Keysight AresONE 800GE QSFP — DD800-M 4/8-Port Test Systems

Challenge: Testing all speeds from 10GE to 800GE

The 800GE component ecosystem has evolved rapidly. Most major networking companies are developing networking equipment that have 800GE front panel and/or upload ports. The same PAM4 encoded signaling and Forward Error Correction (FEC) technologies, that were widely adopted for 400GE ports, are being used with 106.25Gb/s (namely, 53 Gbaud) electrical lane front panel interfaces for 800GE. Switch ASICs now support up to 106.25Gb/s lanes with PAM4 modulation and FEC—easing the transition from 400GE to 800GE. Testing new port speeds 1x800GE, 2x400GE, 4x200GE, and 8x100GE is the new challenge, however, testing legacy 400GE PAM4 and 100GE NRZ speeds is also essential. Bandwidth requirements for internet applications are driving the need for testing line-rate traffic of 25.6 and 51.2 Tbps networking equipment.

Keysight has extended its industry leading AresONE 800GE platforms to support all the 800GE, 400GE and 100GE PAM4 and NRZ related speeds to address ever-increasing market test needs.

Solution: All-In-One Test Platform with 8-Port Density and 800GE, 400GE, and 100GE Speeds

With several first-to-market solutions, AresONE 400GE, AresONE High Performance 400GE and the high density, 16-port AresONE-S 400GE chassis with PAM4 and NRZ signaling support have established a significant footprint as enablers for testing 400GE technology. Now, AresONE 800GE QSFP-DD800-M is our latest innovation to the AresONE high-speed Ethernet family.

The AresONE 800GE 4-port and 8-port 800GE models provide up to 6.4Tbps of test traffic bandwidth and measurement. The chassis are stackable to build higher-throughput and port-count testbeds, up to 64-ports of line-rate 800GE traffic generation and performance measurement in a single configuration. Even if you do not need 8-ports of 800GE today, 2-port and 4-port offerings are available with field upgrades that provide an expandable test platform that can grow with your test bandwidth needs.

KEYSIGHT

AresONE 800GE enables testing of multiple Ethernet speeds in the same platform with each port capable of the following speeds:

- Built-in PAM4 signaling speeds based on 106.25 Gb/s host electrical lanes: 2x400GE, 4x200GE, and 8x100GE per port
- Built-in PAM4 signaling speeds based on 53.125 Gb/s host electrical lanes: 1x400GE, 2x200GE, 4x100GE and 8x50GE per port
- Optional NRZ signaling based on 26Gb/s host electrical lanes: 1x200GE, 2x100GE, 4x50GE and 8x25GE, with 2x40GE and 8x10GE over 10Gb/s electrical lanes per port
- 1x800GE is a separate purchasable option with the initial order from the factory or later with a field upgrade

Highlights

- AresONE 800GE QSFP-DD800 8-port, 4-port, and 2-port models enable L1–L3 testing in a single platform
- 6.4 Tbps of line-rate traffic per 8-port chassis with option to synchronize multiple chassis to test 51.2 Tbps bandwidth and beyond switching platforms
- 2RU fixed chassis form factor that optimizes power and cooling requirements with support for optical transceivers that require up to 25 watts per port
- Complete L2/3 protocol emulation with IxNetwork software application including the Keysight AI Fabric Test Solution
- One platform for 800GE, 400GE, and 100GE with PAM4 and NRZ signaling, with 106.25 Gb/s host electrical lane signaling and downshift to the electrical lane speeds to 53Gb/s, 26Gb/s, and 10Gb/s for the lower-speed Ethernet speeds. All the required FEC types and a full array of in-depth performance statistics are included on a single platform.
- Flexible reduced and full performance models with port and performance upgrade options for the ability to grow your system’s capabilities as requirements expand over time
- Improve your interoperability, link stability, and robustness testing with Keysight-developed intellectual property for the critical test elements of 800GE and 400GE: MAC, PCS, FEC symbol error correction distribution, FEC error injection and statistics, and PAM4 Rx Eye Histogram analysis
- Compatible with Ethernet Technology Consortium 800 Gigabit Ethernet (GbE) v1.1 and IEEE 802.3df 2024 specifications

Pay as you Grow — Full and Reduced, Speed Variants, All Field Upgradeable

AresONE 800GE QSFP-DD800-M fixed chassis are available in 8-port, 4-port, and 2-port with full- and reduced-performance model selections:

- 8-port hardware chassis — Full and Reduced Performance models
- 4-ports enabled on the 8-port hardware chassis — Full and Reduced Performance models
- 4-port hardware chassis — Full and Reduced Performance models
- 2-ports enabled on the 4-port hardware chassis — Full and Reduced Performance models

Chassis Port Count Upgrades — Increase the density of your test bed

Keeping with the trend set by earlier generation of AresONE 400GE, next generation AresONE 800GE offers flexibility for port upgrades for installed chassis based on growing requirements for more test ports. Users can field-upgrade from the existing 2-port enabled configuration to the 4-port configuration, and the 4-port enabled configuration to the 8-port configuration. See the Ordering section for more information.

Chassis Upgrades — Grow your feature set and protect your investment in your original AresONE 800GE test system.

Keysight offers a unique capability in the test and measurement industry that provides a hardware upgrade pathway to increase the capability and the functionality of your 800GE test system in a significant way. An existing AresONE 800GE (the first generation) and the AresONE-C (second generation) hardware electronics can be upgraded as per the table shown later. This is a return-to-factory hardware electronics upgrade that allows you to keep your existing serial number asset and it adds major functionality.

AresONE QSFP-DD800 to AresONE QSFP-DD800-C model upgrade benefits are as follows:

- Adds support for passive cooper cable (DAC) up to 1.6 meters in length, and amplified copper cable (ACC) support
- Provides Auto-negotiation (AN) and Link Training support for all speeds, including 1x800GE when this option in installed on your existing unit
- Increases the capacity of the ppm adjustment up to +/- 105 ppm per front panel port
- Supports Interleave FEC for PAM4 8x100GE(ck) applications over 106G/bs electrical lanes
- Adds the Advance Rx Histogram option for in-depth statistics and analysis of the link partners transmit

Original AresONE	Upgrade part number to order	Upgraded part number to AresONE-C model	Post Upgrade Description
944-1190	942-1400	944-1400	Ixia, AresONE 800GE-2P-QDD-C, 2-port, full performance fixed chassis model with native QSFP-DD800 800GE (PAM4) physical interfaces, L1-3, optical transceiver, and copper DAC support (944-1400)
944-1191	942-1400	944-1401	Ixia, AresONE 800GER-2P-QDD-C, 2-port, reduced performance fixed chassis model with native QSFP-DD800 800GE (PAM4) physical interfaces, L1-3, optical transceiver, and copper DAC support (944-1401)
944-1192	942-1400	944-1402	Ixia, AresONE 800GE-4P-QDD-C, 4-port, full performance fixed chassis model with native QSFP-DD800 800GE (PAM4) physical interfaces, L1-3, optical transceiver, and copper DAC support (944-1402)
944-1193	942-1400	944-1403	Ixia, AresONE 800GER-4P-QDD-C, 4-port, reduced performance fixed chassis model with native QSFP-DD800 800GE (PAM4) physical interfaces, L1-3, optical transceiver, and copper DAC support (944-1403)

AresONE QSFP-DD800-C to AresONE QSFP-DD800-M model upgrade benefits are as follows:

- Adds the built-in 400GE PAM4 speeds running over 53Gb/s host electrical lanes, which includes 1x400GE, 2x200GE, 4x100GE and 8x50GE. Note that this requires the IxOS 9.37 software release to enable the 400GE speeds on the upgraded hardware chassis.
- Adds support for passive cooper cable (DAC) up to 2.0 meters in length.
- Provides Auto-negotiation (AN) and Link Training (LT) support for all speeds, including all 800GE and 400GE speeds.

Original AresONE-C	Upgrade part number to order	Upgraded part number to AresONE-M model	Post Upgrade Description
944-1400	942-1408	944-1423	Ixia, AresONE 800GE-2P-QDD-M, 2-port, full performance fixed chassis model with native QSFP-DD800 800GE (PAM4) physical interfaces, L1-3, optical transceiver, and copper DAC support (944-1423)
944-1401	942-1408	944-1424	Ixia, AresONE 800GER-2P-QDD-M, 2-port, reduced performance fixed chassis model with native QSFP-DD800 800GE (PAM4) physical interfaces, L1-3, optical transceiver, and copper DAC support (944-1424)
944-1402	942-1408	944-1425	Ixia, AresONE 800GE-4P-QDD-M, 4-port, full performance fixed chassis model with native QSFP-DD800 800GE (PAM4) physical interfaces, L1-3, optical transceiver, and copper DAC support (944-1425)
944-1403	942-1408	944-1426	Ixia, AresONE 800GER-4P-QDD-M, 4-port, reduced performance fixed chassis model with native QSFP-DD800 800GE (PAM4) physical interfaces, L1-3, optical transceiver, and copper DAC support (944-1426)
944-1194	942-1406	944-1427	Ixia, AresONE 800GE-8P-QDD-M, High Density, 8-port, full performance fixed chassis model with native QSFP-DD800 800GE (PAM4) physical interfaces, L1-3, optical transceiver, and copper DAC support (944-1427)
944-1195	942-1406	944-1428	Ixia, AresONE 800GER-8P-QDD-M, High Density, 8-port, reduced performance fixed chassis model with native QSFP-DD800 800GE (PAM4) physical interfaces, L1-3, optical transceiver, and copper DAC support (944-1428)
944-1196	942-1406	944-1429	Ixia, AresONE 800GE-8PHW-4P-QDD-M, 4-port, full performance fixed chassis model with native QSFP-DD800 800GE (PAM4) physical interfaces, L1-3, optical transceiver, and copper DAC support (944-1429)
944-1197	942-1406	944-1430	Ixia, AresONE 800GER-8PHW-4P-QDD-M, 4-port, reduced performance fixed chassis model with native QSFP-DD800 800GE (PAM4) physical interfaces, L1-3, optical transceiver, and copper DAC support (944-1430)

AresONE-M 800GE offers a range of feature options to enhance your existing chassis.

Any of these feature options can be added at any time:

1x800GE port speed option:

- Keysight, UPG-800GE-SPD-F, 1x800GE speed mode option, FACTORY INSTALLED for all AresONE 800GE and AresONE 800GER chassis (905-1070)
- Keysight, UPG-800GE-SPD-FLD, 1x800GE speed mode option, FIELD UPGRADE, for all AresONE 800GE and AresONE 800GER chassis (905-1071)

NRZ Ethernet port speed option:

- Keysight, NRZ mode and fan-out option, FACTORY INSTALLED option for AresONE 800GE QSFP-DD800-M, OSFP800-M and Dual Interface Model-M chassis (905-1109)
- Keysight, NRZ mode and fan-out option, FIELD UPGRADE option for AresONE 800GE QSFP-DD800-M, OSFP800-M NRZ and Dual Interface Model-M chassis (905-1110)

Rx Advanced Histogram Analysis option:

- Keysight, Advanced Rx Eye Histogram Analysis Option, FACTORY installed for all AresONE 800GE QSFP-DD800-C, or -M and OSFP800-C, or -M fixed chassis models (905-1107)
- Keysight, Advanced Rx Eye Histogram Analysis Option, FIELD UPGRADE for all AresONE 800GE QSFP-DD800-C, or -M and OSFP800-C, or -M fixed chassis models (905-1108)

Key features

- Line-rate 800GE, 400GE and 100GE packet generation per QSFP-DD800 front panel port, for analysis and capture of received traffic to detect and debug data transmission errors for multiple Ethernet speeds when using PAM4 signaling over 106.25 Gb/s, and 53.125Gb/s as the built-in speeds.
- Built-in multi-rate fan-out speeds to configure the fan-out speeds with PAM4 signaling:
    - 800GE PAM4 speeds: 2x400, 4x200, 8x100GE (default, built-in speeds).
    - 400GE PAM4 speeds: 1x400, 2x200, 4x100 and 8x50GE (default, built-in speeds).
    - 1x800GE PAM4 is a purchased speed option in a factory or field upgrade.
- NRZ speeds are supported with the optional NRZ signaling over 26Gb/s and 10Gb/s electrical lanes as required with a factory or a field upgrade
    - 1x200GE, 2x100GE, 4x50GE, 2x40GE, 8x25GE and 8x10GE are available
- Line-rate, at all speeds with per-port and per-flow statistics.
- Keysight instrumentation, including floating timestamp, sequence number, flow identification, and data integrity (that is, for the entire packet).
- High-latency measurement resolution at 0.625 ns at the 800GE and at 400GE.
- RS-544 (KP4) Forward Error Correction (FEC) support for all PAM4 speeds, 800/400/200 and 100GE over 106.25 Gb/s electrical lanes and 400/200/100 and 50GE over 53.125 Gb/s electrical lanes.
- RS-FEC and FC-FEC for all NRZ speeds over 26Gb/s electrical lanes.
- FEC error injection and analysis for 800GE, 400GE, 200GE PAM4 and 200GE NRZ speeds:

- FEC symbol error injection and FEC symbol error density distribution analysis; comprehensive set of FEC corrected and uncorrected counts, rates, and statistics; BER per lane and per port, and pre-FEC BER, frame loss ratio (FLR) analysis is provided.

- 400GE, and 200GE PAM4, PCS lanes Transmit, and receive measurement:
  - Per-lane controls and status, FEC and error monitoring, lane mapping and skew insertion; see details in Specification Table in this datasheet, as capabilities may vary per Ethernet speed.
- 100GE, and 40GE NRZ, PCS lanes Transmit, and receive measurement:
  - Per-lane controls and status, PCS error injection and lane mapping; see details in Specification Table in this datasheet, as capabilities may vary per Ethernet speed.
- Inject packet errors: CRCs, runts, giants, checksum errors, and out of sequence.
- Up to 25 watts of power and cooling support for QSFP-DD800 MSA compatible optical transceivers, coherent optics, active optical cables, and other interconnect media. Please consult the factory for support for optics that consume more than 25 watts.
- Support for passive, copper direct attached cables (DAC) up to 2.0 meters in length both point-to-point and fan-out cables for these applications:
  - 2x400GE, 4x200GE and 8x100GE.
- Auto-negotiation (AN) and Link Training (LT) support for passive, copper direct attached cables (DAC):
  - Up to 2.0 meters in length for: 1x800GE, 2x400GE, 4x200GE and 8x100GE PAM4 speeds over 106.25 Gb/s electrical lanes per port.
  - Up to 3.0 meters in length for: 1x400GE, 2x200GE, 4x100GE and 8x50GE PAM4 speeds over 53.125Gb/s electrical lanes per port.
  - Up to 5.0 meters in length for: 1x200GE*, 2x100GE, 1x100GE, 2x50GE, and 8x25GE NRZ speeds over 26Gb/s electrical lanes per port.
  - *Note: for 1x200GE NRZ (200G-R8 with 26.5625 Gb/s electrical lanes) there is no IEEE technology ability bit to advertise. Therefore, there is no support for AN and LT over passive copper cables. A link may be established without AN and LT.Support for active electrical cables (AEC) and linear amplified copper cables (ACC). Consult the factory for support of specific cable lengths as it may vary between different manufacturers.
- Overall optical and copper interconnect media support with CMIS 5.0 and C-CMIS 1.0 support with IxExplorer GUI and Tcl automation support.
  - Support for Application Selection Code (AppSel) feature of CMIS with auto-detection and configuration support
- Digital Optical Monitoring (DOM) that 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 LOL and LOS threshold and alarm monitoring information. The DOM also provides feedback when alarms and thresholds are exceeded. This capability is provided with the IxExplorer application.
- +/- 105 ppm line frequency adjustment that can be adjusted per front panel port for 800GE PAM4 speed mode
- Layer 1 BERT support:
  - 800GE PAM4 speed mode: Layer 1 BERT capability with per-lane and per-port BER statistics, ability to send PRBSQ patterns PRBS-13Q and PRBS-31Q. Additional test, pattern controls, and pattern detection are included.
  - 400GE PAM4 speed mode: Layer 1 BERT with PRBS-7Q, PRBS-9Q, PRBS-11Q, PRBS-13Q, PRBS-15Q, PRBS-20Q, PRBS-23Q, and PRBS-31Q pattern support.

- NRZ speed mode: Layer 1 BERT with PRBS-7, PRBS-9, PRBS-11, PRBS-13, PRBS-15, PRBS-20, PRBS-23, and PRBS-31 pattern support.
- +/- 105 ppm line frequency adjustment per electrical lane in BERT mode. Each electrical lane can be adjusted to a different ppm value on 106Gb/s, 53Gb/s, and 26Gb/s electrical lanes.
- This BERT capability is only provided with the IxExplorer application.

- Advanced Rx Eye Histogram Analysis Option that provides in-depth, user-selected, per-lane PAM4 signal shape analysis, symbol error rate (SER) statistics, comparison of signal quality between lanes and an array of eye measurements on 53Gb/s and 106Gbs/ electrical lanes. Note that you must have one of the purchasable options 905-1107 or 905-1108. See the Ordering section.
- IxNetwork Application support:
  - Support for RFC benchmarking of networking devices and equipment by using industry-standard RFC benchmark tests at line-rate from 10GE to 800GE PAM4 and NRZ speeds.
  - Mid-range L2/3 networking protocol emulation to validate performance and scalability of L2/3 routing/switching and data center test cases by using Keysight's IxNetwork protocol emulation application.
  - IxNetwork protocol bundles that provide easy ordering and bundled packages specifically designed for AresONE 800GE fixed chassis systems.
  - IxNetwork support for the Keysight AI Fabric Test Solution to validate data center fabrics to lower AI training completion, time, and cost; this features RoCEv2 and RDMA protocol support to:
    - Model the AI training workload running on the tester's target topology.
    - Generates traffic that results from collective communications emanating from simulated end points which includes emulating Queue-Pair (QP) connections and flows, generating congestion notifications, performing DCQCN-based dynamic rate control, and providing flexibility to test throughput, buffer management and ECMP hashing enabling engineers to optimize the fabric's performance under the stress of the target AI workload and resulting collective communication
- Native IxOS and IxExplorer application support with related Tcl automation.

Specifications

Product description	**AresONE 800GE QSFP-DD800-M full performance 2-port / 4-port / 8-port**	**AresONE 800GE QSFP-DD800-M reduced performance 2-port / 4-port / 8-port**
Part numbers	944-1423 / 944-1425 / 944-1427 / 944-1429	944-1424 / 944-1426 / 944-1428 / 944-1430
Hardware fixed chassis system specifications		
RU / number of ports	2 RU / 2-ports enabled on 4-port hardware chassis, or all 4-ports enabled, and 4-ports enabled on 8-port hardware chassis, or all 8-ports enabled	
Physical interfaces	Native QSFP-DD800 physical front panel pluggable ports	
Supported per port speeds	Default speeds included with the chassis: • 2x400GE, 4x200GE, and 8x100GE per port, PAM4 over 106Gb/s electrical lanes • 1x400GE, 2x200GE, 4x100GE, and 8x50GE, PAM4 over 53Gb/s electrical lanes • Optical transceiver and fiber cable interconnect support for all speeds • Copper cable interconnect support for all speeds	
	Optional speeds:	

Product description	AresONE 800GE QSFP-DD800-M full performance 2-port / 4-port / 8-port	AresONE 800GE QSFP-DD800-M reduced performance 2-port / 4-port / 8-port
	• PAM4: 1x800GE over 106Gb/s electrical lanes. Requires purchase of a factory or field upgrade 800GE speed option. See the Ordering Section of this datasheet. • NRZ: 1x200GE, 2x100GE, 4x50GE, and 8x25GE, over 26Gb/s electrical lanes, and 2x40GE and 8x10GE over 10Gb/s electrical lanes • Requires purchase of a factory or a field upgrade NRZ speed option. See the Ordering Section of this datasheet.	
CPU and memory	Multicore processor with 4 GB of CPU memory per QSFP-DD800 front panel port	
Interface protocols specifications for 800GE/106Gb/s electrical lane support	IEEE 802.3ck Physical Layer Specifications and Management Parameters for 100 Gb/s, 200 Gb/s, and 400 Gb/s Electrical Interfaces Based on 100 Gb/s Signaling IEEE 802.3df-2024 Standard for Ethernet Amendment 9: Media Access Control Parameters for 800 Gb/s and Physical Layers and Management Parameters for 400 Gb/s and 800 Gb/s Operation	
	Ethernet Technology Consortium 800 Gigabit Ethernet (GbE) v1.1 specification	
Interface protocols specifications for 400GE and 100GE for 53Gb/s and 26Gb/s electrical lane support	IEEE 802.3bs 200GE and 400GE, 400GBASE-R IEEE 802.3cd 50 Gb/s, 100 Gb/s, and 200 Gb/s Ethernet IEEE 802.3 100GBASE-R LAN, IEEE P802.3bj, IEEE P802.3bm, IEEE P802.3by, IEEE 802.3ba, IEEE 802.3ae	
Layer 1 support 800GE PAM4 speeds for 106Gb/s electrical lanes	PAM4, 800/400/200/100GE speeds: KP4 (RS-544, 514) Ethernet Forward Error Correction, IEEE 802.3 Clause 119: • FEC Correctable and uncorrectable statistics per-port • FEC symbol error injection (800GE, 400GE and 200GE speeds only) • FEC Codeword symbol error correction distribution statistics • Interleave FEC for PAM4 100GE(ck) applications over 106Gb/s electrical lanes • Pre-FEC BER and Frame Lose Ratio (FLR) measurements • PCS lanes Tx lane map and skew insertion (400GE and 200GE speeds only) • PCS Rx per lane and port statistics • Layer 1 BERT with PRBS-13Q and PRBS-31Q pattern generation support and Rx-side statistics and analysis. Additional test, pattern controls and pattern detection are included. • +/- 105 ppm line frequency adjustment per electrical lane in BERT mode. Each electrical lane can be adjusted to a different ppm value on 106Gb/s, 53Gb/s, and 26Gb/s electrical lanes. • Optional Rx Eye Histogram analysis	
Layer 1 support 400GE PAM4 speeds for 53Gb/s electrical lanes	PAM4, 400GE native ports and 200/100/50GE speed option: • KP4 (RS-544,514) Ethernet Forward Error Correction, Clause 119 • All speeds support AN and LT for 1x400GE, 2x200GE, 4x100GE, and 8x50GE speed modes • Correctable and uncorrectable FEC statistics per-port • FEC symbol error injection (400GE and 200GE speeds only) • FEC Codeword error distribution statistics support for all PAM4 speeds • Pre-FEC BER and Frame Loss Ratio (FLR) measurements • PCS lanes Tx and Rx test and statistics • Layer 1 BERT with PRBS-7Q, PRBS-9Q, PRBS-11Q, PRBS-13Q, PRBS-15Q, PRBS-20Q, PRBS-23Q, and PRBS-31Q pattern support • +/- 105 ppm line frequency adjustment per electrical lane in BERT mode. Each electrical lane can be adjusted to a different ppm value on 106Gb/s, 53Gb/s, and 26Gb/s electrical lanes. • Optional Rx Eye Histogram analysis	
Layer 1 support for NRZ speeds over 26Gb/s electrical lanes	NRZ, 200/100/50/40/25/10GE included in the NRZ speed option: • 1x200GE* **, 2x100GE, 4x50GE, and 8x25GE speed support • RS (528,514) Clause 91, BASE-R FEC Cause 74 Forward Error Correction, Clause 91 for applicable speeds • RS (544,514) aka KP4 FEC is used for the 1x200GE NRZ (200G-R8) speed mode. • Auto-negotiation and link training support for all 100/50/25GE speeds • Correctable and uncorrectable FEC statistics per-port for applicable speeds • Ability to independently turn ON or OFF AN with Link training, or FEC, or to allow IEEE defaults to automatically manage the interoperability	

Product description	AresONE 800GE QSFP-DD800-M full performance 2-port / 4-port / 8-port	AresONE 800GE QSFP-DD800-M reduced performance 2-port / 4-port / 8-port
	• Layer 1 BERT with PRBS-7, PRBS-9, PRBS-11, PRBS-13, PRBS-15, PRBS-20, PRBS-23, and PRBS-31 pattern support • +/- 105 ppm line frequency adjustment per electrical lane in BERT mode. Each electrical lane can be adjusted to a different ppm value on 106Gb/s, 53Gb/s, and 26Gb/s electrical lanes. *Note: for 1x200GE NRZ (200G-R8 with 26.5625 Gb/s electrical lanes) there is no IEEE technology ability bit to advertise. Therefore, there is no support for AN and LT over passive copper cables. A link may be established without AN and LT. **Note: For 1x200GE NRZ (200G-R8 with 26.5625 Gb/s electrical lanes), the FEC statistics used are the same as those used or PAM4 signaling-based speeds: • FEC Codeword error distribution statistics support • Pre-FEC BER and Frame Loss Ratio (FLR) measurements	
Layer 1 support for NRZ speeds over 10Gb/s electrical lanes	NRZ, 40/10GE included in the NRZ speed option: 2x40GE and 8x10GE speed support • Layer 1 BERT with PRBS-7, PRBS-9, PRBS-11, PRBS-13, PRBS-15, PRBS-20, PRBS-23, and PRBS-31 pattern support	
QSFP-DD800 and QSFP-DD optical transceiver support (800GE and 400GE-rated transceivers)	• Support for QSFP-DD800 and QSFP-DD MSA compliant optical transceivers up to 25 watts of power consumption* (Power Class 8) such as: 800GBASE-DR8, 800GBASE-2xFR4, 800GBASE-SR8, 400GBASE-DR4 and 400G-ZR/ZR+ coherent optics plus many other optical transceivers,. AEC's, ACC's, and AOCs. • 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. *Note: For optical transceivers that consume more than 20 watts of power, Please see the "800ZR, 400G-ZR/ZR+ Coherent Optics Transceiver support" section. Please consult your Keysight account manager for more information.	
QSFP28/QSFP+ Optical Transceiver Support	Support for QSFP28/QSFP+ compliant optical transceivers up to Power Class 7 with 5 watts of power consumption such as: QSFP28-SR4, QSFP28-LR4, QSFP28-PSM4, QSFP-PLR4 and others. Consult the factory for specific transceiver support information. See Optical Transceivers under the Ordering Information section of this data sheet for current support of optical transceiver for this product. Download the 400GE Optics and Cables Guide from www.keysight.com under Products+Services, Network Test Hardware.	
SFP56/SFP28 Optical Transceiver Support	SFP56-SR, SFP56-DR, SFP56-FR, and SFP56-LR optical transceivers are supported for 1x50GE PAM4 Ethernet speeds for per port operation using the required Ixia, QSA28 adapter for enabling SFP56 interfaces on each physical port (948-0072). SFP28-SR and SFP28-LR optical transceivers are supported for 1x25GE and 1x10GE NRZ Ethernet speeds for per port operation using the required Ixia, QSA28 adapter for enabling SFP28 interfaces on each physical port (948-0072).	
QSFP-DD800 and QSFP-DD Active Electrical Cable support (800GE and 400GE-rated cables)	Active Electrical Cable (AEC) and Active Copper Cable (ACC) support; please consult the factory for specific support information	
QSFP-DD800, QSFP-DD, and QSFP28 passive copper cable support (800GE and 400GE-rated cables)	• QSFP-DD800 passive copper cable support for up to 2.0 meters in length • QSFP-DD passive copper cables support for up to 3.0 meters in length • QSFP28 passive copper cables support for up to 5.0 meters in length • Auto-negotiation and Link Training support for passive, copper direct attached cables (DAC) for all supported Ethernet speeds per port • Consult the factory for support of passive copper cable lengths that are longer than those stated above	
QSFP28/QSFP+ Passive Copper Cable Media	100GBASE-CR4, 50GBASE-CR2, and 25GBASE-CR passive, copper Direct Attached Cable (DAC) up to 5 meters in length dependent upon technology type. Both point-to-point and fan-out cables are supported. Consult the factory for longer lengths and information on Active Electrical Cable information. See Cables and Transceivers under the Ordering Information section of this data sheet for current support for this product.	

Product description	AresONE 800GE QSFP-DD800-M full performance 2-port / 4-port / 8-port	AresONE 800GE QSFP-DD800-M reduced performance 2-port / 4-port / 8-port
	Download the 400GE Optics and Cables Guide from www.keysight.com under Products+Services, Network Test Hardware.	
Common Management Interface Specification (CMIS)	• Support for the CMIS 4.0 and 5.0 specifications including read/write access to all CMIS pages and registers • Support for C-CMIS 1.0 (Coherent CMIS) • Support for Application Selection Code (AppSel) feature of CMIS with auto-detection and 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 IxExplorer application and Tcl test automation support	
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 LOL and LOS threshold and alarm monitoring information. The DOM also provides feedback when alarms and thresholds are exceeded. This capability is provided with the IxExplorer application.	

800ZR, 400G-ZR/ZR+Coherent Optics Transceiver support	• CMIS 5.0 and C-CMIS 1.0 (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.
	• Support for Application Selection Code (AppSel) feature of CMIS with auto-detection and configuration support
	• For optical transceivers that consume more than 20 watts of power, regardless of the form factor and technology type of the optical transceiver, the AresONE 800GE-M chassis have been operated with optical transceivers that consume up to 30 watts of power consumption. High power consumption transceivers such as 400ZR and 400ZR+ coherent optical transceivers have been fully qualified by Keysight in the AresONE 800GE-M chassis. 800ZR coherent optics that typically consume between 22 And 31 watts of power have been successfully operated in AresONE 800GE-M chassis subject to the full power limits of the host connector and these operational conditions:
	  ○ The case temperature of the installed module is maintained at <= 70 degrees centigrade.
	  ○ There are no alarms triggered on module itself.
	  ○ There are no over-temperature alarms triggered on the AresONE 800GE-M chassis itself.
	  ○ The ambient air temperature of the facility where the AresONE 800GE-M chassis is installed is consistently maintained between 20C (68F) to 25C (77F) degrees centigrade.
	• 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	• 30.6" (L) x 17.3" (W) x 3.46" (H) • 778 mm (L) x 440 mm (W) x 88 mm (H)	
Fixed chassis system weights	• Hardware only: 58.4 lbs. (26.5 kg) • Shipping: 113 lbs. (51.5 kg) [1] • [1] Approximate (includes adjustable depth rackmount slides for standard 19", 4-post, network equipment racks, power cords, sync cables, and packaging)	
Fixed chassis system electrical power	• Operates on 100-240 VAC, 50/60 Hz. • 200-240 VAC is single phase. • Requires (3) power sources when running 100-120VAC, 9 Amps for each power supply. AresONE fixed chassis is shipped with (3 each) 100-125 VAC power cords. • Requires (2) power sources when running 200-240 VAC, 7 Amps for each power supply (note, all three supplies must be installed when operating). For 200-240 VAC power cords, order part number 942-0110 from the Ordering Section of this datasheet. The kit is provided at no charge with the purchase of an AresONE fixed chassis when 200-240 VAC is required.	
Temperature (ambient air)	• Operating: 41 °F to 95 °F (5 °C to 35 °C) • Storage: 41 °F to 122 °F (5 °C to 50 °C)	
Humidity (ambient air)	• Operating: 0 % to 85 %, non-condensing • Storage: 0 % to 85 %, non-condensing	

Product description	AresONE 800GE QSFP-DD800-M full performance 2-port / 4-port / 8-port	AresONE 800GE QSFP-DD800-M reduced performance 2-port / 4-port / 8-port
Safety	• EN 62368-1 / IEC 62368-1+A11, BS EN IEC 62368-1+A11 • UL 62368-1 / CSA C22.2 No. 62368-1:19	
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, KS C 9610-3-2, KS C 9610-3-3 • VCCI – CISPR 32 Class A	
Regulatory approvals	• UL (USA, Canada) • CE (Europe) • UKCA (United Kingdom) • RCM (Australia, New Zealand) • KCC (Korea) • VCCI (Japan)	
Environmental	• RoHS Directive 2011/65/EU; Annex II, Directive (EU) 2015/863 • WEEE Directive 2012/19/EU • China RoHS	
Chassis synchronization extendibility		
Maximum number of chassis in single test topology	• Each chassis has built-in star topology synchronization ports to connect to five additional compatible chassis systems • The Metronome Timing System (942-0090) is used for synchronizing a total of six or more chassis at one time. Consult factory for port count requirements beyond five chassis in a single configuration	
Transmit feature specifications		
Transmit engine	Wire-speed packet generation with timestamps, sequence numbers, data integrity, and packet group signatures	
Max. streams per port and 800GE PAM4 speeds	• 1x800GE: 64 (per FPP) • 2x400GE: 64 (per fan-out) • 4x200GE: 64 (per fan-out) • 8x100GE: 32 (per fan-out)	• 1x800GE: 32 (FPP) • 2x400GE: 32 (per fan-out) • 4x200GE: 32 (per fan-out) • 8x100GE: 16 (per fan-out)
Max. streams per port and 400GE PAM4 speeds	• 1x400GE: 256 (per FPP) • 2x200GE: 256 (per fan-out) • 4x100GE: 128 (per fan-out) • 8x50GE: 64 (per fan-out)	• 1x400GE: 128 (per FPP) • 2x200GE: 128 (per fan-out) • 4x100GE: 64 (per fan-out) • 8x50GE: 32 (per fan-out)
Max. Streams per port and 200GE/100GE NRZ speeds	• 1x200GE: 128 (per FPP) • 2x100GE: 128 (per FPP) • 4x50GE: 64 (per fan-out) • 2x40GE: 128 (per FPP) • 78x25GE: 64 (per fan-out) • 8x10GE: 64 (per fan-out)	• 1x200GE: 128 (per FPP) • 2x100GE: 128 (per FPP) • 4x50GE: 32 (per fan-out) • 2x40GE: 64 (per FPP) • 8x25GE: 32 (per fan-out) • 8x10GE: 32 (per fan-out)
Stream controls	• Rate and frame size change on the fly • Advanced stream scheduler support • Optional sequential stream scheduler support (must be ordered as a factory installed option-no field upgrade is available)	

Minimum frame size	• 800GE, 400GE, 200GE and 100GE PAM4 speeds:
	  • 64 bytes at full line rate
	  • 61 bytes at less than full line rate (approximately 90% utilization)
	• 400GE, 200GE, 100GE and 50GE PAM4 speeds:
	  • 64 bytes at full line rate	

Product description	AresONE 800GE QSFP-DD800-M full performance 2-port / 4-port / 8-port	AresONE 800GE QSFP-DD800-M reduced performance 2-port / 4-port / 8-port
	• 60 bytes at less than full line rate • 200GE, 100GE, 50GE, 40GE, 25GE, and 10GE NRZ speeds: 64 bytes at full line rate	
Maximum frame size for 800GE PAM4 speeds	800GE, 400GE, 200GE and 100GE PAM4 speeds: 14,000 bytes	
Maximum frame size 400GE PAM4 and 200GE/100GE and lower NRZ speeds	1x400GE and 2x200GE PAM4: 16,000 bytes 100GE PAM4 and 200GE/100GE NRZ plus below speeds: 14,000 bytes	
Maximum frame size in data center Ethernet	9,216 bytes	
Priority flow control (4:1) for 800GE,400GE PAM4 and 200GE/100GE NRZ 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 14K in 400/200/100GE, uniform, repeatable random, IMIX, and Quad Gaussian	
User-Defined Fields (UDF)	Fixed, increment or decrement by user-defined step, sequence, value list, and random configurations; up to 10, 32-bit-wide UDFs are available	
Value lists (max.) per port for 800GE PAM4 speeds	• 1x800GE: 64K / port /UDF • 2x400GE: 64K / port /UDF • 4x200GE: 32K /port /UDF • 8x100GE: 64K / 4-ports /UDF	
Value lists (max.) per port for 400GE PAM4 speeds	• 1x400GE: 64K /port /UDF • 2x200GE: 32K /port /UDF • 4x100GE: 64K /4 ports /UDF • 8x50GE: 32K /4 ports /UDF	
Value lists (max.) per port for 200GE/100GE and lower NRZ signaling speeds	• 1x200GE: 64K / port /UDF • 1x100GE: 64K /4 ports /UDF • 2x50GE: 32K /4 ports /UDF • 40GE: 64K /4 ports /UDF • 25GE: 16K /4 ports /UDF • 10GE: 16K /4 ports /UDF	
Sequence (max.) for 800GE PAM4 speeds	• 1x800GE: 32K / port /UDF • 2x400GE: 32K /port /UDF • 4x200GE: 32K /port /UDF • 8x100GE: 8K / 4-ports /UDF	
Sequence (max.) for 400GE PAM4 speeds	• 1x400GE: 32K / port /UDF • 2x200GE: 32K / port /UDF • 4x100GE: 8K / port /UDF • 8x50GE: 4K / port /UDF	
Sequence (max.) for 200GE/100GE NRZ and lower signaling speeds	• 1x200GE: 8K / port /UDF • 1x100GE: 8K / port /UDF • 4x50GE: 4K / port /UDF • 2x40GE: 4K / port /UDF • 8x25GE: 4K / port /UDF • 8x10GE: 4K / port /UDF	
Error generation (FEC and standard Keysight L2/3 Ethernet in 800GE PAM4 mode only)	1x800GE, 2x400GE, and 4x200GE FEC: • FEC symbol error-injection allows the user to inject FEC symbol errors using various weighted methods to achieve specific bit error rates (BER) for 800/400/200GE • No FEC error insertion and related statistics for 8x100GE 1x800GE, 2x400GE, 4x200GE, 8x100GE L2/3 Ethernet:	

Product description	AresONE 800GE QSFP-DD800-M full performance 2-port / 4-port / 8-port	AresONE 800GE QSFP-DD800-M reduced performance 2-port / 4-port / 8-port
	• Generate good CRC or force bad CRC, undersize and oversize standard Ethernet frame lengths, and bad checksum	
Error generation (FEC and standard Keysight L2/3 Ethernet in 400GE PAM4 mode only)	400GE and 2x200GE FEC: • FEC symbol error-injection allows the user to inject FEC symbol errors using various weighted methods to achieve specific bit error rates (BER) for 400/200GE • No FEC error insertion and related statistics for 4x100GE and 8x50GE	
Error generation (FEC and standard Keysight L2/3 Ethernet in 200GE/100GE NRZ mode only)	• FEC error injection is supported on 200GE NRZ speed • No FEC error insertion for 100GE and all lower NRZ speeds • Generate good CRC or force bad CRC, undersize and oversize standard Ethernet frame lengths, and bad checksum	
Physical coding sublayer for 800GE and 400GE PAM4 Ethernet speeds	800GE: 2x400GE and 4x200GE, and 400GE: 1x400GE and 2x200GE • PCS Transmit lane marker re-mapping • PCS lane skew insertion	
Physical coding sublayer for 100GE NRZ Ethernet speeds	100GE: 1x100GE and 1x40GE • PCS Transmit lane marker re-mapping	
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 800GE and 400GE PAM4 Ethernet speeds	• 800GE and 400GE: 0.625 ns • 200GE: 1.25 ns • 100GE and 50GE: 2.5 ns	
Latency measurement resolution for 200GE/100GE and lower NRZ Ethernet speeds	• 2.5 nanoseconds for all NRZ speeds	
Intrinsic latency compensation	Removes inherent latency error from the port electronics for all speeds	
Transmit line clock adjustment	• Ability to adjust the parts-per-million (ppm) line frequency: +/- 105 ppm on all the ports of the fixed chassis system for all speeds • Ability to adjust the clock ppm over a range of +/- 105 ppm in the BERT mode on a per lane basis	
Transmit/receive loopback	Internal loopback	
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 800GE PAM4 Ethernet speeds	• 800GE, 400GE, 200GE: 32K full statistics • 100GE: 4K full statistics and 32K with minimum statistics	
Trackable receive flows per port with and without Sequence checking and no Tx/RX synch for 800GE PAM4 Ethernet speeds	• 800GE, 400GE, 200GE: 32K full statistics • 100GE: 8K full statistics and 32K with minimum statistics	
Trackable receive flows per port with and without Sequence Checking with Tx/Rx Synch for 400GE PAM4 and 200GE/100GE and lower NRZ Ethernet speeds	• 400GE and 200GE: 32K full statistics • 100GE: 4K full statistics and 32K with minimum statistics • 50GE, 40GE, 25GE, 10GE: 4K full statistics and 16K with minimum statistics	

Product description	AresONE 800GE QSFP-DD800-M full performance 2-port / 4-port / 8-port	AresONE 800GE QSFP-DD800-M reduced performance 2-port / 4-port / 8-port
Trackable receive flows per port with and without Sequence Checking and no Tx/RX Synch for 400GE PAM4 and 200GE/100GE and lower NRZ Ethernet speeds	• 400GE and 200GE: 32K full statistics • 100GE: 4K full statistics and 32K with minimum statistics • 50GE, 40GE, 25GE, 10GE: 8K full statistics and 16K with minimum statistics	
Minimum frame size for all speeds	64 Bytes	
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 per front panel QSFP-DD800 port and for 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 800GE and 400GE PAM4 Ethernet Speeds	800GE and 400GE PAM4 and 200GE NRZ 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	
FEC Statistics 200GE/100GE and lower NRZ Ethernet speeds	100GE NRZ speeds: 100GE FEC statistics: RS-FEC Corrected and uncorrectable codewords 50GE and 25GE FEC statistics: • RS-FEC corrected and uncorrected codeword count • FC-FEC corrected and uncorrected block count • FC-FEC corrected error bits	
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 800GE and 400GE PAM4 Ethernet speeds and the 200GE NRZ speed	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 option	Advanced Rx Eye Histogram Analysis Option provides in-depth, user-selected, per lane PAM4 signal shape analysis, SER statistics, comparison of signal quality between lanes and an array of eye measurements. This version of the feature is only for the AresONE 800GE-C and AresONE 800GE-M platforms. Support of this feature REQUIRES the purchase of the 905-1107 Factory Installed option, or the 905-1108 Field Upgrade option.	
IxNetwork protocol emulation solution bundles		
The protocol solution bundles shown below are available on all AresONE 800GE-M fixed chassis systems.	Each bundle has a specific set of protocols that are supported. The performance and scale of each of the protocols within each bundle is determined by the performance level of the actual AresONE 800GE-M chassis hardware model where the software bundle is installed. There are two levels of protocol scale and performance: • Full Performance and Reduced Performance ◦ The Full performance hardware chassis models provide the maximum number of routing or access sessions, or other performance parameters that the chassis hardware can provide. ◦ The Reduced Performance hardware chassis models provide a limited number of routing protocol sessions or access session connections per port: 100 routing sessions per protocol and 2000 access sessions connections that apply to all the IxNetwork protocol bundles and the protocols within each bundle. Please contact your Keysight Sales representative for specific performance and scale information for Full Performance models.	
Basic	Ethernet/VLAN, IPv4/IPv6, RFC2544/2889/3918 QuickTest	

Product description	AresONE 800GE QSFP-DD800-M full performance 2-port / 4-port / 8-port	AresONE 800GE QSFP-DD800-M reduced performance 2-port / 4-port / 8-port
Routing, Switching and Carrier Ethernet	BGP4/BGP4+, OSPFv2/v3, ISISv4/v6, RIP/RIPng, EIGRP, BFD, IGMP/MLD, PIM-SM/SSM, STP/RSTP/MSTP/PVST, LACP/Protocol over LACP, GRE and Protocol over GRE, LISP, CFM/Y.1731, Link-OAM, PBB-TE, ELMI, 1588v2/SyncE ESMC, Y.1564QT, TWAMP, NTP, RFC7747 BGP Convergence QT	
MPLS and VPN	BGP4/BGP4+, OSPFv2/v3, ISISv4/v6, RIP/RIPng, BFD, RSVP-TE P2P/P2MP, LDP/LDPv6/mLDP, LDP L2VPN (PWE/VPLS), BGP VPLS/VPWS, L3VPN/6VPE, BGP RFC3107, PIM-SM/SSM, Multicast VPN, MPLS-TP, MPLS OAM, EVPN/PBB-EVPN, LACP/Protocol over LACP, GRE and Protocol over GRE	
Software Defined Network and 5G	BGP4/BGP4+, OSPFv2/v3, ISISv4/v6, RIP/RIPng, BFD, Segment Routing (MPLS and IPv6), ISIS/OSPF Flex-Algo, BGP-LS, PCEP, BGP SR-TE Policy, BGP FlowSpec, OVSDB, Netconf, BIER, OpenFlow, EVPN, VXLAN, GENEVE, GRE and Protocol over GRE, LACP/Protocol over LACP, eCPRI, gRIBI, SRv6 OAM, TWAMP-Light, Path Tracing, O-RAN CU message, nFAPI	
Data Center	BGP4/BGP4+, OSPFv2/v3, ISISv4/v6, RIP/RIPng, BFD; EVPN, VXLAN, GENEVE, OVSDB, DCBX, FCoE, Fabric Path, SPBM, TRILL, FCoE QT, LACP/Protocol over LACP	
Broadband and Authentication	PPPoX/L2TPv2, DHCPv4/DHCPv6, ANCP, IGMP/MLD, IPv6 Autoconfiguration (SLAAC), 802.1x, GRE/Protocol over GRE, LACP/Protocol over LACP, Session Aware Traffic, Service over MPLS, Broadband Control Plane QT, Asymmetric Data Performance QT	
L2 Security	MACsec (Static MACsec)	
RoCEv2	RoCEv2 initiator and responder, CNP and DCQCN	

Application Support

AresONE-M 800GE full and reduced performance models
IxExplorer: Layer 1-3 wire-speed traffic generation, capture, and analysis with Forward Error Correction and error injection with statistics, PCS Lanes Tx/Rx with statistics and reporting capability.
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.
IxTcl API: Custom user script development for Layer 1–3 testing using the IxExplorer features

Ordering Information

Part number	Description
AresONE 800GE with optics, AOC, AEC, and passive DAC interconnect support 4-port hardware chassis and 2-port enabled 4-port hardware chassis	
944-1423	Ixia AresONE 800GE-2P-QDD-M, 2-port, full performance fixed chassis model with native QSFP-DD800 800GE (PAM4) physical interfaces, L1-3, optical transceiver, and copper DAC support (944-1423). Includes installation of the latest production released version of the IxOS software. Includes these default Ethernet speeds per port: 2x400GE, 4x200GE, 8x100GE based on 106.25 Gb/s electrical lanes and these Ethernet speeds 1x400GE, 2x200GE, 4x100GE, and 8x50GE based on 53.125 Gb/s electrical lanes. Includes 3 each 100-125VAC power cords for North American operation, for 200-240VAC operation, order at no charge, the AresONE 200-240VAC Power Cord Option Kit for all AresONE fixed chassis models (942-0110). For 1x800GE speed support, see the factory installed or field upgrade purchasable options (905-1070, or 905-1071).
944-1424	Ixia, AresONE 800GER-2P-QDD-M, 2-port, reduced performance fixed chassis model with native QSFP-DD800 800GE (PAM4) physical interfaces, L1-3, optical transceiver, and copper DAC support (944-1424). Includes installation of the latest production released version of the IxOS software. Includes these default Ethernet speeds per port: 2x400GE, 4x200GE, 8x100GE based on 106.25 Gb/s electrical lanes and these Ethernet speeds 1x400GE, 2x200GE, 4x100GE, and 8x50GE based on 53.125 Gb/s electrical lanes. Includes 3 each 100-125VAC power cords for North American operation, for 200-240VAC operation, order at no charge, the AresONE 200-240VAC Power Cord Option Kit for all AresONE fixed chassis models (942-0110). For 1x800GE speed support, see the factory installed or field upgrade purchasable options (905-1070, or 905-1071).
944-1425	Ixia, AresONE 800GE-4P-QDD-M, 4-port, full performance fixed chassis model with native QSFP-DD800 800GE (PAM4) physical interfaces, L1-3, optical transceiver, and copper DAC support (944-1425). Includes installation of the latest production released version of the IxOS software. Includes these default Ethernet speeds per port: 2x400GE, 4x200GE, 8x100GE based on 106.25 Gb/s electrical lanes and these Ethernet speeds 1x400GE, 2x200GE, 4x100GE, and 8x50GE based on 53.125 Gb/s electrical lanes. Includes 3 each 100-125VAC power cords for North American operation, for 200-240VAC operation, order at no charge, the AresONE 200-240VAC Power Cord Option Kit for all AresONE fixed chassis models (942-0110). For 1x800GE speed support, see the factory installed or field upgrade purchasable options (905-1070, or 905-1071).
944-1426	Ixia, AresONE 800GER-4P-QDD-M, 4-port, reduced performance fixed chassis model with native QSFP-DD800 800GE (PAM4) physical interfaces, L1-3, optical transceiver, and copper DAC support (944-1426). Includes installation of the latest production released version of the IxOS software. Includes these default Ethernet speeds per port: 2x400GE, 4x200GE, 8x100GE based on 106.25 Gb/s electrical lanes and these Ethernet speeds 1x400GE, 2x200GE, 4x100GE, and 8x50GE based on 53.125 Gb/s electrical lanes. Includes 3 each 100-125VAC power cords for North American operation, for 200-240VAC operation, order at no charge, the AresONE 200-240VAC Power Cord Option Kit for all AresONE fixed chassis models (942-0110). For 1x800GE speed support, see the factory installed or field upgrade purchasable options (905-1070, or 905-1071).
AresONE 800GE with optics, AOC, AEC, and passive DAC interconnect support 8-port hardware chassis and 4-port enabled 8-port hardware chassis	
944-1429	Ixia, AresONE 800GE-8PHW-4P-QDD-M, 4-port, full performance fixed chassis model with native QSFP-DD800 800GE (PAM4) physical interfaces, L1-3, optical transceiver, and copper DAC support (944-1429). Includes installation of the latest production released version of the IxOS software. Includes these default Ethernet speeds per port: 2x400GE, 4x200GE, 8x100GE based on 106.25 Gb/s electrical lanes and these Ethernet speeds 1x400GE, 2x200GE, 4x100GE, and 8x50GE based on 53.125 Gb/s electrical lanes. Includes 3 each 100-125VAC power cords for North American operation, for 200-240VAC operation, order at no charge, the AresONE 200-240VAC Power Cord Option Kit for all AresONE fixed chassis models (942-0110). For 1x800GE speed support, see the factory installed or field upgrade purchasable options (905-1070, or 905-1071).
944-1430	Ixia, AresONE 800GER-8PHW-4P-QDD-M, 4-port, reduced performance fixed chassis model with native QSFP-DD800 800GE (PAM4) physical interfaces, L1-3, optical transceiver, and copper DAC support (944-1430). Includes installation of the latest production released version of the IxOS software. Includes these default Ethernet speeds per port: 2x400GE, 4x200GE, 8x100GE based on 106.25 Gb/s electrical lanes and these Ethernet speeds 1x400GE, 2x200GE, 4x100GE, and 8x50GE based on 53.125 Gb/s electrical lanes. Includes 3 each 100-125VAC power cords for North American operation, for 200-240VAC operation, order at no charge, the AresONE 200-240VAC Power Cord Option Kit for all AresONE fixed chassis models (942-0110). For 1x800GE speed support, see the factory installed or field upgrade purchasable options (905-1070, or 905-1071).
944-1427	Ixia, AresONE 800GE-8P-QDD-M, High Density, 8-port, full performance fixed chassis model with native QSFP-DD800 800GE (PAM4) physical interfaces, L1-3, optical transceiver, and copper DAC support (944-1427). Includes installation of the latest production released version of the IxOS software. Includes these default Ethernet speeds per port: 2x400GE, 4x200GE, 8x100GE based on 106.25 Gb/s electrical lanes and these Ethernet speeds 1x400GE, 2x200GE, 4x100GE, and 8x50GE based on 53.125 Gb/s electrical lanes. Includes 3 each 100-125VAC power cords for North American operation, for 200-240VAC operation, order at no charge, the AresONE 200-240VAC Power Cord Option Kit for all AresONE fixed chassis models (942-0110). For 1x800GE speed support, see the factory installed or field upgrade purchasable options (905-1070, or 905-1071).

Part number	Description
944-1428	Ixia, AresONE 800GER-8P-QDD-M, High Density, 8-port, reduced performance fixed chassis model with native QSFP-DD800 800GE (PAM4) physical interfaces, L1-3, optical transceiver, and copper DAC support (944-1428). Includes installation of the latest production released version of the IxOS software. Includes these default Ethernet speeds per port: 2x400GE, 4x200GE, 8x100GE based on 106.25 Gb/s electrical lanes and these Ethernet speeds 1x400GE, 2x200GE, 4x100GE, and 8x50GE based on 53.125 Gb/s electrical lanes. Includes 3 each 100-125VAC power cords for North American operation, for 200-240VAC operation, order at no charge, the AresONE 200-240VAC Power Cord Option Kit for all AresONE fixed chassis models (942-0110). For 1x800GE speed support, see the factory installed or field upgrade purchasable options (905-1070, or 905-1071).
200-240VAC power cord option kit	
942-0110	Keysight, AresONE 200-240VAC Power Cord Option Kit includes 2 each C13 to 6-20P, 8 feet in length, and 2 each C13 to L6-20P, 10 feet in length. Two cord types are provided that accommodate the most common 200-240VAC power receptacle types. Two of either cord type, are required to power any of the AresONE fixed chassis. These power cords are compatible with all AresONE 400GE and 800GE fixed chassis systems. The kit is optional and is sold at no charge. It is REQUIRED only when a AresONE fixed chassis must be connected to 200-240VAC single phase power sources. Note: Requires (2) power sources when running single phase 200-240VAC drawing 7 Amps for each power supply.
1x800GE speed options	
905-1070	Ixia, UPG-800GE-SPD-F, 1x800GE speed mode option, FACTORY INSTALLED, for all AresONE 800GE and AresONE 800GER chassis, full or reduced performance models, including all AresONE 800GE models with a -C, or -M in the model name.
905-1071	Ixia, UPG-800GE-SPD-FLD, 1x800GE speed mode option, FIELD UPGRADE, for all AresONE 800GE and AresONE 800GER chassis, full or reduced performance models, including all AresONE 800GE models with a -C, or -M in the model name. The upgrade does not change the preexisting installed default speeds of 2x400GE, 4x200GE and 8x100GE.
100GE NRZ speed options	
905-1109	Keysight, NRZ Ethernet mode and fan-out option, FACTORY INSTALLED option for AresONE 800GE QSFP-DD800-M, OSFP800-M and Dual Interface Model-M chassis (905-1109). This option adds the 1x200GE, 2x100GE, 4x50GE, and 8x25GE based on based on 26Gb/s electrical lanes and 2x40GE and 8x10GE based on 10Gb/s electrical lanes with NRZ encoding. This option supports optical transceivers, active and passive optical and copper interconnects.
905-1110	Keysight, NRZ Ethernet mode and fan-out option, FIELD UPGRADE option for AresONE 800GE QSFP-DD800-M, OSFP800-M NRZ and Dual Interface Model-M chassis (905-1110). This option adds the 1x200GE, 2x100GE, 4x50GE, and 8x25GE based on based on 26Gb/s electrical lanes and 2x40GE and 8x10GE based on 10Gb/s electrical lanes with NRZ encoding. This option supports optical transceivers, active and passive optical and copper interconnects.
Port upgrades	
905-1072	Ixia, UPG-2P-QDD-OSFP-C-M FIELD UPGRADE for the AresONE 800GE-2P-QDD (944-1190), 800GER-2P-QDD (944-1191), and all AresONE 2-port models with QDD-C, QDD-M, OSFP-C, and OSFP-M in the model name, full and reduced performance chassis with 2 additional ports. The upgrade does not change the preexisting installed defaults speeds of 2x400GE, 4x200GE, 8x100GE, 1x400GE, 2x200GE, 4x100GE and 8x50GE. It supports the 1x800GE speed option when previously installed on the chassis.
905-1104	Ixia, UPG-4P-QDD-OSFP-C-M FIELD UPGRADE for all the AresONE 800GE-8PHW-4P chassis models with QDD-C, QDD-M, OSFP-C, and OSFP-M in the model name, full and reduced performance chassis with 4 additional ports. The upgrade does not change the preexisting installed defaults speeds of 2x400GE, 4x200GE, 8x100GE, 1x400GE, 2x200GE, 4x100GE and 8x50GE. It supports the 1x800GE speed option when previously installed on the chassis.
AresONE QSFP-DD800 to AresONE-C QSFP-DD800 chassis upgrades	
942-1400	Ixia, UPG-800GE-DAC-PHY, passive copper DAC HW support. RETURN to FACTORY UPGRADE for AresONE 800GE chassis (942-1400). The upgrade is for 944-1190, 944-1191, 944-1192, and 944-1193 AresONE 800GE fixed chassis only. This is a return-to-factory hardware upgrade where the chassis existing front panel electronics are replaced by new, enhanced, front panel electronics. The upgrade provides support for optical transceivers, active electrical cables (AEC), active optical cables (AOC), and passive copper cables (DAC). Refer to the product datasheet for additional information for support of interconnects. NOTE: It is mandatory to provide the serial number of the unit to be upgraded at the time of order placement. Ixia, UPG-800GE-DAC-PHY, passive copper DAC HW support. RETURN to FACTORY UPGRADE for AresONE 800GE chassis (942-1400). The upgrade is for 944-1190, 944-1191, 944-1192, and 944-1193 AresONE 800GE fixed chassis only. This is a return-to-factory hardware upgrade where the chassis existing front panel electronics are replaced by new, enhanced, front panel electronics. The upgrade provides support for optical transceivers, active electrical cables (AEC), active optical cables (AOC), and passive copper cables (DAC). Refer to the product datasheet for additional information for support of interconnects. NOTE: It is mandatory to provide the serial number of the unit to be upgraded at the time of order placement. Note2: The unit that is targeted for the upgrade must be returned to Keysight using the standard RMA process through the Keysight Ixia Support organization as a Return and Repair RMA.

Part number	Description
AresONE-C QSFP-DD800 to AresONE-M QSFP-DD800 chassis upgrades	
942-1406	Ixia, UPG-800GE-QSFP-DD800-C-to-M chassis, RETURN TO FACTORY CHASSIS UPGRADE (942-1406). Adds new 8-port hardware with multiple electrical lane speed capability. Converts 8-port AresONE 800GE QSFP-DD800-C chassis to become an AresONE 800GE QSFP800-DD-M chassis, to support 400GE PAM4 1x400GE, 2x200GE, 4x100GE, and 8x50GE Ethernet speeds. And enables the purchased options for the 100GE NRZ 1x200GE, 2x100GE, 1x100GE, 4x50GE, 2x50GE, 4x25GE, and 8x25GE Ethernet speeds, to be added, reference (905-1109) Factory Upgrade, or (905-1110) Field Upgrade. Note: Include the serial number of the chassis to be upgraded on the quotation. We recommend that the purchase order for this option also include the serial number of the chassis to be upgraded.
942-1408	Ixia, UPG-800GE-QSFP-DD800-C-to-M chassis, RETURN TO FACTORY CHASSIS UPGRADE (942-1408). Adds new 4-port hardware with multiple electrical lane speed capability. Converts 4-port AresONE 800GE QSFP-DD800-C chassis to become an AresONE 800GE QSFP800-DD-M chassis, to support 400GE PAM4 1x400GE, 2x200GE, 4x100GE, and 8x50GE Ethernet speeds. And enables the purchased options for the 100GE NRZ 1x200GE, 2x100GE, 1x100GE, 4x50GE, 2x50GE, 4x25GE, and 8x25GE Ethernet speeds, to be added, reference (905-1109) Factory Upgrade, or (905-1110) Field Upgrade. Note: Include the serial number of the chassis to be upgraded on the quotation. We recommend that the purchase order for this option also include the serial number of the chassis to be upgraded.
Advanced Rx Histogram options	
905-1107	Keysight, Advanced Rx Eye Histogram option, FACTORY installed for AresONE 800GE QSFP-DD800-C/-M, OSFP800-C/-M and Dual Interface Model 800GE-M fixed chassis. This option is for 106Gb/s and 53Gb/s electrical lane interfaces on AresONE 800GE-M chassis and only for 106Gb/s electrical interfaces on AresONE 800GE-C chassis (905-1107).
905-1108	Keysight, Advanced Rx Eye Histogram option, FIELD UPGRADE for AresONE 800GE QSFP-DD800-C/-M, OSFP800-C/-M and Dual Interface Model 800GE-M fixed chassis. This option is for 106Gb/s and 53Gb/s electrical lane interfaces on AresONE 800GE-M chassis and only for 106Gb/s electrical interfaces on AresONE 800GE-C chassis (905-1108).
Sequential scheduler option	
905-1047	Ixia, Sequential Traffic Scheduler option, FACTORY INSTALLED ONLY. For all AresONE 400GE, AresONE-S 400GE and AresONE 800GE fixed chassis models. REQUIRES NTS Product Management approval to be quoted under NPI and provided to a customer. Note 1: The minimum software for this support on AresONE 400GE chassis is IxOS 8.52 EA. The minimum software support on AresONE-S chassis is IxOS 9.16. Note 2: The minimum software support on AresONE 800GE is IxOS 9.21. Note 3: This option applies to all ports on the fixed chassis. Note 4: This feature is included with the AresONE High Performance chassis model (944-1178). Note 5: In the event this option is required to be added to an existing unit in the field, the unit must be returned to the factory to be installed.
905-1069	Keysight, Sequential Traffic Scheduler option, FIELD UPGRADE. For all AresONE 400GE, AresONE-S 400GE and AresONE 800GE fixed chassis models (905-1069). REQUIRES NTS Product Management approval to be quoted under NPI and provided to a customer. Note1: The minimum software for this support on AresONE 400GE chassis is IxOS 9.39 EA. The minimum software support on AresONE-S chassis is IxOS 9.39. Note2: The minimum software support on AresONE 800GE is IxOS 9.39. Note3: This option applies to all ports on the fixed chassis. Note4: This feature is included with the AresONE High Performance chassis models (944-1178 and 944-1179).
Multiple AresONE/AresONE-S timing and synchronization chassis	
942-0090	IXIA, 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 and Novus ONE PLUS fixed chassis. Note: The Metronome chassis is used when more than 5 AresONE chassis of any model version must be time synchronized.

Part number	Description
QSFP-DD800 800GE optical transceivers	
QSFPDD800-DR8-XCVR	Keysight, QSFPDD800-DR8-XCVR, 800GBASE-DR8, Single Mode Fiber, 500-meter reach with FEC, 1310nm center wavelength, 100G Lambda, optical transceiver (948-0068). CMIS 4.0 or higher version compliant. Compatible with Ixia cables: QSFPDD800-DR8-CBL MPO16 APC-APC, SMF, 3-meter and QSFPDD800-DR8-FO-CBL, fan-out, MPO16, APC-UPC, SMF, MPO16-to-8x100GE LC, 3-meter. This transceiver is compatible with all models of AresONE 800GE QSFP-DD800-C, QSFP-DD800-C, QSFP-DD800-M and QSFP-DD800-M fixed chassis. It is compatible with all models of the G800GE QSFP-DD800 and QSFP-DD800-COAX and G800GE-02 QSFP-DD800 and QSFP-DD800-COAX chassis.
QSFPDD800-2XFR4-XCVR	Keysight, QSFPDD800-2XFR4-XCVR 2x400GE pluggable optical transceiver, SMF (single mode) 4 lambdas per port, Dual duplex LC connector, 2km reach (948-0092). This optical transceiver is compatible with AresONE 800GE-M QSFPDD800 and AresONE 800GE Dual Interface Model-M fixed chassis models. It supports 2x400GE PAM4 signaling output.
QSFP-DD800 800GE optical transceiver fiber point-to-point cable	
QSFPDD800-DR8-CBL	Ixia, QSFPDD800-DR8-CBL, point-to-point, MPO16, APC-APC, Single Mode Fiber (SMF) cable, 2-meter length (942-0144) for QSFPDD-DR8 800GE optical transceiver, part number QSFPDD800-DR8-XCVR.
QSFP-DD800 optical transceiver fan-out cable	
QSFPDD800-DR8-FO-CBL	Ixia, QSFPDD800-DR8-FO-CBL, fan-out, MPO16, APC-UPC, Single Mode Fiber (SMF) cable, MPO16-to-8x100GE LC, 2-meter length (942-0145) for QSFPDD-DR8 800GE optical transceiver, part number QSFPDD800-DR8-XCVR.
QSFP-DD800 Passive copper Direct Attached Cable (DAC)	
QSFPDD800-1M-CBL	Keysight, QSFPDD800-1M-CBL 800GE 800GBASE-R passive copper, Direct Attach Cable, 28 AWG, 1-meter length (942-0153). This copper DAC is a single point-to-point cable and is compatible with all models of AresONE 800GE QSFP-DD800-C, QSFP-DD800-C, QSFP-DD800-M and QSFP-DD800-M fixed chassis. It is compatible with all models of the G800GE-02 QSFP-DD800 and QSFP-DD800-COAX chassis.
QSFPDD800-1-5M-CBL	QSFPDD800-1-5M-CBL 800GE 800GBASE-R passive copper, Direct Attach Cable, 32 AWG, 1.5-meter length (942-0175). This copper DAC is a single point-to-point cable and is compatible with all models of AresONE 800GE-C and -M fixed chassis models, and G800GE-02 QSFP-DD800 and QSFP-DD800-COAX chassis models.
QSFPDD800-2M-CBL	Keysight, QSFPDD800-2M-CBL 800GE 800GBASE-R passive copper, Direct Attach Cable (DAC), 26 AWG, 2-meter length (942-0163). This passive copper DAC is a single point-to-point cable and is compatible with all AresONE 800GE QSFP-DD800-M, fixed chassis models.
Passive copper conversion Direct Attached Cables (DAC) – OSFP800-to-QSFP-DD800	
Q800G-O800G-1M-CBL	Keysight, QSFPDD800-to-OSFP800-CBL 800GE 800GBASE-R passive copper, conversion Direct Attach Cable (DAC), 26 AWG, 1-meter length (942-0155). This copper conversion DAC is a single point-to-point cable and is compatible with all AresONE 800GE QSFP-DD800-C, AresONE 800GE QSFP-DD800-M, AresONE 800GE OSFP800-C, AresONE 800GE OSFP800-M fixed chassis models.
Q800G-O800G-1-5M-CBL	Keysight, QSFPDD800-to-OSFP800-CBL 800GE 800GBASE-R passive copper, conversion Direct Attach Cable (DAC), 26 AWG, 1.5-meter length (942-0156). This copper conversion DAC is a single point-to-point cable and is compatible with all AresONE 800GE QSFP-DD800-C, AresONE 800GE QSFP-DD800-M, AresONE 800GE OSFP800-C, AresONE 800GE OSFP800-M fixed chassis models.
Q800G-O800G-2M-CBL	Keysight, QSFPDD800-to-OSFP800-CBL 800GE 800GBASE-R passive copper, conversion Direct Attach Cable (DAC), 26 AWG, 2-meter length (942-0162). This copper conversion DAC is a single point-to-point cable and is compatible with all AresONE 800GE QSFP-DD800-M, and AresONE 800GE OSFP800-M fixed chassis models.
Passive copper Direct Attached Cables (DAC) for physical fan-out	
QSFP800-2XQSFP15-CBL	QSFP800-2XQSFP15-CBL, 800GE 800GBASE-R passive copper, Direct Attach Cable (DAC) for fan-out applications with QSFP-DD front panel form factor ports, 26 AWG, 1.5-meter length. Supports 2x400GE fan-out applications over 106G/bs electrical lanes (942-0172). Note: This cable is compatible with all AresONE 800GE-M 800GE test systems
QSFP800-2XQSFP20-CBL	QSFP800-2XQSFP20-CBL, 800GE 800GBASE-R passive copper, Direct Attach Cable (DAC) for fan-out applications with QSFP-DD front panel form factor ports, 26 AWG, 2-meter length. Supports 2x400GE fan-out applications over 106G/bs electrical lanes (942-0171). Note: This cable is compatible with all AresONE 800GE-M 800GE test systems.
QSFP800-4XQSFP15-CBL	QSFP800-4XQSFP15-CBL, 800GE 800GBASE-R passive copper, Direct Attach Cable (DAC) for fan-out applications with QSFP-DD front panel form factor ports, 26 AWG, 1.5-meter length. Supports 4x200GE fan-out applications over 106G/bs electrical lanes (942-0174). Note: This cable is compatible with all AresONE 800GE-M 800GE test systems.
QSFP800-4XQSFP20-CBL	QSFP800-4XQSFP20-CBL, 800GE 800GBASE-R passive copper, Direct Attach Cable (DAC) for fan-out applications with QSFP-DD front panel form factor ports, 26 AWG, 2-meter length. Supports 4x200GE fan-out applications over 106G/bs electrical lanes (942-0173). Note: This cable is compatible with all AresONE 800GE-M 800GE test systems.
QSFP800-8XQSFP15-CBL	QSFP800-8XQSFP15-CBL, 800GE 800GBASE-R passive copper, Direct Attach Cable (DAC) for fan-out applications with QSFP-DD front panel form factor ports, 26 AWG, 1.5-meter length. Supports 8x100GE fan-out applications over 106G/bs electrical lanes (942-0177). Note: This cable is compatible with all AresONE 800GE-M 800GE test systems.
QSFP800-8XQSFP20-CBL	QSFP800-8XQSFP20-CBL, 800GE 800GBASE-R passive copper, Direct Attach Cable (DAC) for fan-out applications with QSFP-DD front panel form factor ports, 26 AWG, 2-meter length. Supports 8x100GE fan-out applications over 106G/bs electrical lanes (942-0176). Note: This cable is compatible with all AresONE 800GE-M 800GE test systems.

Part number	Description
IxNetwork AresONE only — software bundle options*	
930-2200	Ixia IxNetwork, node-locked perpetual license, All Inclusive package for AresONE. Supports all IxNetwork software features with exclusion; Excludes: 930-3461 IxNetwork AppLibrary Slot Bundle, Layer 4-7 Performance Test Application; 930-2207 IxNetwork Encryption test package for AresONE. Any optional script package or IxSuiteStore optional test suite is not considered as part of IxNetwork software features
930-2201	Ixia IxNetwork, node-locked perpetual license, Basic package for AresONE. INCLUDES: IxNetwork Base, RFC2544/2889/3918 QuickTest.
930-2202	Ixia IxNetwork, node-locked perpetual license, Routing, Switching and Carrier Ethernet package for AresONE; INCLUDES: Routing, Switching and Carrier Ethernet Protocols; REQUIRES: 930-2201 IxNetwork Basic package for AresONE.
930-2202	Ixia IxNetwork, node-locked perpetual license, Routing, Switching and Carrier Ethernet package for AresONE; INCLUDES: Routing, Switching and Carrier Ethernet Protocols; REQUIRES: 930-2201 IxNetwork Basic package for AresONE.
930-2203	Ixia IxNetwork node-locked perpetual license, MPLS and VPN package for AresONE; INCLUDES: Routing, MPLS and VPN Protocols; REQUIRES: 930-2201 IxNetwork Basic package for AresONE.
930-2204	Ixia IxNetwork node-locked perpetual license, SDN package for AresONE; INCLUDES: Routing and SDN Protocols; REQUIRES: 930-2201 IxNetwork Basic package for AresONE.
930-2205	Ixia IxNetwork node-locked perpetual license, Data Center package for AresONE; INCLUDES: Routing, Data Center Overlay and Data Center Ethernet Protocols; REQUIRES: 930-2201 IxNetwork Basic package for AresONE.
930-2206	Ixia IxNetwork node-locked perpetual license, Broadband Access and Authentication package for AresONE; INCLUDES: Broadband Access and Authentication Protocols; REQUIRES: 930-2201 IxNetwork Basic package for AresONE.
930-2207	IXIA IxNetwork, node-locked perpetual license, Encryption Test package for AresONE (930-2207); INCLUDES: MACsec Emulation; REQUIRES: 930-2201 IxNetwork Basic package for AresONE; Recommend with: 930-3461 IxNetwork AppLibrary Slot Bundle, Optional Software, Layer 4-7 Performance Test Application for additional encryption/decryption capability in Static MACsec emulation.
930-2208	Keysight IxNetwork RoCEv2 Lossless Ethernet Test Package for AresONE-S 400GE and AresONE-M 800GE fixed chassis models
*Note:	All the IxNetwork 930-22xx part numbers shown in the table above have a specific set of protocols that are supported within each part number bundle. The performance and scale of each of the protocols within each bundle is determined by the performance level of the actual AresONE 400GE or 800GE chassis hardware model where the software bundle is installed. There are two levels of protocol scale and performance: • Full Performance and Reduced Performance. ◦ The Full performance hardware chassis models provide the maximum number of routing or access sessions, or other performance parameters that the chassis hardware can provide. ◦ The Reduced Performance hardware chassis models provide a limited number of routing protocol sessions or access session connections per port: 100 routing sessions per protocol and 2000 access sessions connections that apply to all the IxNetwork 22xx protocol bundle part numbers and the protocols within each bundle. Please contact your Keysight Sales representative for specific performance and scale information for Full Performance models.

More information

https://www.keysight.com/us/en/products/network-test/network-test-hardware/aresone-800ge.html