included with IxNetwork are test automation tools based on TCL, Python, and the Rest/RestPy.
Interconnect Test System Software: validates the functionality and performance of high-speed optical and copper network equipment and interconnect media that use PAM4 signaling and Forward Error Correction (FEC). It offers a first-of-its-kind, US patent pending Interconnect Library that introduces a new way to organize, retrieve, and use interconnect data, including Common Management Interface Specification (CMIS) data.

Ordering Information

Part Number	Description
Interconnect and Network Performance Tester 2-Port Hardware Chassis	
941-0132	Interconnect and Network Performance Tester 1600GE-C, INPT-1600-C-2P-BT, 2-port benchtop chassis with native OSFP1600 front panel ports and L1-3 testing support. Includes all 1x1600GE, 2x800GE, 4x400GE, 8x200GE Ethernet speeds, ACC and DAC support
941-0133	Interconnect and Network Performance Tester 1600GE-C, INPT-1600-C-2P-RM, 2-port half rackmount chassis with native OSFP1600 front panel ports and L1-3 testing support. Includes all 1x1600GE, 2x800GE, 4x400GE, 8x200GE Ethernet speeds, ACC and DAC support
942-1416	UPG-INPT-1600GE-DAC, RETURN TO FACTORY system upgrade for the INPT-1600GE benchtop chassis (941-0095) to replace the existing PHY PCBA hardware and add a new PHY PCBA and required software to support Active Copper Cable (ACC) and passive copper cables (DAC) that support 212.5Gb/s electrical lane speeds (942-1416).
942-1417	UPG-INPT-1600GE-DAC, RETURN TO FACTORY system upgrade for the INPT-1600GE half-rack chassis (941-0096) to replace the existing PHY PCBA hardware and add a new PHY PCBA and required software to support Active Copper Cable (ACC) and passive copper cables (DAC) that support 212.5Gb/s electrical lane speeds (942-1417).
930-3300	RoCEv2 Lossless Ethernet Enablement for Interconnect and Network Performance Tester (930-3300); Perpetual node-locked license; Enable RoCEv2 capability for INPT-800-2P-OSFP-BT 2-port benchtop with OSFP800 ports (941-0093), INPT-800-4P-OSFP-BT 4-port benchtop with OSFP800 ports (941-0094), and INPT-1600-2P-BT 2-port benchtop chassis with OSFP1600 ports (941-0095), and INPT-1600-2P-RM 2-port half-rack chassis with OSFP1600 ports (941-0096); One option is required for each fixed chassis system

OSFP1600GE Optics	
OSFP1600-DR-IHS-XCVR	OSFP1600-DR-IHS-XCVR, OSFP1600-2xDR4, 2x800GE pluggable optical transceiver with Integrated Head Sink (IHS), SMF (single mode), 8x212Gb/s electrical lanes, Dual MPO-12 APC connector, 500m reach. This optical transceiver is compatible with AresONE 1600GE OSFP1600 with Integrated Head Sink (IHS) (941-0130), Interconnect and Network Performance Tester 1600GE 2-port benchtop (941-0095) and Interconnect and Network Performance Tester 1600GE 2-port half-rack chassis (941-0096). It supports 2x800GE PAM4 signaling output (948-0130)
OSFP1600-DR4-CBL	OSFP1600-DR-CBL, MPO12 Single Mode Female to Female, Type B fiber optic cable, 2-meters length. (942-3130). Compatible with OSFP1600-DR-IHS-XCVR (948-0130) and OSFP1600-DR-RHS-XCVR (948-0131) dual connector optical transceivers (942-3130)
OSFP1600-IHS-1M-CBL	Keysight, OSFP1600-IHS-1M-CBL 1600GE 1.6T passive copper, Direct Attach Cable, OSFP IHS-to-IHS, 26 AWG, 1-meter length (942-0181)
OSFP1600-RHS-1M-CBL	Keysight, OSFP1600-RHS-1M-CBL 1600GE 1.6T passive copper, Direct Attach Cable, OSFP RHS-to-RHS, 26 AWG, 1-meter length (942-0182)
IxNetwork Software Options	
930-2250	IxNetwork Premium Package for Interconnect and Network Performance Tester; INCLUDES: IxNetwork Base, RFC2544/2889/3918 QuickTest, and Protocol emulation for Routing, Switching, MPLS/VPN, Carrier Ethernet and Timing, Data Center Ethernet, Broadband and Authentication, SDN, and 5G Transport
930-2251	IxNetwork Basic Package for Interconnect and Network Performance Tester; INCLUDES: IxNetwork Base, RFC2544/2889/3918 and ITU-T Y.1564 QuickTest, and IGMP/MLD emulation.
930-2252	IxNetwork Routing/Switching/MPLS/VPN Package for Interconnect and Network Performance Tester; INCLUDES: Protocol emulation for Routing, Switching, and MPLS/VPN; REQUIRES: 930-2251 Keysight IxNetwork Basic Package for Interconnect and Network Performance Tester.
930-2254	IxNetwork RoCEv2 Lossless Ethernet Package for Interconnect and Network Performance Tester (930-2254); Perpetual node-locked license; Enable RoCEv2 Lossless Ethernet validation with emulation of Queue Pairs, Congestion Notification and DCQCN; REQUIRES: 930-2251 IxNetwork Basic Package for for Interconnect and Network Performance Tester; and 930-3300 RoCEv2 Lossless Ethernet Enablement for Interconnect and Network Performance Tester
930-2255	IxNetwork Ultra Ethernet Transport Traffic Generation (930-2255); Perpetual node-locked license; Enable Ultra Ethernet Transport Compliant Traffic Generation; REQUIRES: IxNetwork Basic Package for Interconnect and Network Performance Tester (930-2251), OR IxNetwork Basic package for AresONE (930-2201)
Interconnect Test System Software	
930-3360	Interconnect Test System (ITS) software for Interconnect and Network Performance Tester 800GE and 1600GE hardware chassis models: INPT-800GE 2-port benchtop (941-0093), INPT-800GE 4-port benchtop (941-0094), INPT-1600GE 2-port benchtop (941-0095) and INPT-1600GE 2-port half-rack chassis (941-0096), INPT-1600GE-C 2-port benchtop (941-0132), INPT-1600GE-C 2-port half-rack (941-0133) (930-3360).

Multiple Chassis Synchronization	
942-0090	Metronome Timing System and Metronome Timing Software enabling advanced chassis timing. Includes Sync Cable 5m (942-0096). Compatible with the XGS-SD chassis, XGS-SDL chassis, XGS-HSL chassis, AresONE fixed chassis, Novus ONE PLUS fixed chassis and Interconnect and Network Performance Tester 800GE.

More Information

https://www.keysight.com/us/en/products/network-test/network-test-hardware/interconnect-and-network-performance-tester-1600ge.html