TELEDYNE LECROY
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Z10r Odin

10Gbps Ethernet traffic generator with 6 RJ45 ports

Key Features

- Multiple speeds: 10GE, 5GE, 2.5GE, 1GE & 100MB
- Advanced architecture
- Ease of use

The Z10r Odin is a wire-speed 6 port 10GBASE-T/5GBASE-T/2.5GBASE-T/1000BASE-T/100BASE-TX Ethernet test module

The Z10r Odin is a 5-speed Ethernet traffic generator with 6 RJ45 ports that can test all Ethernet speeds up to 10Gbps.

It comes complete with the free XenaManager software - an easy-to-use GUI for handling both routine and advanced test schedules. Also included is Xena OpenAutomation (XOA), an open- source test automation framework featuring a Python API that runs on any OS. Fast, easy to use and extremely flexible, XOA can quickly create tailored tests, as well as run standardized test methodologies like RFC2544, Y.1564, RFC3918 and RFC2889.

The test module is available for the 4U 12-slot Xena B720/2400 chassis and the robust transportable 1U XenaCompact chassis.

Find out more here:

PORT LEVEL FEATURES	
Interface category	100 / 1000 / 2500 / 5000 / 10000M Ethernet
Total number of test ports (software configurable)	6 x 100 / 1000 / 2500 / 5000 / 10000M
Interface options	10GBASE-T (IEEE 802.3an)/ 5GBASE-T (IEEE 802.3bz)/ 2.5GBASE-T (IEEE 802.3bz)/ 1000BASE-T (IEEE 802.3ab) / 100BASE-T (IEEE 802.3u)
Interface Characteristics	10GBASE-T operating at 300ft (100m) over CAT6a and CAT7 UTP cable. 5GBASE-T operating on standard Category 6 UTP cable. 2.5GBASE-T, 1000BASE-T and 100BASE-T operating on standard Category 5e UTP cable.
Port statistics	• Link state, FCS errors, pause frames, ARP/PING, error injections, training packet • All traffic: RX and TX Mbit/s, packets/s, packets, bytes • Traffic w/o test payload: RX and TX Mbit/s, packets/s, packets, bytes
Adjustable Inter FrameGap (IFG)	Configurable from 16 to 56 bytes, default is 20B (12B IFG + 8B preamble)
Transmit line rate adjustment	Ability to adjust the effective line rate by forcing idle gaps equivalent to -1000 ppm (increments of 10 ppm)
Transmit line clock adjustment	From -50 to 50 ppm in steps of 0.001 ppm (shared across all ports)
ARP/PING	Supported (configurable IP and MAC address per port)
Field upgradeable	System is fully field upgradeable to product releases (FPGA images and Software)
Tx disable	Enable/disable of copper link
IGMPv2 multicast join/leave	IGMPv2 continuous multicast join, with configurable repeat interval
Histogram statistics 1)	Two real-time histograms per port. Each histogram can measure one of RX/TX packet length, IFG, or latency distribution for all traffic, a specific stream, or a filter
Oscillator characteristics	• Z10r Odin: • Initial Accuracy is 3 ppm • Frequency drift over 1st year: ± 3 ppm (over 15 years: ± 15 ppm) • Temperature Stability: ± 20 ppm (Total Stability is ± 35 ppm)

TRANSMIT ENGINES	
Number of transmit streams per port	256 (wire-speed) Each stream can generate millions of traffic flows using field modifiers
Test payload insertion per stream	Wire-speed packet generation with timestamps, sequence numbers, and data integrity signature optionally inserted into each packet.
Stream statistics 1)	TX Mbit/s, packets/s, packets, bytes, FCS error
Bandwidth profiles	Burst size and density can be specified. Uniform and bursty bandwidth profile streams can be interleaved
Field modifiers	16-bit header field modifiers with inc, dec, or random mode. Each modifier has configurable bit-mask, repetition, min, max, and step parameters. 4 modifiers per stream
Packet length controls	Fixed, random, butterfly, and incrementing packet length distributions. Packet length from 56 to 12288 bytes
Packet payloads (basic)	Repeated user specified 1 to 18B pattern, a 8-bit incrementing pattern
Error generation	Undersize length (56B min) and oversize length (12288 max.) packet lengths, injection of sequence, misorder, payload integrity, and FCS errors
TX packet header support and RX autodecodes	Responds to incoming pause frames
Packet scheduling modes	• Normal (stream interleaved mode). Standard scheduling mode, precise rates, minor variation in packet inter-frame gap. • Strict Uniform. New scheduling mode, with 100% uniform packet inter-frame gap, minor deviation from configured rates. • Sequential packet scheduling (sequential stream scheduling). Streams are scheduled continuously in sequential order, with configurable number of packets per stream. • Burst. Packets in a stream are organized in bursts. Bursts from active streams form a burst group. The user specifies time from start of one burst group till start of next burst group.

RECEIVE ENGINE	
Number of traceable Rx streams per port	2016 (wire-speed)
Automatic detection of testpayload for received packets	Real-time reporting of statistics and latency, loss, payload integrity, sequence error, and misorder error checking
Jitter measurement	Jitter (Packet Delay Variation) measurements on up to 32 streams, compliant to MEF10 standard with 8 ns accuracy
Stream statistics	• RX Mbit/s, packets/s, packets, bytes. • Loss, payload integrity errors, sequence errors, misorder errors • Min latency, max latency, average latency • Min jitter, max jitter, average jitter
Latency measurements accuracy	±8 ns for 10G ports
Latency measurement resolution	8 ns
Number of filters:	• 6 x 64-bit user-definable match-term patterns with mask, and offset • 6xframe length comparat or terms (longer,shorter) • 6x user-defined filters expressed from AND/OR'ing of the match and length terms.
Filter statistics	Per filter: RX Mbit/s, packets/s, packets, bytes.

CAPTURE	
Capture criteria	All traffic, stream, FCS errors, filter match, or traffic without test payloads
Capture start/stop triggers	Capture start and stop trigger: none, FCS error, filter match
Capture limit per packet	16 – 12288 bytes
Wire-speed capture buffer per port	64 kB
Low speed capture buffer per port (10Mbit/s speed)	4096 packets (any size)

ENERGY EFFICIENT ETHERNET (EEE)	
Energy Efficient Ethernet	• Enable/Disable EEE for 10G, 5G, 2,5G, 1G and 100M speeds • Enable/Disable low-power mode in the TX direction (independently of the RX direction) • Monitor active/low-power mode transition activity in both TX and RX direction

HW SPECIFICATIONS	
Max. Power	56W
Weight	0.67 lbs (0.305 kg)
Environmental	• Operating Temperature: 10 to 35°C • Storage Temperature: -40 to 70°C • Humidity: 8% to 90% non-condensing
Regulatory	FCC (US), CE (Europe)

1) Counter size: 64 bits

Ordering Information

Product Description	Product Code
• Z10rc Odin XenaCompact 1U chassis with 10GE 5-speed, 6-port test module (RJ45 ports)	C-Odin-10G-5S-6P-CU
• Z10r Odin 10GE 5-speed, 6-port test module (RJ45 ports)	Odin-10G-5S-6P-CU

Local sales offices are located throughout the world. Visit our website to find the most convenient location.

1-800-5-LeCroy • teledynelecroy.com

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