X2-10G Test Module(Fiber port)

With professional L2-7 traffic generation and analysis capabilities, X2-10G multi-rate test module supports large-scale routing and switch protocols and traffic simulation, and benchmark tests(such as RFC2544/ RFC2889/RFC3918), function tests, performance tests, long-term stability and reliability tests for ultra high-density 10GE network equipment.

Key Features

- SFP/SFP+interface, support 1G/10G
- Support large-scale L2-3 traffic and routing and switch protocol simulation
- Single port supports up to 32K tx stream traffic and 64K traffic statistics
- A single port supports up to 500000 discrete routes entries
- Support the performance test of routing, multicast, access, MPLS, VXLAN, segment routing(SR) and other protocols
- FPGA based 100% line speed traffic generation, statistics and capture
- Support RFC2544, RFC2889, RFC3918 and other benchmark test suites
- Support L4-7 application and security test

Models

Product name	Product description	Product classification
X2-10G-16F-HD test module	16 port SFP/SFP+1G/10G performance test module	DarYu series test module
X2-10G-8F-HD test module	8-port SFP/SFP+1G/10G performance test module	DarYu series test module

Specifications

Hardware and electrical characteristics	
Port speed	Fiber port: 10G/1G supports 101% line speed
Port density	Up to 16
Interface standards	1000MBASE-SX/LX, 10GBASE-SR/SW, 10GBASE-LR/LW
User reservation	Reservation by port
Port speed switching	Switch speed by port group, 8 ports in a group
Weight (kg)	6.7 ~ 8.2
Dimensions (W x H x D)	437mm x 45.32mm x 468.746mm
Temperature	0 ° C to 35 ° C
Humidity	20% to 85%
Max power consumption(W)	400W

Traffic	
Max streams per port	32K
Frame length(byte)	58~16383
Frame length controls	Fixed, Increment, Decrement, Random, Auto, and IMIX
Dynamic fields	6 dynamic fields are available for each stream ; Support multiple dynamic controls such as Fixed, increment, Decrement, List, and Random.
Route entry table	500000 route entries
Transmit mode	Continuous, Burst, and Time Burst modes based on port; Continuous and Burst modes based on flow
Bandwidth modification	Modify by port or flow
Latency and jitter	LIFO, FIFO, LILO, and FILO
Timestamp resolution	2.5 nanoseconds
Built-in protocol templates	VLAN, ICMP, PPPoE, GRE, DHCP, L2TP, IPv6, MPLS, GTP, GOOSE, VXLAN, OSPF, TCP and UDP, etc.
Customized frame	Support customizing the frame, and the edited frame template can be saved; Customized field can be checked with checksum.
Customized payload	Support importing the 512K bytes customized payload and the first 16K bytes can be adjusted with jumping
Flow control	Full duplex flow control
Packet error generation	CRC error, Oversize frame
Statistics	
Statistical streams per port	64K
Statistical pattern	Csv statistics, chart statistics, automatic saving of csv files
Statistics(Port)	Tx/Rx Frames, Tx/Rx Frame Rate, Rx Bandwidth, Error Frame Statistics, Filter Statistics, and Customized Statistics, FCS Error Statistics, TCP/UDP Checksum Errors, Pause Frame Statistics, etc.
Statistics(Flow)	Tx/Rx Frames, Tx/Rx Flow rate, Rx Bandwidth, Error frame statistics, Real-time packet loss statistics, out of order statistics, delay, jitter and customized statistics, etc.
Statistics operation	Support sorting of statistical results, performing mathematical operations such as addition, subtraction, multiplication, and division, and customizing the number of statistical entries for each page, etc.
Capture	
Capture buffer(Byte)	256K
Capture pattern	Capture of data and receive frames of the control plane; Capture of transmitted and received frames of the control plane; Capture based on filter templates; Capture filtered error packets; Capture buffer overwriting; Support specifying the number of downloaded capture packets.
Protocol emulation	
Routing and MPLS	RIPv1/v2, RIPng, OSPFv2, OSPFv3, ISISv4, ISISv6, BGP, BGP4+, SR for BGP/OSPF/ISIS, SRv6 for ISISv6/BGP BGP SR TE Policy, LDP, MPLS IP VPN, 6VPE/6PE, BGP VPLS, LDP VPLS, PWE, LSP Ping
Access	PPPoE Client/Server, DHCPv4 Client/Server, DHCPv6 Client/Server, DHCPv6 PD Client/Server, L2TPv2, 802.1x
Multicast	IGMPv1/v2/v3, MLDv1/v2, IGMP/MLD Querier, PIM-SM, IPTV(10G)
Data center	VXLAN IPv4/IPv6, VXLAN EVPN IPv4/IPv6, OVSDB, OpenFlow 1.3 Controller, BGP/EVPN for VxLAN, LACP
Other	BFD, 802.1ag, 802.1ah, IPv6 automatic configuration, Y.1731
Test suite	RFC2544, RFC2889, RFC3918, Asymmetric Test, Y.1564, Smart Scripter
Stateful L47 Protocol	HTTP, HTTPS, TCP, FTP, DNS, Mail(SMTP/POP3/IMAP), SSH, TFTP, Telnet, UDP, Application replay, etc
Software platform	
Client software	Renix, ALPS
API	Tcl, Python3.x, GUIToTcl, GUIToPython
GUI language	English, Simplified Chinese
Hardware platform	
Chassis	DarYu 3000, DarYu 12000
Chassis operating system	Linux CentOS7. X