XINERTEL

Xinertel Product Brochure

ABOUT XINERTEL

Beijing Xinertel Technology Co., Ltd. is a leading provider of test solutions for network infrastructure and performance. With a strong commitment to innovation and quality, we offer high-quality IP network test products and test solutions designed to meet the evolving needs of the networking industry.

Established in 2007, adhering to technological innovation and focusing on product quality are the driving forces for the continuous development of Xinertel. With solid technological accumulation and strong R&D capabilities, Xinertel test solutions include high performance hardware and software platforms which can provide high-scaling layer 2-7 testing.

Xinertel always abides by the tenet of "focus, innovation, cooperation, service" and the concept of customer first, adhere to providing customers with cost-effective products and high-quality services. Xinertel provides appropriate network testing products and solutions based on every customer’ s needs. We also offer customized products and solutions. Customer satisfaction is our top priority!

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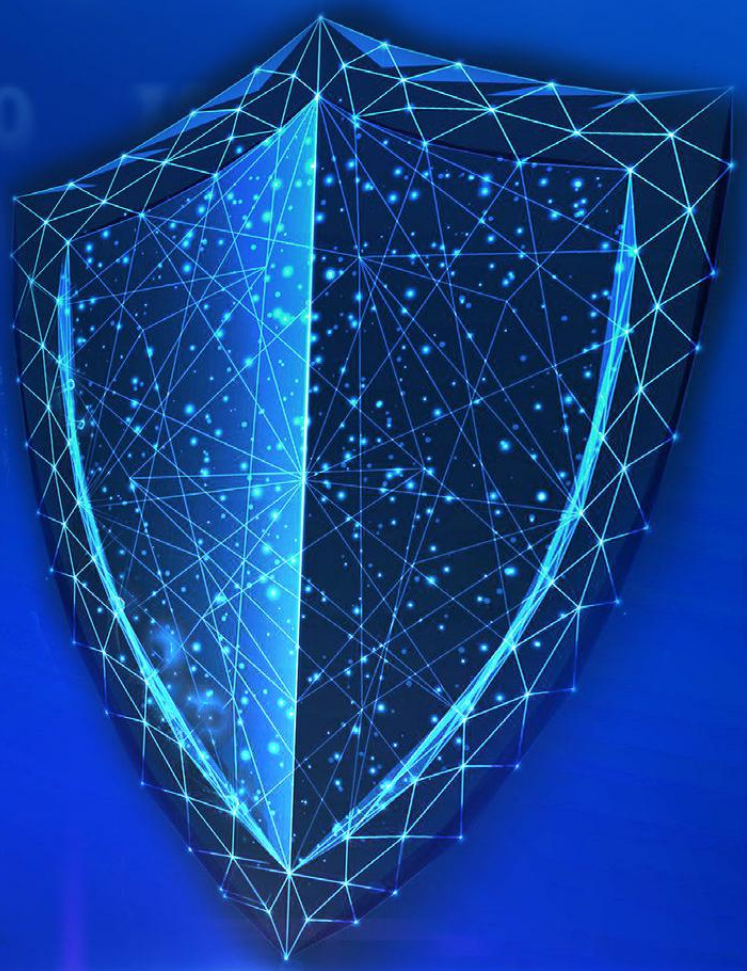

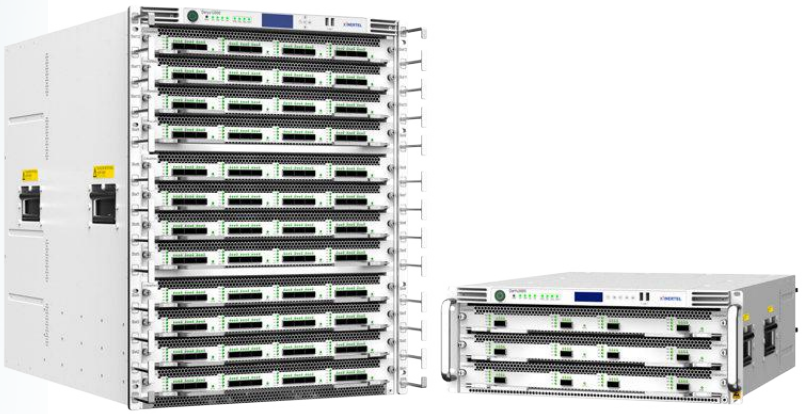

DarYu-X series high performance network tester

With high performance, high density, high speed, and multiple chassises cascading, DarYu-X series launched by Xinertel are designed for high end routers, high end switches, data center switches, and high performance security devices test.

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Product Introduction

The DarYu-X series high-performance network tester features modular design and consists of chassis, test modules, and test software. The test port covers a variety of ethernet speeds from 1G to 400G and offers the scalable expansion capabilities, enabling users to easily cope with the rapid growth of test business and future business development.

With the new generation of test software RENIX based on the PCT architecture and X series test modules, DarYu-X series supports L2-7 traffic test and protocol simulation for network devices and network systems, providing comprehensive test solutions in terms of functionality, performance, and security to meet the testing needs in the process of research and development, experimentation, and quality control.

DarYu 3000

The DarYu3000 is a rack-mount chassis which supports Xinetel's new generation of 1G to 400G multi-rate test modules. With built-in LCD screen, intelligent power supplies, fan control, and fast firmware upgrades, DarYu3000 reduces the costs of network equipment effectively .

With the new generation of test software RENIX based on the PCT architecture and X series test modules, DarYu 3000 supports L2-7 traffic test and protocol simulation for network devices and network systems, providing comprehensive test solutions in terms of functionality, performance, and security to meet the testing needs in the process of research and development, experimentation, and quality control.

Key features

- A unified platform for high-performance L2-7 test, supporting large-scale routing and switch protocol simulation and application test
- Ultra-high performance 3-slot chassis, support up to 12 *100GE ports
- Support 400G/100G/40G/25G/10G/5G/2.5G/GE
- Modular design, power supply and fan can be replaced on site
- Support for multiple chassis cascades of daisy chains for easy expansion for large-scale test
- Support hot swap of test module
- Support multiple management IP modification methods
- Support to download client software based on web browsers
- Support API interface for Renix and supports TCL automated test

Ordering information

Product Name	Product Description	Product classification
DarYu 3000 chassis	DarYu 3000 3-slot chassis, including a main control module (running the Linux CentOS system), a clock module, a power module, a fan module, and power cords	DarYu series chassis
DarYu 3000 main control module	DarYu 3000 main control module (running Linux CentOS system)	DarYu 3000 chassis accessories
DarYu 3000 power module	DarYu 3000 110V AC/220V AC power module	DarYu 3000 chassis accessories
DarYu 3000 fan module	DarYu 3000 Fan Module	DarYu 3000 chassis accessories
DarYu 3000 clock module	DarYu 3000 clock module	DarYu 3000 chassis accessories

Specifications

Slot	3
Dimensions (WxDxH)	482.6mm × 178mm × 686mm
Weight	Chassis only : about 25kg; Chassis with 2 test modules: about 46kg
Chassis power supply	The empty chassis power is 300W, and the maximum power fully loaded with test modules is 3300W
Switch/Display	• Rear AC power supply • Power, Fan, Temp, Link LED indicator, LCD • Reset button of the main control of the chassis • LCD control button of the chassis
I/O	1 DB15 display interface 1 RJ45 10/100/1000M management interface 1 RJ45 10/100/1000M 1588 clock input interface (reserved) 1 RJ45 RS232 serial port 1 SYNC-OUT, 1 SYNC-IN chassis cascade interface 1 DB9 GPS RS232 serial port 1 PPS, 1 10MHz input BNC 2 USB Type A interfaces
Temperature	Storage: -40° C to 70° C
Humidity	Storage: 20% to 85%
Chassis power supply	4*110V AC/220V AC 50/60Hz @10A single-phase power input
Operating system	CentOS 7.X, 64bit
Network management	• IPv4 management network; support panel button to modify IP address and query status • Support Telnet/SSH terminal to modify IP and query status • Support external display and keyboard to modify IP and query status • Support web page download client, modify IP, query status • Support License management and hardware management through client software
Client software	Renix, ALPS
Client system requirements	• System: Microsoft Windows 7/ Windows 10/Windows Server 2012 R2 Standard Edition CPU: i3-6100 CPU @ 3.70GHz and above • Memory: 4 GB and above
Test modules supported	• X2-10G-16F-HD, fiber port test module (1G/10G) • X2-10G-16C-HQ, cooper port card (100M/1G/2.5G/5G/10G) • X2-100G-4QSFP28, 4-port 100G multi-rate test module (10G/25G/40G/100G) • X2-400G-2QDD-HQ, 2-port 400G high-rate test module

DarYu 12000

The DarYu12000 is a rack-mount chassis which supports Xinetel's new generation of 1G to 400G multi-rate test modules. With built-in LCD screen, intelligent power supplies, fan control, and fast firmware upgrades, DarYu3000 reduces the costs of network equipment effectively .

With the new generation of test software RENIX based on the PCT architecture and X series test modules, DarYu 12000 supports L2-7 traffic test and protocol simulation for network devices and network systems, providing comprehensive test solutions in terms of functionality, performance, and security to meet the testing needs in the process of research and development, experimentation, and quality control.

Key features

- A unified platform for high-performance L2-7 test, supporting large-scale routing and switch protocol simulation and application test
- Ultra-high performance 12-slot chassis, support up to 48 *100GE ports
- Support 400G/100G/40G/25G/10G/5G/2.5G/GE
- Modular design, power supply and fan can be replaced on site
- Support for multiple chassis cascades of daisy chains for easy expansion for large-scale test
- Support hot swap of test module
- Support multiple management IP modification methods
- Support to download client software based on web browsers
- Support API interface for Renix and supports TCL automated test

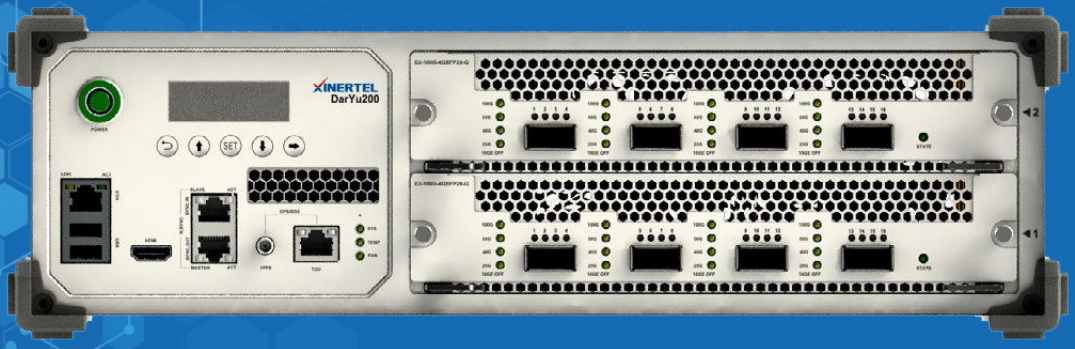
Ordering information

Product Name	Product Description	Product classification
DarYu 12000 chassis	DarYu 12000 12 slot chassis, including main control module (running Linux CentOS system), power module, fan module, power cord	DarYu series chassis
DarYu 12000 main control module	DarYu 12000 main control module (running Linux CentOS system)	DarYu 12000 chassis accessories
DarYu 12000 power module	DarYu 12000 110V AC/220V AC power module	DarYu 12000 chassis accessories
DarYu 12000 fan module	DarYu 12000 fan module	DarYu 12000 chassis accessories
DarYu 12000 clock module	DarYu 12000 clock module	DarYu 12000 chassis accessories

Specifications

Slot	12
Dimensions (WxDxH)	442mm × 622.3mm × 815mm
Weight	Chassis only : about 108kg; Chassis with 2 test modules: about 209kg
Chassis power supply	The power of the empty frame is 650W, and the maximum power can be 12000W (4 power modules) or 24000W (8 power modules) The empty chassis power is 650W, and the maximum power with 4 power modules is 12000W, 24000W with 8 power modules
Switch/display	Rear AC power supply Power, Fan, Temp, Link LED indicators, LCD Chassis master reset button Chassis LCD control button
I/O	One DB15 display interface One RJ45 10/100/1000M management interface One RJ45 10/100/1000M 1588 clock input interface (reserved) One RJ45 RS232 serial port 5 SYNC-OUT, 1 SYNC-IN chassis cascade interface One DB9 GPS RS232 serial port One 1PPS, one 10MHz input BNC 4 USB Type A interfaces
Temperature	Working: 0 ° C to 35 ° C Storage: -40 ° C to 70 ° C
Humidity	Working: 20% to 85%; Storage: 20% to 85%
Chassis power supply	8 x 110V AC/220V AC 50/60Hz @ 16A single-phase power input
Operating system	CentOS 7.X, 64bit
Network management	• IPv4 management network; support panel button to modify IP address and query status • Support Telnet/SSH terminal to modify IP and query status • Support external display and keyboard to modify IP and query status • Support web page download client, modify IP, query status • Support License management and hardware management through client software
Client software	Renix, ALPS
Client system requirements	• System: Microsoft Windows 7/ Windows 10/Windows Server 2012 R2 Standard Edition CPU: i3-6100 CPU @ 3.70GHz and above • Memory: 4 GB and above
Test modules supported	• X2-10G-16F-HD, fiber port test module (1G/10G) • X2-10G-16C-HQ, cooper port card (100M/1G/2.5G/5G/10G) • X2-100G-4QSFP28, 4-port 100G multi-rate test module (10G/25G/40G/100G) • X2-400G-2QDD-HQ, 2-port 400G high-rate test module

DarYu 200



The DarYu 200 is a portable chassis which supports Xinetel's new generation of 1G to 100G multi-rate test modules. With built-in LCD screen, intelligent power supplies, fan control, and fast firmware upgrades, DarYu 200 reduces the costs of network equipment effectively .

With the new generation of test software RENIX based on the PCT architecture and X series test modules, DarYu 200 supports L2-7 traffic test and protocol simulation for network devices and network systems, providing comprehensive test solutions in terms of functionality, performance, and security to meet the testing needs in the process of research and development, experimentation, and quality control.

Key features

- A unified platform for high-performance L2-7 test, supporting large-scale routing and switch protocol simulation and application test (E2 series test module supports L23 test, U3 series test module supports L47 test)
- Support 100G/50G/40G/25G/10G/5G/2.5G/GE (planned)
- 2.5U height, strong portability
- Support for multiple chassis cascades of daisy chains for easy expansion for large-scale test
- Supports multiple management IP modification methods
- No need to learn new GUI of software
- Support to download client software based on web browsers
- Support API interface for Renix and supports TCL automated test

Ordering information

Product Name	Product Description	Product classification
DarYu 200 chassis	DarYu 200 2-slot chassis	DarYu 200 Chassis
E2-100G-4QSFP28-Q	4-port, 5-speed 100G/50G/40G/25G/10G test module (planned)	DarYu 200 Chassis test module

Specifications

Slot	2 slots
Dimensions (WxDxH)	390mm× 113mm× 420mm
Weight	Chassis only : about 10.5kg; Chassis with 2 test modules: about 15kg
Switch/Display	• Rear AC power supply • Power, Fan, Temp, Link LED indicator, LCD • Reset button of the main control of the chassis • LCD control button of the chassis
I/O	• 1 HDMI display interface • 1 RJ45 10/100/1000M management interface • 1 SYNC-OUT, 1 SYNC-IN chassis cascade interface • 1 RJ45 GPS RS232 serial port • 1 PPS input BNC • 2 USB Type A interfaces
Temperature	Storage: -40° C to 70° C
Humidity	Working : 20% to 85%; Storage : 20% to 85%
Chassis power supply	1 x 110V AC/220V AC 50/60Hz @10A single-phase power input
Noise	The noise of the complete machine is ⩽ 69dba at typical speed and ⩽ 85dba at full speed
Operating system	CentOS6.7 and above, 64bit
Network management	• IPv4 management network; support panel button to modify IP address and query status • Support Telnet/SSH terminal to modify IP and query status • Support external display and keyboard to modify IP and query status • Support web page download client, modify IP, query status • Support License management and hardware management through client software

Hardware and electrical characteristics	E2-100G-4QSFP28-Q
Port speed	Fiber port: 100G/50G/40G/25G/10G (planned)
Port density	4
Interface standards	• 100G: 100GBASE-SR4, 100GBASE-LR4 • 40G: 40GBASE-SR4, 40GBASE-LR4 • 25G: 25GBASE-SR • 10G: 10GBASE-SR QSFP28 to SFP28 breakout cable options: Clause 74 BASE-R FEC, Clause 91 RS- FEC, and Clause 108 RS-FEC
User reservation	Occupied by single port
Port speed switching	Switch speed by port group, 2 ports in a group
Dimensions (W*H*D)	229.9mm * 45.32mm *289.4mm
Temperature	0° C to 35° C
Humidity	20% to 85%
Traffic	**E2-100G-4QSFP28-Q**
Max streams per port	100G/50G/40G: 16K 25G/10G: 8K
Frame length (byte)	64-16383
Frame length controls	Fixed, Increment, Decrement, Random, Auto, and IMIX
Dynamic fields	4 dynamic fields are available for each stream ; Support multiple dynamic controls such as Fixed, increment, Decrement, List, and Random.
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 16K bytes customized payload and the first 256 bytes can be adjusted with jumping
Flow control	Full duplex flow control
Packet error generation	CRC error, Oversize frame

Statistics	E2-100G-4QSFP28-Q
Statistical streams per port	100G/50G/40G: 16K 25G/10G: 8K
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..
Traffic capture	**E2-100G-4QSFP28-Q**
Capture buffer (Byte)	100G/50G/40G: 2MB25G/10G port 512K
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	**E2-100G-4QSFP28-Q**
Routing and MPLS	RIPv1v2, RIPng, OSPFv2, OSPFv3, ISISv4, ISISv6, BGP, BGP4+, LDP, MPLS L3VPN, VPLS, VLL, 6VPE, 6PE
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
Data center	VXLAN, OpenFlow, OVSDB, EVPN, LACP
Other	BFD, 802.1ag, 802.1ah, IPv6 automatic configuration
Test suite	RFC2544, RFC2889, RFC3918, Asymmetric Test, Smart Scripter
Stateful L47Protocol	HTTP, HTTPS, TCP, FTP, DNS, Mail (SMTP/POP3/IMAP), SSH, TFTP, Telnet, UDP, Application replay, etc
Software platform	**E2-100G-4QSFP28-Q**
Client software	Renix,ALPS
API	Tcl, Python3.x, GUIToTcl, GUIToPython
GUI language	English , Simplified Chinese
Hardware platform	**E2-100G-4QSFP28-Q**
Chassis	DarYu 200
Chassis operating system	Linux CentOS 7.1

X2-400G Test Module

5G, cloud, and data centers have brought people unprecedented internet experiences.The ultra-high bandwidth, massive connectivity, low latency and high reliability of 5G will become a strong foundation for building a digital society. Service providers and large-scale data centers are deploying multi-rate network infrastructure solutions to meet the growing market demands. Due to these multi-rate requirements, customers require higher density tester, and verifying next-generation routers and data center structures requires flexibility. The X2-400G series test module is launched by Xinertel for high-end routers, high-end switches,and data center switch to help operators, network equipment manufacturers, and enterprise users easily cope with the rapid testing business growth and future business development.

With the leading L2-3 traffic generation and analysis capabilities, Xinertel X2-400G multi-speed test module supports large-scale routing and switching protocols and traffic test, and benchmark tests(such as RFC2544/RFC2889/ RFC3918),functional testing, performance testing, long-term stability and reliability testing for network equipment.

Key features

- Native QSFP-DD 400G interface, support 400G
- Support large-scale 2-3 layer traffic and routing switching protocol simulation
- Support the performance test of routing, multicast, access, MPLS, VXLAN, segmented
- 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 Chinese and English test operation software
- Support Chinese and English test report system

Models

Product name	Product description	Product classification
X2-400G-2QDD test module	2-port, 400G test module	DarYu series test module

Specifications

Hardware and electrical characteristics	
Port speed	PAM4: 400G Support 101% line speed
Port density	2
Interface standards	PAM4 400G: 400GAUI-8 (PAM4), 400GBASE-LR8, 400GBASE-FR8
User reservation	Reservation by port
Port speed switching	Switch speed by port
Module weight (kg)	8KG
Dimensions (W*H*D)	438mm * 46mm* 580mm
Temperature	0 ° C to 35 ° C
Humidity	20% to 85%
Max power consumption (W)	450W (2 ports)
Traffic	
Max streams per port	32K
Frame length (byte)	64~16004 bytes
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.
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	Built in multiple message templates, such as VLAN, ICMP, PPPoE, GRE, DHCP, L2TP, IPv6, MPLS, GTP, GOOSE, VXLAN, OSPF, TCP, UDP, etc
Customized frame	Support user-defined message, and the edited message template can be saved; Supports the checksum check of custom fields
Customized payload	Support importing the 256K 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	32K
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)	1M
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	RIPv1v2, RIPng, OSPFv2, OSPFv3, ISISv4, ISISv6, BGP, BGP4+, LDP, MPLS L3VPN, VPLS, VLL, 6VPE, 6PE
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
Data center	VXLAN, OpenFlow, OVSDB, EVPN, LACP
other	BFD, 802.1ag, 802.1ah, IPv6 automatic configuration
test suite	RFC2544, RFC2889, RFC3918, Asymmetric Test, Smart Scripter
Stateful L47 Protocol	HTTP, Raw TCP
Software platform	
Client software	Renix
API	Tcl, Python3.x, GUIToTcl, GUIToPython
GUI language	English , Simplified Chinese
Hardware platform	
Chassis	DarYu 3000, DarYu 12000
Chassis operating system	Linux CentOS7. X

X2-100G Test Module

With professional L2-7 traffic generation and analysis capabilities, X2-100G 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 100/40/25/10GE network equipment.

Key features

- Native QSFP28 100G interface, support 100G/40G/25G/10G
- Support large-scale L2-3r traffic and routing and switch protocol simulation
- Single port supports up to 128K tx stream traffic and 64K traffic statistics
- A single port supports up to 2 millions discrete routes entries
- Support the performance test of routing, multicast, access, MPLS, VXLAN, segmented
- 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 HTTP/TCP and other L47 tests
- Support Chinese and English test operation software
- Support Chinese and English test report system

Models

Product name	Product description	Product classification
X2-100G-4QSFP28-HQ test module	4-port, 4-speed 100G performance test module	DarYu series test module
X2-100G-4QSFP28-HT test module	4-port, three speed 10G/40G/100G performance test module	DarYu series test module
X2-100G-4QSFP28-HD test module	4-port, 2-speed 25G/100G performance test module	DarYu series test module
X2-100G-4QSFP28-HS test module	4-port, single speed 100G performance test module	DarYu series test module
X2-40G-4QSFP28-HS test module	4-port, single speed 40G performance test module	DarYu series test module
X2-100G-2QSFP28-HQ test module	2-port, four speed 100G performance test module	DarYu series test module
X2-100G-2QSFP28-HT test module	2-port, three speed 10G/40G/100G performance test module	DarYu series test module
X2-100G-2QSFP28-HD test module	2-port, 2-speed 25G/100G performance test module	DarYu series test module
X2-100G-2QSFP28-HS test module	2-port, single speed 100G performance test module	DarYu series test module
X2-40G-2QSFP28-HS test module	2-port, single speed 40G performance test module	DarYu series test module

Specifications

Hardware and electrical characteristics	
Port speed	Fiber port: 100G/40G/25G/10G; Support 101% wire speed
Port density	Up to 4
Interface standards	100G: 100GBASE-SR4, 100GBASE-LR4; 40G: 40GBASE-SR4, 40GBASE-LR4; 25G: 25GBASE-SR; 10G: 10GBASE-SR; QSFP28 to SFP28 break out cable options; Clause 74 BASE-R FEC, Clause 91 RS-FEC, and Clause 108 RS-FEC
User reservation	Reservation by port
Port speed switching	Switch speed by port group, 2 ports in a group
Weight (kg)	8kg
Dimensions (W*H*D)	437mm * 45.32mm * 468.746mm
Temperature	0 ° C to 35 ° C
Humidity	20% to 85%
Max power consumption (W)	400W
Traffic	
Max streams per port	100G/40G: 64K; 25G: 16K; 10G: 32K
Frame length (byte)	64-16383
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	100G/40G ports: 2 millions; 25G/10G ports: 500000.
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 2M bytes for 100/40G and 512K for 25/10G 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	100G/40G: 128K; 25G: 32K; 10G: 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)	1MB per 100G or 40G port 256K per 25G port or 10G port
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	RIPv1v2, RIPng, OSPFv2, OSPFv3, ISISv4, ISISv6, BGP, BGP4+, LDP, MPLS L3VPN, VPLS, VLL, 6VPE, 6PE
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
Data center	VXLAN, OpenFlow, OVSDB, EVPN, LACP
other	BFD, 802.1ag, 802.1ah, IPv6 automatic configuration
test suite	RFC2544, RFC2889, RFC3918, Asymmetric Test, Smart Scripter
Stateful L47Protocol	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

X2-100G-high-density 100G Test Module

The demand for network bandwidth continues to grow rapidly. Network equipment manufacturers are developing high-performance products to support 100/50/40/25/10GbE. Service providers and large-scale data centers are also deploying high-density and multi rate network infrastructure solutions to meet these needs.

With the industry's outstanding L2-3 traffic generation and analysis capabilities, the X2-100G high-density test module supports large-scale routing and switch protocols and traffic simulation, benchmark tests (such as RFC2544/RFC2889/RFC3918), functional tests, performance tests, long-term stability and reliability tests for 100GE network equipment, and supports testing and verification of the functions and performance of RDMA networks and lossless switches.

Key features

- Native QSFP28 100G interface, support 12 x 100G L2-3 test ports, or support 6 100GRoCE test ports
- Support the generation and transmission of RoCEv2 traffic
- Supports QOS settings for L2 (VLAN) and L3 (DSCP)
- Support ECN/PFC enabling and priority setting
- Support the selection of traffic endpoints based on QP
- Support the performance test of routing, multicast, access, MPLS, VXLAN, segmented routing (SR) and other protocols
- FPGA based 100% line speed traffic generation, statistics and capture
- Support RFC2544, RFC2889, RFC3918 and other benchmark test suites

Models

Product name	Product description	Product classification
X2-100G-12QSFP28-Q test module	12 port 100G test module	DarYu series test module

Specifications

Hardware and electrical characteristics	
Port speed	Native 100G QSFP28
Port density	12
User reservation	Reservation by port
Weight (kg)	8.5kg
Dimensions (W*H*D)	438mm x 46 mm x 580mm
Temperature	0 ° C to 35 ° C
Humidity	20% to 85%
Max power consumption (W)	380W
Traffic	
Max streams per port	16K
Frame length (byte)	64-16383
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.
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 user-defined message, and the edited message template can be saved; Supports the checksum check of custom fields
Customized payload	Support importing the 16K bytes customized payload and the first 128K bytes can be adjusted with jumping
Flow control	Full duplex flow control
Packet error generation	CRC error, Oversize frame
Statistics	
Statistical streams per port	16K
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)	2M
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.

X2-100G RoCE Test Module

In the process of data packet processing, the traditional TCP/IP technology needs to go through the operating system and other software layers, which requires a large amount of server resources and memory bus bandwidth. Data is copied and moved back and forth between the system memory, processor cache and network controller cache, causing a heavy burden on the server's CPU and memory. In particular, the serious "mismatch" among network bandwidth, processor speed and memory bandwidth has exacerbated the network latency effect.

RDMA (Remote Direct Memory Access), is designed to address the latency of server-side data processing in traditional network transmission. It will support local hosts to access data on remote host memory without the need for CPU involvement, bypassing the traditional system kernel processing and data copying operations of network protocol stacks. Based on network card hardware, it implements kernel bypass and zero copy for data transmission.

RDMA technology was initially implemented based on the IB (Infiniband) network protocol stack, but the IB network protocol stack is not compatible with traditional Ethernet based data center network architectures. RoCEv2 is an Ethernet RDMA transmission technology based on the UDP/IP protocol stack. Its lightweight network protocol stack has strong scalability and low hardware implementation difficulty, making it widely used in data center RDMA network deployment.

The Xinertel X2-100G test module supports large-scale routing and switch protocols and traffic simulation, benchmark testing of 100GE network equipment (such as RFC2544/RFC2889/RFC3918), functional testing, performance testing, long-term stability and reliability testing, and supports testing and verification of the functionality and performance of RDMA networks and lossless switches.

Key features

- Native QSFP28 100G interface, support 12 x 100G L2-3 test ports, or support 6 100GRoCE test ports
- Support the generation and transmission of RoCEv2 traffic
- Supports QOS settings for L2 (VLAN) and L3 (DSCP)
- Support ECN/PFC enabling and priority setting
- Support the selection of traffic endpoints based on QP
- Support the performance test of routing, multicast, access, MPLS, VXLAN, segmented routing (SR) and other protocols
- FPGA based 100% line speed traffic generation, statistics and capture
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Models

Product name	Product description	Product classification
X2-100G-12QSFP28-Q test module	12 port 100G test module	DarYu series test module

Specifications

Hardware and electrical characteristics	
Port speed	Native 100G QSFP28
Port density	12
User reservation	Reservation by port
Weight (kg)	8.5kg
Dimensions (W*H*D)	438mm x 46 mm x 580mm
Temperature	0 ° C to 35 ° C
Humidity	20% to 85%
Max power consumption (W)	380W
Traffic	
Max streams per port	16K
Frame length (byte)	64-16383
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.
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 user-defined message, and the edited message template can be saved; Supports the checksum check of custom fields
Customized payload	Support importing the 16K bytes customized payload and the first 128K bytes can be adjusted with jumping
Flow control	Full duplex flow control
Packet error generation	CRC error, Oversize frame
Statistics	
Single port statistics stream number	16K
Statistical form	Table statistics, chart statistics, and automatic saving of EXCEL files
Statistics item (port)	Number of sent/received frames, send/receive frame rate, receive bandwidth, error frame statistics, filtering statistics, custom statistics, etc., FCS error statistics, TCP/UDP Checksum errors, Pause frame statistics, average delay statistics
Statistical item (stream)	Send/receive frames, send/receive flow rate, receive bandwidth, error frame statistics, real-time packet loss statistics, out of sequence statistics, delay jitter and user-defined statistics;
Statistical operation	Support sorting of statistical results, addition, subtraction, multiplication, division and other mathematical operations, user-defined paging statistics, etc
Capture	
Capture buffer (Byte)	2M
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	
RoCEv2	QoS: VLAN priority and DSCP priority Congestion control: 1. ECN detection, CNP response; 2. CNP interval setting; 3. QoS settings for CNP Flow control: PFC and ECN linkage support Traffic configuration: 1.Supports up to 8K QP 2. Support QP traffic endpoint selection Statistics: Throughput, latency, and packet loss; Statistics for each QP queue.
Routing and MPLS	RIPv1v2, RIPng, OSPFv2, OSPFv3, ISISv4, ISISv6, BGP, BGP4+, LDP, MPLS L3VPN, VPLS, VLL, 6VPE, 6PE
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
Data center	VXLAN, OpenFlow, OVSDB, EVPN, LACP
other	BFD, 802.1ag, 802.1ah, IPv6 automatic configuration
test suite	RFC2544, RFC2889, RFC3918, Asymmetric Test, Smart Scripter
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. 1

X2-10G Test Module (cooper 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

- RJ45 interface, support 100M/1G/2.5G/5G/10G
- Support large-scale L2-3r 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, segmented 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 HTTP/TCP and other L47 tests
- Support Chinese and English test operation software
- Support Chinese and English test report system

Models

Product name	Product description	Product classification
X2-10G-16C-HQ test module	16- port RJ45, 5-speed 100M/1G/2.5G/5G/10G performance test module	DarYu series test module
X2-10G-8C-HQ test module	8-port RJ45, 5-speed 100M/1G/2.5G/5G/10G performance test module	DarYu series test module

Specifications

Hardware and electrical characteristics	
Port speed	Cooper port: 100M/1G/2.5G/5G/10G supports 101% line speed
Port density	Up to 16
Interface standards	100BASE-T, 1000BASE-T, 2.5GBASE-T, 5GBASE-T, 10GBASE-T
User reservation	Reservation by port
Port speed switching	Switch speed by port group, 8 ports in a group
Dimensions (W*H*D)	437mm * 45.32mm * 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	RIPv1v2, RIPng, OSPFv2, OSPFv3, ISISv4, ISISv6, BGP, BGP4+, LDP, MPLS L3VPN, VPLS, VLL, 6VPE, 6PE
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
Data center	VXLAN, OpenFlow, OVSDB, EVPN, LACP
other	BFD, 802.1ag, 802.1ah, IPv6 automatic configuration
test suite	RFC2544, RFC2889, RFC3918, Asymmetric Test, Smart Scripter
Stateful L47Protocol	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

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 L2-3r 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, segmented 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 HTTP/TCP and other L47 tests
- Support Chinese and English test operation software
- Support Chinese and English test report system

Models

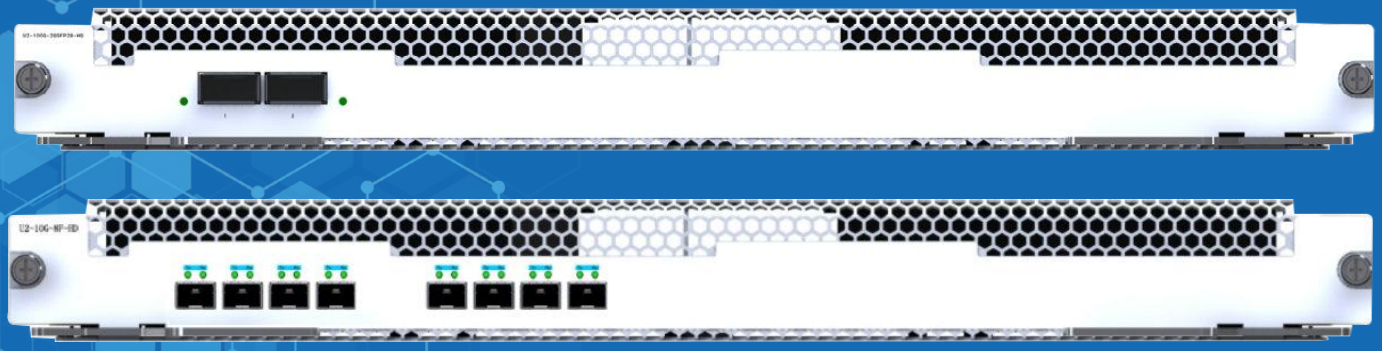
Product name	Product description	Product classification
X2-10G-16F-HD test module	16 port SFP/SFP+1G/10G performance test module	DarYu series test module
X2-10G-8F-HD test module	8-port SFP/SFP+1G/10G performance test module	DarYu series test module

Specifications

Hardware and electrical characteristics	
Port speed	Fiber port: 10G/1G supports 101% line speed
Port density	Up to 16
Interface standards	100BASE-T, 1000BASE-T, 2.5GBASE-T, 5GBASE-T, 10GBASE-T
User reservation	Reservation by port
Port speed switching	Switch speed by port group, 8 ports in a group
Dimensions (W*H*D)	437mm * 45.32mm * 468.746mm
Temperature	0 ° C to 35 ° C
Humidity	20% to 85%

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	RIPv1v2, RIPng, OSPFv2, OSPFv3, ISISv4, ISISv6, BGP, BGP4+, LDP, MPLS L3VPN, VPLS, VLL, 6VPE, 6PE
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
Data center	VXLAN, OpenFlow, OVSDB, EVPN, LACP
other	BFD, 802.1ag, 802.1ah, IPv6 automatic configuration
test suite	RFC2544, RFC2889, RFC3918, Asymmetric Test, Smart Scripter
Stateful L47Protocol	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

U2 Application and Security Test Module



The U2 high-performance L4-7 test module is launched by Xinertai for voice, video, data applications, and network security test. It accurately simulates the network access behavior of millions of real end users, and performs pressure and performance tests on application and security devices (such as Firewall/IPS/IDS/WAF/DPI, etc.) or the entire system;By simulating a large amount of real attack traffic and malicious software and virus traffic, the detection and defense capabilities of network security devices and systems against attacks and viruses can be verified and tested. At the same time, the control and recognition capabilities of the tested device over traffic can be confirmed by replaying real environment traffic.

Collaborating with B/S architecture test software ALPS (Application Layer Protocol Simulator) based on PCT architecture, which supports real application layer traffic simulation (such as application layer protocol HTTP/FTP/TCP/DNS, voice: VoIP SIP&RTP, video: RSTP/RTP/IPTV, etc.), its HTTP/TCP can create millions of new connections and billions of concurrent connections; ALPS can simulate real attack traffic (DDoS attacks/botnets/custom attacks, etc.), malicious traffic, virus traffic. And ALPS supports audio and video quality testing.

Key features

- **Comprehensive interfaces**
  Supporting 100G/50G/40G/25G/10G/1G
- **Ultra high application protocol simulation capability**
  The high application protocol simulation capability of a single test module supports millions of new TCP connections, billions of concurrent TCP connections, and supports 2 100G QSFP28 ports or 8 SFP+ports.
- **Support security device performance and capacity testing**
  Including firewalls, load balancers, WAFs, URL filters, antivirus, anti spyware, HTTP/HTTPS accelerators, WAN accelerators, IDS/IPS, and IPsec VPN gateways, etc
- **Support application server performance testing**
  Including web servers, mail servers, DHCP services, FTP servers, DNS servers, RTSP/RTP QuickTime streaming servers, multicast servers, etc
- **Support security testing**
  Support simulation of multiple attack traffic, virus traffic simulation, and network shooting range simulation.

Protocols

Application	TCP, UDP, SCTP, WebSocket, DNS, HTTP, HTTPS, HTTP2, FTP, SSH, Telnet TFTP, RTMP, H.225, H.245, SMB, RPC,ONVIF, Chat applications (SKYPE, QQ, WeChat, etc.), E-mail applications (SMTP, POP3, IMAP, etc.), Gaming applications, video applications (Tencent Video, iQiyi, HLS, etc.), Download applications (BitTorrent, eDonkey, Xunlei, etc.), Social news applications (Tiktok, Toutiao, etc.), Payment applications, Database applications (Oracle, MySQL, MSSQL, etc.)
Industrial control protocol	ECHONET Lite, BACnet, Modbus, OPCUA, MQTT, ProfiNet (PNIO CM), OPC DA, IEC104, EtherNet/IP, ProfiNet (DCP), ENIP, IEEE C37.118 Synchronizer Omron Fins, S7comm, DNP3, Ether-S-I/O, CoAP
Voice	SIP/RTP, Voice Codec (PCMU, PCMA, G.723, G.728, G.729, G.726-32, G.729AB, G.729A, G.723.1), MOS score
Video	RTSP/RTP, Multicast, Video Codec (H.261, H.262/MPEG-2, H.263, H.264, H.265, MPEG-TS, MPEG-1, MPEG-4)
DDoS	Support up to 73 types of DDoS attacks, including L2/L4 DDoS attacks (ARP/ICMP/UDP/TCP/IP/ IGMP, etc.) and L7 Application Attacks (DNS Reflection, Slowloris slow attacks, etc.)
Virus and attack libraries	Covering over 7000 types of vulnerability attacks, over 40000 types of virus files, and 73 types of DDoS attacks.
Access Protocol	IPv4, IPv6, 802.1Q (QinQ), DHCPv4/DHCPv6 client, DHCPv4/DHCPv6 server, PPPoEv4/PPPoEv6 client, PPPoEv4/PPPoEv6 server, IPsecv4/IPsecv6, GTP, 802.1x, IP/TCP+UDP/TCP/UDP, custom IPv6 extension headers and stream labels
Routing Protocol	SRv6 BE/SRv6 TE
Data encryption and decryption	GMTLSv1.1, SSLv3, TLSv1.0, TLSv1.1, TLSv1.2, TLSv1.3

Specifications

Port and Speed	• U2-100G-2QSFP28-HQ: 2 100G QSFP28 ports, compatible with 50G/40G/25G/10G speeds, built- in acceleration card • U2-10G-8F-HD: 8 10G SFP+, supporting 10G/1G speed, with built-in acceleration card
Supporting Platforms	DarYu3000/DarYu12000

Ordering information

Product Name	Product Description	Product Classification
DarYu3000	DarYu chassis, supports up to 3 test modules	DarYu3000 chassis
DarYu12000	DarYu chassis, supports up to 12 test modules	DarYu12000 chassis
U2-100G-2QSFP28-HQ	U2 100G test module, 2 100G QSFP28 ports, compatible with 50G/40G/25G/10G speed	U2 test module
U2-10G-8F-HD	U2 10/1G test module, 8 10G/1G ports	U2 test module

High density 400G Appliance

5G, cloud, and data centers have brought people unprecedented internet experiences.The ultra-high bandwidth, massive connectivity, low latency and high reliability of 5G will become a strong foundation for building a digital society. Service providers and large-scale data centers are deploying multi-rate network infrastructure solutions to meet the growing market demands. Due to these multi-rate requirements, customers require higher density tester, and verifying next-generation routers and data center structures requires flexibility. The X5 400G appliance is launched by Xinertel for high-end routers, high-end switches,and data center switch to help operators, network equipment manufacturers, and enterprise users easily cope with the rapid testing business growth and future business development.

With the leading L2-3 traffic generation and analysis capabilities, Xinertel X5 400G appliance multi-speed test module supports large-scale routing and switching protocols and traffic test, and benchmark tests(such as RFC2544/RFC2889/RFC3918),functional testing, performance testing, long-term stability and reliability testing for network equipment. 4/RFC2889/RFC3918), function tests, performance tests, long-term stability and reliability tests on 100GE network equipment.

Key features

- Native QSFP-DD 400G interface, support 8/16 400G ports, and 400G/200G/100G
- Support large-scale 2-3 layer traffic and routing switching protocol simulation
- Support the performance test of routing, multicast, access, MPLS, VXLAN, segmented 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 Chinese and English test operation software
- Support Chinese and English test report system

Models

Product name	Product description	Product classification
X5-400G-8QDD, X5-400G-16QDD	8/16 port 400G multi-rate appliance	X5 series appliance

Specifications

Hardware and electrical characteristics	
Port speed	400G/200G/100G
Port density	8/16
User reservation	Reservation by port
Port speed switching	Switch speed by port
Weight (kg)	8KG
Module size (W * H * D)	444mm * 87mm *730mm
Temperature	0 ° C to 35 ° C
Humidity	20% to 85%
Max power consumption (W)	3000W
Traffic	
Max streams per port	400G: Tx=16K; 200G: Tx=8K; 100G: Tx=4K
Frame length (byte)	64~16004 bytes
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.
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	Built in multiple message templates, such as VLAN, ICMP, PPPoE, GRE, DHCP, L2TP, IPv6, MPLS, GTP, GOOSE, VXLAN, OSPF, TCP, UDP, etc
Customized frame	Support user-defined message, and the edited message template can be saved; Supports the checksum check of custom fields
User defined data	Support importing the 16K bytes customized payload and the first 256 bytes can be adjusted with jumping
Flow control	Full duplex flow control
Packet error generation	CRC error, Oversize frame
Statistics	
Statistical streams per port	400G: Tx=32K; 200G: Tx=16K; 100G: Tx=8K
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)	400G: 1MB; 200G: 512KB; 100G: 256KB
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	RIPv1v2, RIPng, OSPFv2, OSPFv3, ISISv4, ISISv6, BGP, BGP4+, LDP, MPLS L3VPN, VPLS, VLL, 6VPE, 6PE
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
Data center	VXLAN, OpenFlow, OVSDB, EVPN, LACP
other	BFD, 802.1ag, 802.1ah, IPv6 automatic configuration
test suite	RFC2544, RFC2889, RFC3918, Asymmetric Test, Smart Scripter
Stateful L47 Protocol	HTTP, Raw TCP
Software platform	
Client software	Renix
API	Tcl, Python3.x, GUIToTcl, GUIToPython
GUI language	English , Simplified Chinese
Hardware platform	
Chassis operating system	Linux CentOS7. 1

Renix

Renix is L2-3 testing software developed by Xinertel. Together with Xinertel chassis and test modules, Renix can perform protocol simulation, traffic and performance test.

With the continuous evolution of the communication network, the software and hardware architecture of network equipment is increasingly complex, the protocols supported by network equipment are more abundant, and the scale of network traffic on the Internet is rapidly expanding. In addition to the characteristics of 5G, such as ultra-high bandwidth, massive connections, low latency, and ultra reliability, higher requirements are put forward for the network tester.

As a professional L2-3 testing solution provider, Xinertel has launched a new generation of testing software platform Renix based on PCT architecture, which can meet the complex testing scenario requirements faced by large network equipment manufacturers, telecommunications operators and data centers.

Key features

- Unified L2-3 test platform
- Ease of use design
- Port speed ranges from 10M to 400GE
- Powerful traffic configuration function
- Efficient and convenient configuration Wizard
- Nested packet capture and analysis capabilities
- Comprehensive and professional statistical views
- Convenient Smartscript function
- Customized test report and result analysis system
- Support Tcl and Python API secondary development

Platform Advantages

Ease of use

Renix adopts advanced PCT architecture design, deeply optimizes the test operation process, functional module settings, configuration item function settings, etc., provides a more professional configuration interface, and provides users with a configuration process that is more in line with their habits based on the ribbon menu operation method and more convenient multi-interface navigation. At the same time, the new protocol simulation configuration wizard effectively reduces the complexity of protocol simulation configuration and greatly improves configuration efficiency.In addition, detailed help documents and convenient log query functions provide new users with Hand use provides more convenience.

Functionality

Renix provides offline operation functions for test item configuration, allowing users to view test results and operate protocols during software operation, as well as record operation history. Renix has powerful functions such as traffic capture, filtering, analysis, and protocol parameter verification, providing users with features such as arbitrarilycustomized flow templates, query and grouping based on configuration and statistics. Richer traffic generation and result analysis tools to meet more complex testing needs.

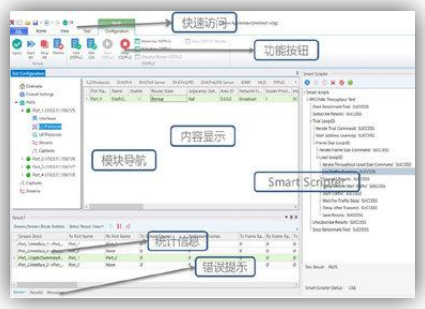
Extensibility

The new software architecture provides unprecedented scalability for Renix. Renix has a unified automation interface that enables script configuration of parameters, providing greater stability and compatibility. The restructured underlying protocol and newly developed data center protocol facilitate the rapid addition of new protocols in the future.

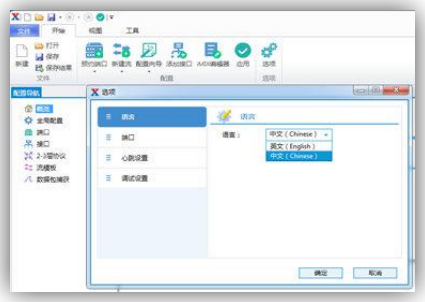
Provide API and customized services

Based on existing software and hardware platforms, we provide secondary development of APIs and testing services for proprietary technologies and protocols according to customer needs.

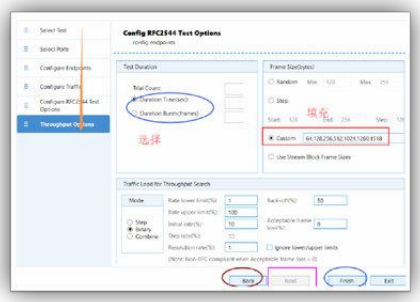
Software features



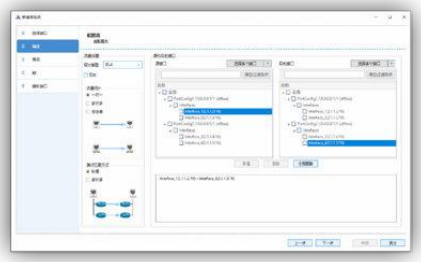
Modular design



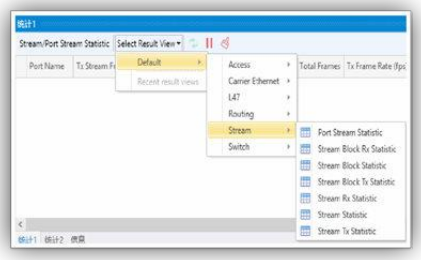
Usability design + bilingual Chinese and English



Efficient and convenient wizard



End-to-end business creation



Comprehensive and professional statistical views

Test report and result analysis system

Features

Chassis management	
Supported Chassis	BigTao 220, BigTao 6200, DarYu3000, DarYu12000
Chassis operating system	Linux CentOS 7.X
Chassis management	Add, delete, connect, disconnect the machine frame
Chassis operation	Restart, shutdown, upgrade the shelf, shelf status
Port management	
Port management	Port migration, online, offline, deletion
License management	
License management and operation	Install, clean, merge, delete, download licenses
Multi-user/multi-process	
multi-user	Support up to 32 users
multi-process	Support
Traffic	
Frame length control	Fixed, Increment (supporting step size setting), Decrement (supporting step size setting), Random (supporting random seed),iMIX
Transmission mode	• Port-based: Continuous, Burst, Time • Flow-based: Continuous, Burst • Sending mode: synchronous sending, asynchronous sending
Flow template	Layer2, IPv4, IPv6, TCP, UDP, ARP, Pause, Goose, PPPoE, VLAN, MPLS, ICMP, IGMP, GRE, GTP, L2TPv2, L2TPv3, IPv6, OSPF, STP, MLD, ISIS and so on
Delay mode	LILO, FIFO, LIFO, FILO, supporting configuration of delay mode
Error frame	CRC error, under-size frame, oversize frame
Statistics	
Statistical form	Table statistics (paging statistics), chart statistics
statistical sampling	Real-time statistics
Filtering Statistics	Supported
Statistical items	Transmit/receive flow frame number, transmit/receive rate, receive bandwidth, error packet statistics, delay, jitter, real-time packet loss rate, filtering statistics, etc.
Capture	
Capture type	Transmission/reception capture at the control level; data and control level reception capture (line speed); received messages include CRC; cyclic capture
Capture filtering	• Customized capture mode: 8 stream templates/custom bytes • Error frame capture: FCS Error/PRBS Error/IPv4 Checksum Error/TCP Checksum Error/ UDP Checksum Error/IGMP Checksum Error/ICMP Checksum Error • Length and ID capture: Ultra-short / Ultra-long / Giant frame / Specific length frame / Signature Present ID • Frame type capture: IPv4/TCP/UDP/IPv6/IGMP • Event capture: Qualify Event/ Start Event/Stop Event
Real-time capture	Support real-time capture of control plane
Protocol simulation	
Routing	RIPv1/v2, RIPng, OSPFv2, OSPFv3, BGP4 , BGP4+, ISISv4/v6
Access	PPPoE Client/Server, DHCPv4 Client/Server, DHCPv6 Client/Server, L2TPv2, 802.1X, SAA

Multicast	• IGMPv1/v2/v3 • IGMP/MLD querier • MLDv1/v2 • PIM-SMv4/v6 • PPPoE over Multicast • IPTV
Carrier Ethernet	• Link OAM 802.3ah • Service OAM 802.1ag
MPLS	• LDP • MPLS IP VPN • 6VPE/6PE • BGP VPLS • LDP VPLS • PWE • LSP Ping
SP-SDN	• BGP-LS • PCEP • SR for BGP/OSPF/ISIS • SRv6 for ISISv6/BGP • BGP SR TE Policy • SRv6 VPN • SRv6 EVPN • GSRv6 for ISIS
Data Center	• VXLAN • VXLAN EVPN • OVSDB • OpenFlow 1.3 Controller • BGP/EVPN for VxLAN • LACP
High Availability	• BFD • OSPFv2 BFD • OSPFv4 BFD • ISIS BFD • BGP BFD
TSN protocol simulation (supported by BigTao platform)	• 802.1AS • 802.1Qav • 802.1Qat(SRP) • 802.1Qbv • 802.1Qcr • 802.1Qci • 802.1CB • 802.1Qbu
TSN consistency (supported by BigTao platform)	• 802.1AS • 802.1Qbv • 802.1CB • 802.1Qbu
Protocol Wizard And protocol binding flow support	• OSPFv2/v3 • BGP4/BGP4+ • ISISv4/v6 • PPPoE Client/Server • DHCPv4/v6 Client/Server • IGMPv1/v2/v3 • MLDv1/v2 • PCEP and IGP Topology/SR Anycast/SR TE Convergency/SRv6 VPN/SRv6 IP/SRv6 EVPN
Test kit	• RFC2544 • RFC2889 • RFC3918 • Asymmetric Performance • Y.1564
Automation	
API	Tcl, Python3.x, GUIToTcl, GUIToPython
Smart Scripter	Supported
GUI Language	English, Simple Chinese

ALPS

L4-7 l application and security testing software

As a professional provide r of L47 layer testing solutions , Xinretel has launched a new generation of L4 - 7 testing software platform ALPS based on Web- oriented PCT architecture , which can meet the current application and security testing scenarios needs of the majority of network security equipment manufact urers (including firewalls, IPS/ IDS , WAF , SLB , DPI , etc .) , telecom operators, and various research institutions . ALPS new platform in The usability, functionality, and scalability have been greatly improved.

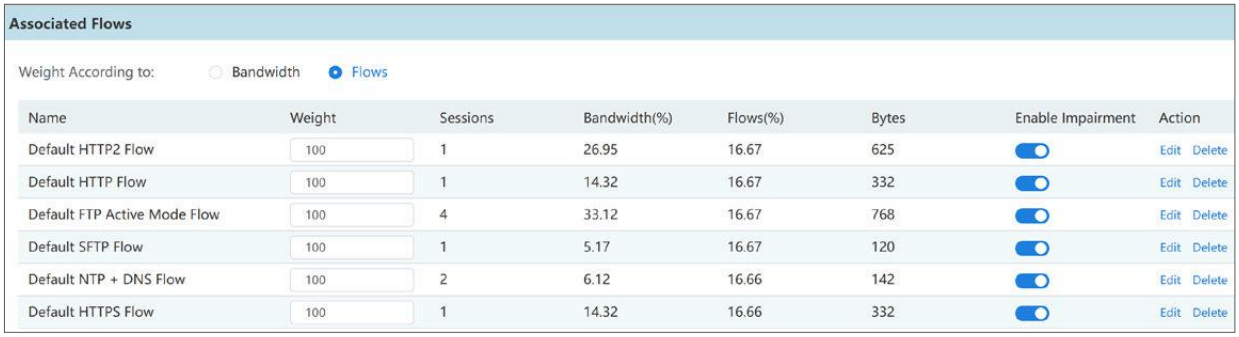
ALPS can simulate data, voice, and real users behavior, accurately emulating millions of real end-user and network behaviors. It can conduct stress and performance testing for individual application layer-aware devices (such as Firewall/IPS/IDS/WAF/DPI, etc.) or entire systems. It can simulate a large amount of real attack traffic and malicious virus traffic , verifying and testing the detection and defense capabilities of network security devices and systems against attacks and viruses, providing important performance and effectiveness evaluations for security testing.

Key features

- Support network security device performance and capacity testing Including firewalls, load balancers, WAFs, URL filters, antivirus, anti spyware, HTTP/HTTPS accelerators, WAN accelerators, IDS/IPS, and IPsec VPN gateways, etc
- Support application server performance testing Including web servers, mail servers, DHCP services, FTP servers, DNS servers, RTSP/RTP QuickTime streaming servers, multicast servers, etc
- Support network security testing: support simulation of attack traffic, virus and malware.

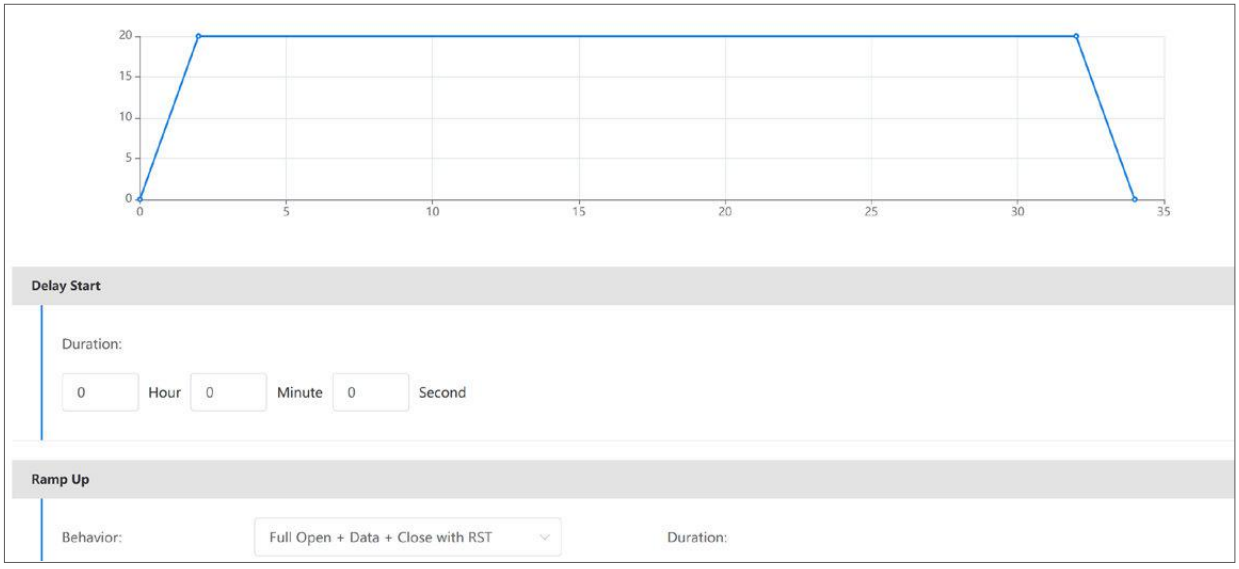
Multiple application protocol emulation

HTTP/HTTPS/DNS/FTP protocols, private, non-standard protocols (capture and playback)



Real User simulation

- Real, multi-protocol traffic models
- application mix and bandwidth control
- L4-7 stateful application traffic emulation



BigTao V series network tester

BigTao-V series launched by Xinertel is for R&D test of routers, switches and network forwarding equipment. It supports any combination of test modules with multiple-rate from 10M to 800G, and can provide TSN protocol test solutions for automotive Ethernet and industrial Ethernet with TSN test module.

Follow Xinertel official account
for more product information

Product Introduction

The BigTao-V series network tester features modular design and consist of chassis, test modules, and test software. Portable handles are added on the side of the BigTao220 chassis with two slots to meet the needs of field testing. And the professional noise reduction technology is used to allow testing in the office. The design adopts environmental protection and energy saving technology,which can effectively reduce the long-term test cost.

With the new generation of test software RENIX and ALPS based on the PCT architecture, BigTao-V series supports L2-7 traffic test and protocol simulation for network devices and network systems, providing comprehensive test solutions in terms of functionality, performance, and security to meet the testing needs in the process of research and development, experimentation, and quality control.

BigTao220

The BigTao220 portable chassis is a new generation tester launched by the Xinertel. It adopts modular design, provides 2 slots, and supports any combination of test modules with multiple rates from 10M to 800G.

The BigTao220 is portable Chassis with a handle on the side, which can meet the needs of field testing. Additionally, it adopts professional noise reduction technology, allowing it to be used in the office for testing. The design incorporates environmentally friendly and energy-saving technologies, effectively reducing the cost of long-term network testing.

With the new generation of test software Renix and ALPS based on the PCT architecture of Xinertel and the V series test modules, BigTao220 can perform L2-7 traffic test and protocol simulation for network devices and network systems, providing a rich test solution in terms of function, performance, and security, meeting the test needs in the process of research and development, experimentation, and quality control.

Key features

- Supports 10M~800G test modules
- Highly portable, low power consumption, and low noise
- Supports multiple ways of management IP modification
- Supports software download from chassis based on Web browser
- Supports both Chinese and English software platforms and test reports
- Tcl and Python API for automated testing

Specifications

Slot	2 slots
Dimensions (WxDxH)	340mm x 400mm x 95mm
Weight	Empty cabinet: about 6.6kg Fully loaded with test modules : about 9.2kg
Maximum power Supply	200W
Switch/Display	• AC power switch • Power, Fan, Temp, Link LED，16*02 LCD • Reset button of the main control of the chassis • LCD control button of the chassis
I/O	• 1 DB15 display interface • 1 RJ45 10/100/1000M management interface • 1 RJ45 RS232 serial port • 1 SYNC-OUT, 1 SYNC-IN chassis cascade interface • 1 DB9 GPS RS232 serial port • 1 PPS, 1 10MHz input BNC • 2 USB Type A interfaces
Temperature	Working : 0° C to 35° C Storage : -40° C to 70° C
Humidity	Working: 20% to 85% Storage: 20% to 85%
Chassis power supply	1 x 110VAC/220VAC 50/60Hz @3A single-phase power input
Noise	The noise of the entire machine operating at full capacity is less than or equal to 65dba
Operating system	CentOS7.X , 64bit
Network management	• IPv4 management network • Support panel button to modify IP address • Support SSH to modify IP, query status • Support monitor and keyboard to modify IP address • Support to download client software from chassis using web browser, and modify IP address • Support License management and hardware management through client software
Client software	RENIX, ALPS
Client system requirements	System: Microsoft Windows 7/ Windows 10/Windows Server 2012 R2 Standard Edition CPU: i3-6100 CPU @ 3.70GHz or higher Memory: 4 GB and above
Test module support	V6000 test module, V8000 test module, V2-10G test module, V2-100G test module, V2-400G test module, TSN test module, V2-APP test module

BigTao6200

The BigTao220 rack-mounted chassis is a new generation tester launched by the Xinertel. It adopts modular design, provides 6 slots, and supports any combination of test modules with multiple rates from 10M to 800G.

The BigTao6200 rack-mounted chassis has an efficient hardware architecture and adopts professional fan/noise control and energy-saving technology. While providing high-efficiency operation, it can effectively reduce noise and power consumption, saving costs for enterprises. The BigTao6200 chassis can not only run all existing V2 series test modules, but is also compatible with all previous V series test modules, providing effective protection for customers' assets.

With the new generation of test software Renix and ALPS based on the PCT architecture of Xinertel and the V series test modules, BigTao6200 can perform L2-7 traffic test and protocol simulation for network devices and network systems, providing a rich test solution in terms of function, performance, and security, meeting the test needs in the process of research and development, experimentation, and quality control.

Key features

- Supports 10M~800G test modules
- High port density, high Integration
- Supports multiple methods for modifying management IP
- Supports software download from chassis based on Web browser
- Supports both Chinese and English software platforms and test reports
- Tcl and Python API for automated testing

High Density

Specifications

Slot	6 slots
Dimensions (WxDxH)	446mm x 413mm x 132mm
Weight	Empty cabinet: about 12.5kg Fully loaded with test modules : about 20kg
Maximum power Supply	600W
Switch/Display	· AC power switch · Power, Fan, Temp, Link LED，16*02 LCD · Reset button of the main control of the chassis · LCD control button of the chassis
I/O	· 1 DB15 display interface · 1 RJ45 10/100/1000M management interface · 1 RJ45 RS232 serial port · 1 SYNC-OUT, 1 SYNC-IN chassis cascade interface · 1 DB9 GPS RS232 serial port · 1 PPS, 1 10MHz input BNC · 2 USB Type A interfaces
Temperature	Working : 0° C to 35° C Storage : -40° C to 70° C
Humidity	Working: 20% to 85% Storage: 20% to 85%
Chassis power supply	1 x 110VAC/220VAC 50/60Hz @3A single-phase power input
Noise	The noise of the entire machine operating at full capacity is less than or equal to 65dba
Operating system	CentOS7.X , 64bit
Network management	· IPv4 management network · Support panel button to modify IP address · Support SSH to modify IP, query status · Support monitor and keyboard to modify IP address · Support to download client software from chassis using web browser, and modify IP address · Support License management and hardware management through client software
Client software	RENIX, ALPS
Client system requirements	System: Microsoft Windows 7/ Windows 10/Windows Server 2012 R2 Standard Edition CPU: i3-6100 CPU @ 3.70GHz or higher Memory: 4 GB and above
Test module support	V6000 test module, V8000 test module, V2-10G test module, V2-100G test module, V2-400G test module, TSN test module, V2-APP test module

BigTao 1000

The BigTao 1000 chassis is a portable chassis that supports Xinertel's new generation 800G multi-rate test module. With built-in LCD screen, intelligent power supplies, fan control, and fast firmware upgrades, BigTao 1000 reduces the costs of network equipment effectively.

With the new generation of test software RENIX based on the PCT architecture, BigTao 1000 supports L2-3 traffic test and protocol simulation for network devices and network systems, providing comprehensive test solutions in terms of functionality, performance, and security to meet the testing needs in the process of research and development, experimentation, and quality control.

Key features

- A unified platform for high-performance L2-7 test, supporting large-scale routing and switch protocol simulation and application test
- Support 800G/400G/200G/100G
- 2.5U height, strong portability
- Support for multiple chassis cascades of daisy chains for easy expansion for large-scale test
- Supports multiple management IP modification methods
- No need to learn new GUI of software
- Support to download client software based on web browsers
- Support API interface for Renix and supports TCL automated test

Ordering information

Product Name	Product Description	Product Classification
BigTao 1000 chassis	BigTao 1000 2-slot chassis	BigTao 1000 Chassis
V2-800G-2M-S test module	2-port, 800G test module	BigTao 1000 Chassis test module

Specifications

Slot	2 slots
Dimensions (WxDxH)	390mm× 113mm× 420mm
Weight	Chassis only : about 10.5kg; Chassis with 2 test modules: about 15kg
Switch/Display	• Rear AC power supply • Power, Fan, Temp, Link LED indicator, LCD • Reset button of the main control of the chassis • LCD control button of the chassis
I/O	• 1 HDMI display interface • 1 RJ45 10/100/1000M management interface • 1 SYNC-OUT, 1 SYNC-IN chassis cascade interface • 1 RJ45 GPS RS232 serial port • 1 PPS input BNC • 2 USB Type A interfaces
Temperature	Storage: -40° C to 70° C
Humidity	Working : 20% to 85%,; Storage : 20% to 85%
Chassis power supply	1 x 110V AC/220V AC 50/60Hz @10A single-phase power input
Noise	The noise of the complete machine is ⩽ 69dba at typical speed and ⩽ 85dba at full speed
Operating system	CentOS6.7 and above, 64bit
Network management	• IPv4 management network; support panel button to modify IP address and query status • Support Telnet/SSH terminal to modify IP and query status • Support external display and keyboard to modify IP and query status • Support web page download client, modify IP, query status • Support License management and hardware management through client software

V6000 Test Module

The V6000 is a new generation test module launched by Xinertel , which can meet the needs from basic function test, consistency test to high-density port performance test. At the same time, it can verify network solutions when deployed in enterprises, operators and data centers whether its network system can achieve the expected goal.

Key features

- 10/100/1000M RJ45 auto-negotiation (cooper port)
- 100/1000M SFP (fiber port)
- Support L2-3 traffic generation and protocol emulation
- Support FPGA based 100% line rate traffic generation, statistics, and packet capture
- Support the benchmark test suites such as RFC2544, RFC2889, and RFC3918
- Language for test software GUI: English and Chinese
- Language for test report: English and Chinese

Models

V6004C Test Module
4-port RJ45 1G test module

V6008C Test Module
8-port RJ45 1G test module

V6016M Test Module
8-port RJ45 and 8-port SFP 1G test module

V6016F Test Module
16-port SFP 1G test module

V6004F Test Module
4-port SFP 1G test module

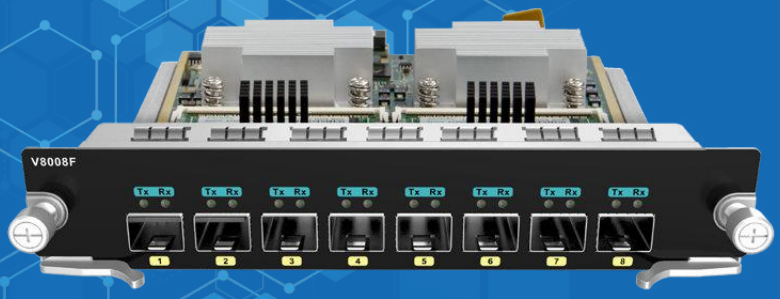
V6008M Test Module
4-port RJ45 and 4-port SFP 1G test module

V6016C Test Module
16-port RJ45 1G test module

Specifications

Hardware and electrical characteristics	
Port speed	Cooper port: 10M/100M/1000M; Fiber port: 100M/1000M
Port density	Up to 16 ports for single test module
Interface standards	1000BASE-SX、1000BASE-LX、10/100/1000BASE-T
User reservation	reservation by port
Port speed switching	Auto negotiation
Weight (kg)	1.1
Dimensions (W*H*D)	196mm x 35.5mm x 271mm
Temperature	0° C to 35° C
Humidity	20% to 85%
Max power consumption (W)	31W
Traffic generation	
Max streams per port	64/128(V6004C)
Frame length (byte)	Cooper port: 58-16383; 1000M fiber port: 58-16383; 100M fiber port: 58-9215
Frame length controls	Fixed, Increment, Decrement, Random, Auto, and IMIX
Dynamic fields	4 dynamic fields are available for each stream ; Support multiple dynamic controls such as Fixed, increment, Decrement, List, and Random.
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	8 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 32K bytes customized payload and the first 256 bytes can be adjusted with jumping
Packet error generation	CRC error, Undersize frame,Oversize frame
Flow control	Full duplex flow control, half duplex back pressure
Satistics	
Statistical streams per port	256/512(V6004C)
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)	512M/1024M per port (V6004C)
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	RIPv1v2, 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, BGPVPLS, LDPVPLS, 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-SMv4/v6、PPPoE over Multicast
Data center	VXLAN IPv4/IPv6, VXLAN EVPN IPv4/IPv6, OVSDB, OpenFlow 1.3 Controller, BGP/EVPN for VxLAN, LACP
other	BFD, 802.1ag, 802.3ah, IPv6 automatic configuration, Y.1731
Test suites	RFC2544, RFC2889, RFC3918, Asymmetric Test, Smart Scripter
Software platform	
Client software	RENIX
API	Tcl, Python3.x, GUIToTcl, GUIToPython
GUI language	English, Simplified Chinese
Hardware platform	
Chassis	BigTao220、BigTao6200
Chassis operating system	Linux CentOS7.X

V8000 Test Module



The V8000 series test module of Xinretai provides various specifications of ports (maximum 8 ports), and can also be equipped with optical or electrical port mode according to actual needs. With Xinretai's new generation test software RENIX based on PCT architecture, the V8000 series test module can provide a complete set of Layer2-3 layer based test plans, and each port supports line speed traffic generation and analysis, high-performance routing/multicast/user access simulation, etc.

Key features

- Supports 10G/1G SFP+/SFP
- Support L2-3 traffic generation and protocol emulation
- Support FPGA based 100% line rate traffic generation, statistics, and packet capture
- Support the benchmark test suites such as RFC2544, RFC2889, and RFC3918
- Language for test software GUI: English and Chinese
- Language for test report: English and Chinese

Models

V8004F Test Module
4-port 10G SFP+ test module

V8008F Test Module
8-port SFP+ 10G test module

V8008D Test Module
8-port SFP/SFP+ 1G/10G test module

Specifications

Hardware and Electrical Characteristics	
Port speed	1G/10G
Port density	Up to 8 ports for single test module
Interface standards	1000MBASE-SX/LX、10GBASE-SR/SW、10GBASE-LR/LW
User reservation	Reservation by port
Port speed switching	By port group (4 ports per group/V8008D)
Weight (kg)	1.2
Dimensions (W*H*D)	196mm x 35.5mm x 271mm
Temperature	0° C to 35° C
Humidity	20% to 85%
Max power consumption (W)	29W
Traffic generation	
Max streams per portt	256
Frame length (byte)	58-16383
Frame length controls	Fixed, Increment, Decrement, Random, Auto, and IMIX
Dynamic fields	4 dynamic fields are available for each stream ; Support multiple dynamic controls such as Fixed, increment, Decrement, List, and Random.
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	8 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 32K bytes customized payload and the first 256 bytes can be adjusted with jumping
Packet error generation	CRC error, Undersize frame,Oversize frame
Flow control	Full duplex flow control, half duplex back pressure
Statistics	
Statistical streams per port	1024
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)	1024M
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	RIPv1v2, 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, BGPVPLS, LDPVPLS, 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-SMv4/v6、PPPoE over Multicast
Data center	VXLAN IPv4/IPv6, VXLAN EVPN IPv4/IPv6, OVSDB, OpenFlow 1.3 Controller, BGP/EVPN for VxLAN, LACP
other	BFD, 802.1ag, 802.3ah, IPv6 automatic configuration, Y.1731
Test suites	RFC2544, RFC2889, RFC3918, Asymmetric Test, Smart Scripter
Software platform	
Client software	RENIX
API	Tcl, Python3.x, GUIToTcl, GUIToPython
GUI language	English, Simplified Chinese
Hardware platform	
Chassis	BigTao220、BigTao6200

V2-10G Test Module

The Xinertel V2-10G test module combines high density and multi-rate capabilities, allowing for testing of current research and development rates (2.5G, 5G), as well as future 10G network evolution, while also accommodating legacy 100M and 1G networks, effectively saving research and development costs.

Key features

- Support 5-speed: 10G/5G/2.5G/1G/100M
- Support L2-3 traffic generation and protocol emulation
- Support FPGA based 100% line rate traffic generation, statistics, and packet capture
- Support the benchmark test suites such as RFC2544, RFC2889, and RFC3918
- Language for test software GUI: English and Chinese
- Language for test report: English and Chinese

Models

V2-10G-8C-Q Test Module
8-port RJ45 10G/5G/2.5G/1G/100M test module

V2-10G-8F-T Test Module
8-port SFP/SFP+ 1G/2.5G/10G test module

Specifications

Hardware and electrical characteristics	
Port speed	Cooper port: 10G/5G/2.5G/1G/100M (full duplex) Fiber port: 1G/2.5G/10G
Port density	Up to 8 ports for single test module
Interface standards	100BASE-T, 1000BASE-T, 2.5GBASE-T, 5GBASE-T, 10GBASE-T, 802.3 bz, NBASE-T, MGBASE-T 1000MBASE-SX/LX, 2.5GBASE-SX/IX, 10GBASE-SR/SW, 10GBASE-LR/LW
User reservation	Reservation by port
Port speed switching	Auto negotiation
Weight (kg)	1.1
Dimensions (W*H*D)	196mm x 35.5mm x 271mm
Temperature	0° C to 35° C
Humidity	20% to 85%
Max power consumption (W)	41W

Traffic generation	
Max streams per port	256
Frame length (byte)	58-16383
Frame length controls	Fixed, Increment, Decrement, Random, Auto, and IMIX
Dynamic fields	4 dynamic fields are available for each stream ; Support multiple dynamic controls such as Fixed, increment, Decrement, List, and Random.
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	8 nanoseconds
Built-in protocol templates	VLAN, ICMP, PPPoE, GRE, DHCP, L2TP, IPv6, MPLS, GTP, GOOSE, VXLAN, OSPF, TCP and UDP, etc.
Flow control	Support customizing the frame, and the edited frame template can be saved; Customized field can be checked with checksum.
Customized payload	Support importing the 64K bytes customized payload and the first 128 bytes can be adjusted with jumping
Packet error generation	CRC error, Undersize frame,Oversize frame
Flow control	Full duplex flow control, half duplex back pressure
Statistics	
Statistical streams per port	1024
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)	1024M
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	RIPv1v2, 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, BGPVPLS, LDPVPLS, 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-SMv4/v6、PPPoE over Multicast
Data center	VXLAN IPv4/IPv6, VXLAN EVPN IPv4/IPv6, OVSDB, OpenFlow 1.3 Controller, BGP/EVPN for VxLAN, LACP
other	BFD, 802.1ag, 802.3ah, IPv6 automatic configuration, Y.1731
Test suites	RFC2544, RFC2889, RFC3918, Asymmetric Test, Smart Scripter
Software platform	
Client software	RENIX
API	Tcl, Python3.x, GUIToTcl, GUIToPython
GUI language	English, Simplified Chinese
Hardware platform	
Chassis	BigTao220、BigTao6200
Chassis operating system	Linux CentOS7.X

V2-100G Test Module

The V2-100G is a new generation test module launched by Xinertel, which can meet the needs of NEM from functional test to high-density port performance test. It can be used to verify whether the network system can achieve the desired goals when deploying network solutions for enterprises, operators, and data centers customers.

Key features

- Support native QSFP28 100G interface，and compatible with 40G/25G/10G
- Support L2-3 traffic generation and protocol emulation
- Support FPGA based 100% line rate traffic generation, statistics, and packet capture
- Support the benchmark test suites such as RFC2544, RFC2889, and RFC3918
- Language for test software GUI: English and Chinese
- Language for test report: English and Chinese

Models

V2-100G-4QSFP28-Q Test Module
4-port 100G/40G/25G/10G test module

V2-100G-2QSFP28-Q Test Module
2-port 100G/40G/25G/10G test module

V2-100G-4QSFP28-T Test Module
4-port 100G/40G/10G test module

V2-100G-2QSFP28-T Test Module
2-port 100G/40G/10G test module

V2-100G-4QSFP28-D Test Module
4-port 100G/25G test module

V2-100G-2QSFP28-D Test Module
2-ports 100G/25G test module

V2-100G-4QSFP28-S Test Module
4-port 100G test module

V2-100G-2QSFP28-S Test Module
2-ports 100G test module

Specifications

Hardware and electrical characteristics	
Port speed	100G/40G/25G/10G
Port density	Up to 4 ports for single test module
Interface standards	100G: 100GBASE-SR4, 100GBASE-LR4; 40G: 40GBASE-SR4, 40GBASE-LR4; 25G: 802.3by 25GBASE-SR; 10G: 10GBASE-SR; 100G FEC: 100GBase-SR4 RS-FEC91; 25G FEC: 25GBase-SR RS-FEC108, 25GBase-SR FEC CL74, 25GBase-SR RS-FEC CL91
User reservation	Reservation by port
Port speed switching	Auto negotiation
Weight (kg)	1.2
Dimensions (W*H*D)	196mm x 35.5mm x 271mm
Temperature	0° C to 35° C
Humidity	20% to 85%
Max power consumption (W)	48W
Traffic generation	
Max streams per port	100G/40G: 1024； 25G/10G: 256
Frame length (byte)	64-16383
Frame length controls	Fixed, Increment, Decrement, Random, Auto, and IMIX
Dynamic fields	4 dynamic fields are available for each stream ; Support multiple dynamic controls such as Fixed, increment, Decrement, List, and Random.
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	8 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.
User-defined data	100G/40G: support importing the 128K bytes customized payload, the first 128 bytes can be adjusted with jumping 25G/10G:support importing the 32K bytes customized payload, the first 128 bytes can be adjusted with jumping
Packet error generation	CRC error, Undersize frame,Oversize frame
Flow control	Full duplex flow control, half duplex back pressure
Statistics	
Statistical streams per port	100G/40G: 2048； 25G/10G: 512
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)	32K
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	RIPv1v2, 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, BGPVPLS, LDPVPLS, 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-SMv4/v6、PPPoE over Multicast
Data center	VXLAN IPv4/IPv6, VXLAN EVPN IPv4/IPv6, OVSDB, OpenFlow 1.3 Controller, BGP/EVPN for VxLAN, LACP
other	BFD, 802.1ag, 802.3ah, IPv6 automatic configuration, Y.1731
Test suites	RFC2544, RFC2889, RFC3918, Asymmetric Test, Smart Scripter
Software platform	
Client software	RENIX
API	Tcl, Python3.x, GUIToTcl, GUIToPython
GUI language	English, Simplified Chinese
Hardware platform	
Chassis	BigTao220、BigTao6200
Chassis operating system	Linux CentOS7.X

V2-400G Test Module

With the rapid development of big data center, mobile Internet, Internet of Things and cloud computing services, as well as the widespread promotion and use of AR/VR/UHD video services and other technologies. The demand for data bandwidth in networked communication is increasing, and the arrival of 5G, with its ultra-high bandwidth, massive connections, low latency, and high reliability, is undoubtedly a powerful foundation for building all of this. In order to achieve ultra-high bandwidth of 5G, the increasingly 400GE technology in the backbone network and data center network of operators can further increase network capacity and reduce costs on the basis of 100GE, effectively solving the pressure brought by current business traffic and sustained growth of network broadband.

The V2-400G is new generation test module launched by Xinertel, which can meet the functional and performance test requirements of 400GE's network infrastructure and network equipment. It supports traffic

and performance test scenarios including routers, switches, NICs, TAP switches, optical modules, DAC cables, etc.

Key features

- Native QSFP-DD 400G interfaces, compatible with 200GE/100GE
- Support L2-3 traffic generation and protocol emulation
- Support FPGA based 100% line rate traffic generation, statistics, and packet capture
- Support the benchmark test suites such as RFC2544, RFC2889, and RFC3918
- Language for test software GUI: English and Chinese
- Language for test report: English and Chinese

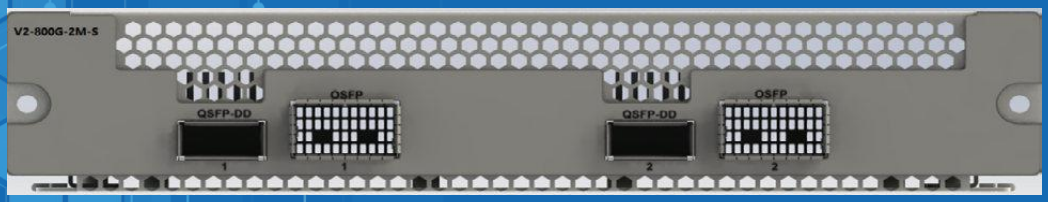
Models

V2-400G-2QDD-Q test module
2-port 100G/200G/400G test module

Specifications

Hardware and electrical characteristics	
Port speed	400GE/200GE/100GE
Port density	2 ports
Interface standards	400G: 400GAUI-8 (PAM4) 200G: 200GAUI-4（PAM4) 100G: CAUI-4(NRZ/PAM4) 400G FEC：802.3-2018 CL119 200GFEC：802.3-2018 CL119 100G FEC: 802.3-2018 CL91
User reservation	Reservation by port
Port speed switching	Switch the speed by port group（2 ports as a group）
Weight (kg)	1.1
Dimensions (W*H*D)	196mm x 35.5mm x 271mm
Temperature	0° C to 35° C
Humidity	20% to 85%
Max power consumption (W)	133W
Traffic generation	
Max streams per port	400G: 256; 200G: 256; 100G: 1024
Frame length (byte)	64-16383
Frame length controls	Fixed, Increment, Decrement, Random, Auto, and IMIX
Dynamic fields	4 dynamic fields are available for each stream ; Support multiple dynamic controls such as Fixed, increment, Decrement, List, and Random.
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	8 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 128K bytes customized payload and the first 128 bytes can be adjusted with jumping
Statistics	
Statistical streams per port	400G: 256; 200G: 256; 100G: 2048
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..
Protocol emulation	
Routing and MPLS	RIPv1/v2、RIPng、OSPFv2/v3、BGP4/4+、ISISv4/v6、SR for BGP、BGP SR TE Policy、LDP、BGP VPLS
Access	PPPoE Client/Server、DHCPv4 Client/Server、DHCPv6 Client/Server、DHCPv4 Option 60、L2TPV2
Multicast	IGMPv1/v2/v3、IGMP/MLD Querier、MLD、PIM、PPPoE over Multicast
Data center	VXLAN IPv4/IPv6, VXLAN EVPN IPv4/IPv6, OpenFlow 1.3 Controller
other	BFDv4/v6, 802.1ag, 802.3ah, Y.1731
Capture	
Capture buffer (Byte)	32K
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.
Test suites	
Benchmark test suite	RFC2544, Smart Scripter
Software platform	
Client software	RENIX
API	Tcl, Python3.x, GUIToTcl, GUIToPython
GUI language	English, Simplified Chinese
Hardware platform	
Chassis	BigTao220、BigTao6200
Chassis operating system	Linux CentOS7.X

V2-800G Test Module



With the rapid development of big data center, mobile Internet, Internet of Things and cloud computing services,

as well as the widespread promotion and use of AR/VR/UHD video services and other technologies, The demand for data bandwidth of Internet communication is becoming higher and higher. With the soaring use of the Internet,especially the popularity of high bandwidth applications such as video streaming, cloud computing and big data analysis,Data centers and network infrastructure are facing unprecedented growth in data traffic, which requires higher network bandwidth and transmission rates to support. The new wave of AI is leading in advance. The demand for high-speed Ethernet in data centers has exploded. New data center business traffic such as AI big models and machine learning is driving exponential data growth from end to end and to users, 800G Ethernet is ready for deployment.

The V2-800G is new generation 800G test module developed by Xinertel with a globally leading architecture, which can meet the needs of 800G network infrastructure and equipment. The functional and performance test requirements include traffic and performance test scenarios for routers, switches, NICs, TAP switches, optical modules, DAC cables, etc.

Key features

- Native 2xQSFP-DD800 and 2xOSFP800 interfaces (8X112G PAM4)，compatible with 400GE/200GE/100GE
- Support L2-3 traffic generation and protocol emulation
- Support AN/LT protocol test (DAC cable test)
- Support optical module testing
- Support FPGA based 100% line rate traffic generation, statistics, and packet capture
- Support dynamic adjustment of bandwidth from 0 to 100%
- Language for test software GUI: English and Chinese
- Language for test report: English and Chinese

Models

Product	Product Description	Product classification
V2-800G-2M-S Test Module	2-port 800G test module	BigTao1000 series test module

Specifications

Hardware and electrical characteristics	
Port speed	2x400GE (8X112G PAM4), 1 800G port fan-out supports 2x400G, 2x200G or 4x100G.
Port density	2 QSFP-DD interfaces or 2 OSFP interfaces for single test module
Interface standards	2x400GBASE-SR4/LR4/FR4/DR4，AEC，AOC，DAC
User reservation	Reservation by port
Port speed switching	Switch speed by port group
Number of ports	2
Power supply	DC 54V
Dimensions (W*H*D)	290mmx230mm x 45.32mm
Temperature	0° C~35° C
Humidity	20%~85%
Max power consumption (W)	300W
Chassis	Bigtao1000 chassis
Chassis operating System and supported software	Linux , Renix

V2-1G-8M-TSN Test Module

With the advantages of high bandwidth, universal Ethernet protocols, and precise control of network KPIs, Time sensitive Networking（TSN）can meet the development needs of digital and intelligent industrial networks. Targeting on the evolution direction of next-generation industrial network technology, TSN has formed a consensus in the industry. A powerful and professional testing tool is essential for widely used of any technology. The XINERTEL TSN test module can provide TSN test solution for automotive and industrial Ethernet.

Key features

- Support 8-port Dual-PHY SFP and RJ45
- 10/100/1000M speed support on copper RJ45 port, 100/1000M speed support on fiber ports
- Support 100/1000BASE-T1 photoelectric conversion module
- Support L2-3 traffic generation and protocol emulation
- Support FPGA based 100% line rate traffic generation, statistics, and packet capture
- Real-time statistics with resolution of 8ns
- Support the benchmark test suites such as RFC2544, RFC2889, and RFC3918
- Language for test software GUI: English and Chinese
- Language for test report: English and Chinese

Models

Product Name	Product Description	Product Classification
V2-1G-8M-TSN Test Module	8-port RJ45/SFP (Combo ports) 1G TSN test module	BigTao Series Test Module

Specifications

Hardware and Electrical Characteristics	
Port speed	Cooper port: 10M/100M/1000M; Fiber port: 100M/1000M
Port density	8 RJ45 ports and 8 SFP ports for single module
Interface standards	1000BASE-SX, 1000BASE-LX, 10/100/1000BASE-T, 100BASE-FX and 100/1000Base-T1
User reservation	Reservation by port
Port speed switching	Auto negotiation
Weight (kg)	1.1
Dimensions (W×H×D)	196mm×35.5mm×271mm
Temperature	0° C to 35° C
Humidity	20% to 85%
Max power consumption (W)	31 W
Traffic generation	
Max streams per port	64
Frame length (Bytes)	Cooper port: 60-16383; 1000M Fiber port: 60-16383; 100M optical port: 60-9215
Frame length controls	Fixed, Increment, Decrement, Random, Auto, and IMIX
Dynamic fields	4 dynamic fields are available for each stream ; Support multiple dynamic controls such as Fixed, increment, Decrement, List, and Random.
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	8 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 32K bytes customized payload and the first 256 bytes can be adjusted with jumping
Packet error generation	CRC error, Undersize frame,Oversize frame
Flow control	Full duplex flow control, half duplex back pressure

Flow Statistics	
Statistical streams per port	256
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)	512 M per port
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	RIPv1v2, RIPng, OSPFv2, OSPFv3, ISISv4, ISISv6, BGP, BGP4+, LDP, MPLS L3VPN, VPLS, VLL, 6VPE and 6PE
Access	PPPoE Client/Server, DHCPv4 Client/Server, DHCPv6 Client/Server, DHCPv6 PD Client/ Server, L2TPv2 and 802.1x
Multicast	IGMPv1/v2/v3, MLDv1/v2, IGMP/MLD Querier and PIM-SM
Data center	VXLAN, OpenFlow, OVSDB, EVPN and LACP
Other	BFD, 802.1ag, 802.3ah and IPv6 Auto-configuration
Test Suites	RFC2544, RFC2889, RFC3918, asymmetric testing, and smart scripter
TSN protocol	802.1AS、802.1CB、802.1Qav、802.1Qbv、802.1Qbu、802.1Qci、802.1Qcr、802.1Qat（SRP）、1722 etc.
Software Platform	
Client software	RENIX
API	TCL, Python3.x, GUIToTCL and GUIToPython
GUI language	English and Chinese
Hardware Platform	
Chassis	BigTao220 and BigTao6200
Chassis operating system	Linux CentOS7.X

V2-10G-4M-TSN Test Module

With the advantages of high bandwidth, universal Ethernet protocols, and precise control of network KPIs, Time sensitive Networking（TSN）can meet the development needs of digital and intelligent industrial networks. Targeting on the evolution direction of next-generation industrial network technology, TSN has formed a consensus in the industry. A powerful and professional testing tool is essential for widely used of any technology. The XINERTEL TSN test module can provide TSN test solution for automotive and industrial Ethernet.

Key features

- Support 4-port Dual-PHY SFP and RJ45
- 10G/5G/2.5G/1G/100M supported on copper port, 10/1G speed supported on fiber port
- Support L2-3 traffic generation and protocol emulation
- Support FPGA based 100% line rate traffic generation, statistics, and packet capture
- Real-time statistics with resolution of 8ns
- Support the benchmark test suites such as RFC2544, RFC2889, and RFC3918
- Language for test software GUI: English and Chinese
- Language for test report: English and Chinese

Models

Product Name	Product Description	Product Classification
V2-10G-4M-TSN Test Module	4-port RJ45/SFP (Combo ports) 10G TSN test module	BigTao Series Test Module

Specifications

Hardware and Electrical Characteristics	
Port speed	Cooper port: 10G/5G/2.5G/1G/100M; Fiber port: 10G/1G
Port density	4 RJ45 ports and 4 SFP+ ports for single module
Interface standards	1000BASE-SX, 1000BASE-LX, 10/100/1000BASE-T, 100BASE-FX and 100/1000Base-T1
User reservation	Reservation by port
Speed switching	Auto negotiation
Weight (kg)	1.1
Dimensions (W×H×D)	196mm×35.5mm×271mm
Temperature	0° C to 35° C
Humidity	20% to 85%
Max power consumption (W)	31 W
Traffic generation	
Max streams per port	256
Frame length (Bytes)	58-16383
Frame length controls	Fixed, Increment, Decrement, Random, Auto, and IMIX
Dynamic fields	4 dynamic fields are available for each stream ; Support multiple dynamic controls such as Fixed, increment, Decrement, List, and Random.
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	8 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 64K bytes customized payload and the first 256 bytes can be adjusted with jumping
Packet error generation	CRC error, Undersize frame,Oversize frame
Flow control	Full duplex flow control, half duplex back pressure

Statistics	
Statistical streams per port	1024
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)	1024 M per port
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	RIPv1v2, RIPng, OSPFv2, OSPFv3, ISISv4, ISISv6, BGP, BGP4+, LDP, MPLS L3VPN, VPLS, VLL, 6VPE and 6PE
Access	PPPoE Client/Server, DHCPv4 Client/Server, DHCPv6 Client/Server, DHCPv6 PD Client/ Server, L2TPv2 and 802.1x
Multicast	IGMPv1/v2/v3, MLDv1/v2, IGMP/MLD Querier and PIM-SM
Data center	VXLAN, OpenFlow, OVSDB, EVPN and LACP
Other	BFD, 802.1ag, 802.3ah and IPv6 Auto-configuration
Benchmark test	RFC2544, RFC2889, RFC3918, asymmetric testing, and smart scripter
TSN protocol	802.1AS、802.1CB、802.1Qav、802.1Qbv、802.1Qbu、802.1Qci、802.1Qcr、802.1Qat（SRP）、1722 etc.
Software Platform	
Client software	RENIX
API	TCL, Python3.x, GUIToTCL and GUIToPython
GUI language	English and Chinese
Hardware Platform	
Chassis	BigTao220 and BigTao6200
Chassis operating system	Linux CentOS7.X

V2-APP Test Module

With globally leading architecture from Xinertel， the V2-APP test module can be used to perform L4-7 protocol simulation and the application layer performance test of low-end security devices for manufacturers. V2-APP test module can be used to verify the performance of network system when deploying network solutions in enterprises and data centers.

Key features

- 10/100/1000M RJ45
- 1000M SFP/10G SFP+
- Support L4-7 protocol simulation
- Support performance and capacity test for network security device
- Support application server performance test
- Support network security test
- Language for test software GUI: English and Chinese
- Language for test report: English and Chinese

Models

V2-APP-1G-4C Test Module
4 port 1000M/100M/10M RJ45

V2-APP-1G-4F Test Module
4 port 1G SFP

V2-APP-10G-4F Test Module
4 port 10G SFP+

Specifications

Hardware and Electrical Characteristics	
Port speed	V2-APP-1G-4C：10M/100M/1000M V2-APP-1G-4F：1G V2-APP-10G-4F：10G
Port density	4
Interface standards	1000BASE-SX、1000BASE-LX、10/100/1000BASE-T、10GBASE-SR、10GBASE-LR
User reservation	Reservation by port
Port speed switching	Auto negotiation
Weight (kg)	1
Dimensions (W×H×D)	196mm x 35.5mm x 271mm
Temperature	0。C to 35° C
Humidity	20% to 85%
Max power consumption (W)	11w
Software	
Application Protocol	Support HTTP、HTTPS、TCP、FTP、DNS、UDP、SMTP、POP3、RTSP、SIP、Mysql、SSH、 Telnet、TFTP .etc.
DDos Attack	Support 73 types of DDoS attacks, including IP (Fragmented IP Attack, IP Teardrop Attack), ARP (ARP Flood Attack), ICMP (ICMP Nuke Attack, ICMP Smurf Attack), TCP (TCP ACK Flood Attack, TCP Fin Flood Attack), UDP (DNS Flood Attack, Evasive UDP Attack) and other L2-4 attacks
Malware and vulnerability	Include a large number of virus samples and vulnerability attacks, support increasing virus library capacity with expanding the hard disk space.
Application Protocol Replay	Support L4-7 Application Protocol Replay
One Arm Test	Support HTTP(S)，HTTP2，DNS for one-arm test
Mixed Traffic	Support mixed test of application traffic and attack traffic
Capture	
Capture buffer (Byte)	1G (for single test module)
Capture pattern	Supports five-tuples filtering and capture
Software Platform	
Client software	ALPS
API	RestfulAPI
GUI language	English and Chinese
Hardware Platform	
Chassis	BigTao220、BigTao6200
Chassis operating system	Linux CentOS7.6

ETTH-T1

100/1000BASE-T1 and 100/1000BASE-T conversion module

Brief introduction

ETTH - T1 is an Ethernet interface conversion module, which supports 100/1000BASE-T1 and 100/1000BASE-T interfaces to switch each other to facilitate normal communication between the in-vehicle Ethernet ECU and a PC.

Advantages

- 100M and 1000M, auto-negotiation
- PHY Master/Slave mode, auto-negotiation
- T1 interface adopts NTHBR11A1001SR Ethernet connector
- Plug and play, easy to operate

Function introduction

- Support 100BASE-T1 and 100BASE-TX interface inter conversion
- Support 1000BASE-T1 and 1000BASE-T interface nter conversion
- Port speed and PHY M/S mode support manual and automatic configuration
- 5.5mm standard circular power supply
- Power indicator, link status and data Tx/Rx indicator

Packing list

- ETTH-T1 module x1
- AC220 to DC12V/2A adapter x1
- 1.5m 100/1000BASE-T1 cable x2

Specifications

Item	Description
Voltage	4.5-18V DC
Current	12V power supply, 100M speed, 241mA 12V power supply, 1000M speed, 475mA
Conversion delay	Channel 1:1000BASE-T1-TX: about 3.4us 1000BASE-TX-T1: about 2us Channel 2:1000BASE-T1-TX: about 5.83us 1000BASE-TX-T1: about 4.38us
Temperature	0-45 °C
Dimensions	116 * 78 * 27mm
Weight	About 247g

FTT1-1000

SFP and 100/1000BASE-T1 conversion module

Brief introduction

FTT1-1000 is an SFP interface conversion module, which supports SFP and 100/1000BASE-T interfaces to switch each other to facilitate normal communication between the in-vehicle Ethernet ECU and a PC.

Function introduction

- Support SFP and 1000Base-T1 or support SFP and 100Base-T1
- The port speed depends on the host (configured with the software);
  Master/Slave mode is configured with the software
- The PHY status indicator flashes, indicating that the data Tx/Rx

Advantages

- The port speed depends on the host :
  (This module supports 100M rate and 1000M rate) When the host is working in the 1000M mode - the module needs to be configured as 1000M mode (software setting) When the host is working in the 100M mode - the module needs to be configured as 100M mode (software setting)
- Master/Slave mode is configured with the software
- Plug and play, easy to operate

Packing list

- FTT1-1000 module x1
- 2m 100/1000BASE-T1 cable x1

Specifications

Item	Description
Voltage	3.3V DC+/-0.03 V
Power consumption	Compliance with SFP specifications
Interface standards	1000Base-T1 conforms to IEEE 802.3bp-2016 100Base-T1 conforms to IEEE 802.3bw-2015
Temperature	0-70 °C
Dimensions	68 x 14 x14 mm
Weight	About 21g

DarPeng series network application security tester

DarPeng series is a high-performance tester launched by Xinertel for voice, video, data and network security which can accurately simulate the network access behavior of millions of real end users, and test the function and performance of network security devices (such as Firewall/IPS/IDS/WAF/DPI, etc.) or the entire system; Verify the ability of network security devices or systems to detect, defend against attacks and viruses by simulating a large number of real attack traffic and malware and virus traffic.

Follow Xinertel official account
for more product information

Product Introduction

DarPeng2000E is a network application and security tester based on the new generation x86 architecture characteriswith high performance, high bandwidth, high integration and high efficiency.

Cooperate with Xinertel's new generation of B/S test software ALPS based on PCT architecture, DarPeng2000E supports real application traffic simulation, and millions of HTTP/TCP connections/s and billions of concurrent connections; At the same time, it supports to simulate real attack traffic, malicious traffic and virus traffic, encryption and decryption protocols such as IPsec and SSL, and audio and video quality testing.

DarPeng2000E Application and Security Tester

DarPeng2000E is high-performance application and security tester launched by Xiner el for voice, video, data applications, and network security test. It accurately simulates the network access behavior of millions of real end users, and performs pressure and performance tests on application and security devices (such as Firewall/IPS/IDS/WAF/DPI, etc.) or the entire system;By simulating a large amount of real attack traffic and malicious software and virus traffic, the detection and defense capabilities of network security devices and systems against attacks and viruses can be verified and tested. At the same time, the control and recognition capabilities of the tested device over traffic can be confirmed by replaying real environment traffic.

Collaborating with B/S architecture testing software ALPS (Application Layer Protocol Simulator) based on PCT architecture, which supports real application layer traffic simulation (such as application layer protocol HTTP/FTP/TCP/DNS, voice: VoIP SIP&RTP, video: RSTP/RTP/IPTV, etc.), its HTTP/TCP can create millions of new connections and billions of concurrent connections; ALPS can simulate real attack traffic (DDoS attacks/botnets/custom attacks, etc.), malicious traffic, virus traffic. And ALPS supports audio and video quality testing.

Key features

- **Comprehensive interfaces**
  Supports up to 4 100GE QSFP28 ports(compatible with 50G, 40G, 25G, 10G), 16 SFP+10GE ports, or 32 SFP 1GE ports.
- **Ultra high application protocol simulation capability**
  TCP Performance:
  8 million TCP new connections, 190 million TCP concurrent connections;
  HTTP Performance:
  6.4 million HTTP new connections, 170 million HTTP concurrent connections, and 196G HTTP throughput.
  HTTPS Performance:
  280000 new connections, 7 million concurrent HTTPS connections, and 70G HTTPS throughput;
- **Support network security device performance and capacity testing**
  Including firewalls, load balancers, WAFs, URL filters, antivirus, anti spyware, HTTP/HTTPS accelerators, WAN accelerators, IDS/IPS, and IPsec VPN gateways, etc
- **Support application server performance testing**
  Including web servers, mail servers, DHCP services, FTP servers, DNS servers, RTSP/RTP QuickTime streaming servers, multicast servers, etc
- **Support network security testing**
  Support simulation of attack traffic, virus traffic, and Cyber Range.

Protocols

Application	TCP, UDP, SCTP, WebSocket, DNS, HTTP, HTTPS, HTTP2, FTP, SSH, Telnet TFTP, RTMP, H.225, H.245, SMB, RPC, ONVIF, Chat applications (SKYPE, QQ, WeChat, etc.), E-mail applications (SMTP, POP3, IMAP, etc.), Gaming applications, video applications (Tencent Video, iQiyi, HLS, etc.), Download applications (BitTorrent, eDonkey, Xunlei, etc.), Social news applications (Tiktok, Toutiao, etc.), Payment applications, Database applications (Oracle, MySQL, MSSQL, etc.)
Industrial control protocol	ECHONET Lite, BACnet, Modbus, OPCUA, MQTT, ProfiNet (PNIO CM), OPC DA, IEC104, EtherNet/IP, ProfiNet (DCP), ENIP, IEEE C37.118 Synchronizer Omron Fins, S7comm, DNP3, Ether-S-I/O, CoAP
Voice	SIP/RTP, Voice Codec (PCMU, PCMA, G.723, G.728, G.729, G.726-32, G.729AB, G.729A, G.723.1), MOS score
Video	RTSP/RTP, Multicast, Video Codec (H.261, H.262/MPEG-2, H.263, H.264, H.265, MPEG-TS, MPEG-1, MPEG-4)
DDoS	Support up to 73 types of DDoS attacks, including L2/L4 DDoS attacks (ARP/ICMP/UDP/TCP/IP/IGMP, etc.) and L7 Application Attacks (DNS Reflection, Slowloris slow attacks, etc.)
Virus and attack libraries	Covering over 7000 types of vulnerability attacks, over 40000 types of virus, and 73 types of DDoS attacks.
Access Protocol	IPv4, IPv6, 802.1Q (QinQ), DHCPv4/DHCPv6 client, DHCPv4/DHCPv6 server, PPPoEv4/PPPoEv6 client, PPPoEv4/PPPoEv6 server, IPsecv4/IPsecv6, GTP, 802.1x, IP/TCP+UDP/TCP/UDP, custom IPv6 extension headers and stream labels
Routing Protocol	SRv6 BE/SRv6 TE
Data encryption and decryption	SSLv3, TLSv1.0, TLSv1.1, TLSv1.2, TLSv1.3

Specifications

Port and Speed	• Up to 4 QSFP28 100G（compatible with 50G、40G、25G、10G） • Up to 16 SFP+ 10G/1G • Up to 32 SFP/RJ45 1G
Dimensions (W×H×D)	3U：438mm×132mm×500mm
Rack Mount	Mounted in rack that meets the IEC 297 standard
Weight (kg)	26KG
Temperature	0℃ ~ 40℃
Power	AC 110~230V；50Hz；10A
Max power consumption (W)	1500

Ordering informantion

Product Name	Product Description	Product Classification
DarPeng2000E	DarPeng2000E Appliance，support up to 8 slots	Chassis
K2-100G-1QSFP28-HQ	1 port 100G/50G/40G/25G/10G five speed high-performance test module	Test Module
K2-10G-4F-HD	4 ports SFP+ 10G/1G two speed high-performance test module	Test Module
K2-1G-4F-HS	4 ports SFP 1G high-performance test module	Test Module
K2-1G-4C-HT	4 ports RJ45 1G high-performance test module，support 10M/100M/1000M	Test Module

DarPeng VE application and security virtual tester

DarPeng VE is application and security tester launched by Xinertel for voice, video, data applications, and network security test. It accurately simulates the network access behavior of millions of real end users, and performs pressure and performance tests on application and security devices (such as Firewall/IPS/IDS/WAF/DPI, etc.) or the entire system;By simulating a large amount of real attack traffic and malicious software and virus traffic, the detection and defense capabilities of network security devices and systems against attacks and viruses can be verified and tested. At the same time, the control and recognition capabilities of the tested device over traffic can be confirmed by replaying real environment traffic.

DarPeng VE is a virtualization security tester based on VMware and KVM.Collaborating with the B/S architecture based testing software ALPS (Application Layer Protocol Simulator) developed by Xinertel, it supports real application traffic simulation (such as HTTP/FTP/TCP/DNS for application layer protocols, VoIP SIP&RTP for voice, RTSP/RTP/IPTV for video, etc.);At the same time, it can simulate real attack traffic (DDoS attacks/botnets/custom attacks, etc.), malicious traffic, and virus traffic, and support voice and video quality testing.

Key features

- **Interfaces**
  A single DarPeng VE virtual tester support up to 8 testing interfaces and network cards with different speed.
- **Unified License Deployment**
  DarPeng VE adopts an All In One deployment approach, where the console, traffic generator, and LicenseServer are deployed in the same virtual machine.
- **Support network security device performance and capacity testing**
  Including firewalls, load balancers, WAFs, URL filters, antivirus, anti spyware, HTTP/HTTPS accelerators, WAN accelerators, IDS/IPS, and IPsec VPN gateways, etc
- **Support application server performance testing**
  Including web servers, mail servers, DHCP services, FTP servers, DNS servers, RTSP/RTP QuickTime streaming servers, multicast servers, etc
- **Support network security testing**
  Support simulation of attack traffic, virus traffic, and Cyber Range.

Protocols

Application	TCP, UDP, SCTP, WebSocket, DNS, HTTP, HTTPS, HTTP2, FTP, SSH, Telnet TFTP, RTMP, H.225, H.245, SMB, RPC, ONVIF, Chat applications (SKYPE, QQ, WeChat, etc.), E-mail applications (SMTP, POP3, IMAP, etc.), Gaming applications, video applications (Tencent Video, iQiyi, HLS, etc.), Download applications (BitTorrent, eDonkey, Xunlei, etc.), Social news applications (Tiktok, Toutiao, etc.), Payment applications, Database applications (Oracle, MySQL, MSSQL, etc.)
Industrial control protocol	ECHONET Lite, BACnet, Modbus, OPCUA, MQTT, ProfiNet (PNIO CM), OPC DA, IEC104, EtherNet/IP, ProfiNet (DCP), ENIP, IEEE C37.118 Synchronizer Omron Fins, S7comm, DNP3, Ether-S-I/O, CoAP
Voice	SIP/RTP, Voice Codec (PCMU, PCMA, G.723, G.728, G.729, G.726-32, G.729AB, G.729A, G.723.1), MOS score
Video	RTSP/RTP, Multicast, Video Codec (H.261, H.262/MPEG-2, H.263, H.264, H.265, MPEG-TS, MPEG-1, MPEG-4)
DDoS	Support up to 73 types of DDoS attacks, including L2/L4 DDoS attacks (ARP/ICMP/UDP/TCP/IP/ IGMP, etc.) and L7 Application Attacks (DNS Reflection, Slowloris slow attacks, etc.)
Virus and attack libraries	Covering over 7000 types of vulnerability attacks, over 40000 types of virus, and 73 types of DDoS attacks.
Access Protocol	IPv4, IPv6, 802.1Q (QinQ), DHCPv4/DHCPv6 client, DHCPv4/DHCPv6 server, PPPoEv4/PPPoEv6 client, PPPoEv4/PPPoEv6 server, IPsecv4/IPsecv6, GTP, 802.1x, IP/TCP+UDP/TCP/UDP, custom IPv6 extension headers and stream labels
Routing Protocol	SRv6 BE/SRv6 TE
Data encryption and decryption	SSLv3, TLSv1.0, TLSv1.1, TLSv1.2, TLSv1.3

Specifications

Minimum resource allocation	• 4 vCPUs • 8GB • 128GB Disk
Supporting platform	• VMware ESXI • KVM

Ordering informantion

Product Name	Product Description	Product Classification
DarPeng VE-1G	DarPeng VE application and security virtual tester with 1G throughput, including 1-year software package upgrade service.	DarPeng VE License
DarPeng VE-10G	DarPeng VE application and security virtual tester with 10G throughput, including 1-year software package upgrade service.	DarPeng VE License
DarPeng VE-100G	DarPeng VE application and security virtual tester with 100G throughput, including 1-year software package upgrade service.	DarPeng VE License

Xcompass-S series network emulator

Xcompass-S series is network emulator lanched by Xinertel, which utilizes FPGA architecture to achieve 100% line-rate performance.Xcompass-S supports to emulate delay, jitter, packet loss, out of sequence, duplicate packets, and error packets with nanosecond precision, verifying the performance limits of network devices and applications, and providing a basis for optimizing performance, which can effectively reduce the customer’ s costs and ensure the network quality.

Follow Xinertel official account
for more product information

Product Introduction

With rapid development of network technology, various applications based on new technologies are also changing our lives. However, the real network is not perfect. During the end-to-end transmission process, business traffic has to pass through different physical environments and network equipment. Accidents will always occur, resulting in impact to network quality. How to simulate the real network environment in lab to verify the operation of network equipment and applications is a key challenge currently.The Xinertel network emulator has emerged in response to demand.

Xcompass S10 Network Emulator

With rapid development of network technology, various applications based on new technologies are also changing our lives. However, the real network is not perfect. During the end-to-end transmission process, business traffic has to pass through different physical environments and network equipment. Accidents will always occur, resulting in impact to network quality. How to simulate the real network environment in lab to verify the operation of network equipment and applications is a key challenge currently.

The Xcompass-S network emulator launched by Xinertel is a solution for network impairments, which based on FPGA architecture to achieve 100% line-speed performance. Xcompass-S supports network impairments like delay, jitter, packet loss, out-of-order, duplicate packets and error packets with nanosecond-level accuracy, which help to verify the performance of network equipment and applications and provide basis for optimizing performance. It can effectively reduce the costs and ensure the network quality for customer.

XCompass S10 supports native 10G/1G interfaces.

Key features

- Support 10/100/1000M RJ45/100M/1000M SFP and 10G SFP+interfaces
- Based on FPGA architecture, achieve 100% line speed performance
- Port-based optical fiber flashing and optical link control impairments
- Support the network impairments with nanosecond level accuracy
- Support network impairments like delay, jitter, packet loss, out-of-order, duplicate packets and error packets etc
- High-precision network impairment ensures test repeatability
- Comprehensive and detailed statistics
- Web based GUI without additional client installation
- Support Python API

Specifications

Hardware and electrical characteristics	
Port speed	Fiber:1G/10G; Cooper:1G
Port density	1G cooper: 2; 1G fiber: 2; 10G Fiber: 2
Interface	10M/100M/1000M(RJ45); 100M/1000M(SFP); 10G (SFP+)

User reservation	By port type, occupied by port group
Weight (kg)	6
Dimensions (W*H*D)	438mm x 54mm x 400mm
Temperature	Working: 0 ° C to 35 ° C; Storage: -40 ° C to 70 ° C
Humidity	Working: 20% to 85%; Storage: 20% to 85%
I/O	1 RJ45 10/100/1000M Base-T management interface; 1 micro HDMI interface;2* Type-A USB 2.0 interfaces; 1 LCD screen; 2 QSFP28 interface
Switch/Display	Power On/Off Key on front panel
Chassis power supply	1*220 (1 ± 10%) v; 50 (1 ± 5%) Hz
Max power consumption (W)	100W
Time accuracy	5ns
Internal clock source	Stratum-3,+4.6ppm
Network impairment	
Flow filter	Filtering mode: Basic, Advanced (supports 8*6-byte filtering fields) Filtering rules: Filter by Byte, MAC address, IP address, protocol type, port number Operation rules: AND, OR, NOT
Delay	Maximum delay at full line speed: 800ms (10G), 320ms (25G), 200ms (40G), 80ms (100G)
Jitter	Jitter model: fixed, Gaussian, Gamma, Step Jitter mode: single, repeated Time mode: single frame, time window (r100ns~1638300.0ns, accuracy: 0.1us)
Out of order	Out of order mode: single, periodic Out of order depth range: 1-32 frames
Bandwidth limit	0-100Gbps
Packet loss	Packet loss modes: single, burst, proportional,continuous, Poisson, Bernoulli loss. Burst packet loss range: 0-10000 frames Ratio: 0.00001%~99.9999% Packet loss period: 0~10.000s, repetition period 0~600.000s, with a step of 0.001s User defined packet loss: 32~320000bytes, with 32 as the basic unit Proportional burst packet loss: 1-99%, number of bursts: 1-320, optional repetition Proportional burst loss enhancement mode: 1-99%, number of bursts: 1-250, optional repetition
Duplicate	Repetition mode: single, burst, proportion, continuous burst Repetition range: 0~10000% Ratio: 0.00001%~99.9999% Repetition period: 0-10.0s, repetition period 0-600.0s, with step of 0.1s
Modification	Tampering or replacing fields: any byte in the first 256 bytes of the frame
Corrupt	Corrupt type: CRC error, IPv4 checksum error Corrupt mode: single, burst, proportional, continuous burst Corrupt range: 0-10000 frames Ratio: 0.00001%~99.9999% Repetition period: 0-10.0s, repetition period:period 0-600.0s, with step of 0.1s
Impairment profile	8 impairment profiles 8 impairment profiles allow 16 impairment profiles(8 bidirectional)to be independently configured
Physical Link Impairment	Physical link flashing and control impairments
Traffic Generator	
Maximum frames per port	64
Frame length	64 -1518 Byte (excluding CRC)
Transmit mode	Sequential, Random, Reverse
Number of transmission	0~232, 0 represents cyclic transmission
IPG settings	Minimum 8 Bytes
Statistics	
Port Statistics	Total frames, total bytes, byte rate, frame rate, Pause frames, broadcast packets, VLAN packets, QinQ packets, ARP packets, MPLS packets, CRC error packets, Undersize packets, Oversize packets, Jumbo packets, Fragment packets, Jabber packets, IPv4 packets, IP length error packets, IPv4 header verification error packets, IPv6 packets, TCP packets, UDP packets, ICMP packets, Merge packet loss, UDP checksum, TCP checksum.
Capture	
Capture mode	Support capture by filtering template Supports 64-16383 byte capture with CRC

Xcompass S100 Network Emulator

With rapid development of network technology, various applications based on new technologies are also changing our lives. However, the real network is not perfect. During the end-to-end transmission process, business traffic has to pass through different physical environments and network equipment. Accidents will always occur, resulting in impact to network quality. How to simulate the real network environment in lab to verify the operation of network equipment and applications is a key challenge currently.

The Xcompass-S network emulator launched by Xinertel is a solution for network impairments, which based on FPGA architecture to achieve 100% line-speed performance. Xcompass-S supports network impairments like delay, jitter, packet loss, out-of-order, duplicate packets and error packets with nanosecond-level accuracy, which help to verify the performance of network equipment and applications and provide basis for optimizing performance. It can effectively reduce the costs and ensure the network quality for customer.

Xcompass-S100 supports native QSFP28 100G interface and 100G/40G/25G/10G.

Key features

- Supports 100G QSFP28 interface
- Supports 100G/40G/25G/10G
- Based on FPGA architecture, achieve 100% line speed performance
- Port-based optical fiber flashing and optical link control impairments
- Support the network impairments with nanosecond level accuracy
- Support network impairments like delay, jitter, packet loss, out-of-order, duplicate packets and error packets etc
- High-precision network impairment ensures test repeatability
- Comprehensive and detailed statistics
- Web based GUI without additional client installation
- Support Python API

Models

Product Name	Product Description	Product classification
Xcompass S100-2QSFP28 Network Emulator	2-port QSFP28 100G, supports2*100G/2*40G/2*25G/2*10G	Xcompass S100 Network Emulator

Specifications

Hardware and electrical characteristics	
Port speed	Fiber port: 10G/25G/40G/100G
Port density	2
Interface	QSFP28
User reservation	By port type, occupied by port group

Weight (kg)	6
Dimensions (W*H*D)	438mm x 54mm x 400mm
Temperature	Working: 0 ° C to 35 ° C; Storage: -40 ° C to 70 ° C
Humidity	Working: 20% to 85%; Storage: 20% to 85%
I/O	1 RJ45 10/100/1000M Base-T management interface; 1 micro HDMI interface;2* Type-A USB 2.0 interfaces; 1 LCD screen; 2 QSFP28 interface
Switch/Display	Power On/Off Key on front panel
Chassis power supply	1*220 (1 ± 10%) v; 50 (1 ± 5%) Hz
Max power consumption (W)	100W
Time accuracy	5ns
Internal clock source	Stratum-3,+4.6ppm
Network impairment	
Flow filter	Filtering mode: Basic, Advanced (supports 8*6-byte filtering fields) Filtering rules: Filter by Byte, MAC address, IP address, protocol type, port number Operation rules: AND, OR, NOT
Delay	Maximum delay at full line speed: 800ms (10G), 320ms (25G), 200ms (40G), 80ms (100G)
Jitter	Jitter model: fixed, Gaussian, Gamma, Step Jitter mode: single, repeated Time mode: single frame, time window (r100ns~1638300.0ns, accuracy: 0.1us)
Out of order	Out of order mode: single, periodic Out of order depth range: 1-32 frames
Bandwidth limit	0-100Gbps
Packet loss	Packet loss modes: single, burst, proportional,continuous, Poisson, Bernoulli loss. Burst packet loss range: 0-10000 frames Ratio: 0.00001%~99.9999% Packet loss period: 0~10.000s, repetition period 0~600.000s, with a step of 0.001s User defined packet loss: 32~320000bytes, with 32 as the basic unit Proportional burst packet loss: 1-99%, number of bursts: 1-320, optional repetition Proportional burst loss enhancement mode: 1-99%, number of bursts: 1-250, optional repetition
Duplicate	Repetition mode: single, burst, proportion, continuous burst Repetition range: 0~10000% Ratio: 0.00001%~99.9999% Repetition period: 0-10.0s, repetition period 0-600.0s, with step of 0.1s
Modification	Tampering or replacing fields: any byte in the first 256 bytes of the frame
Corrupt	Corrupt type: CRC error, IPv4 checksum error Corrupt mode: single, burst, proportional, continuous burst Corrupt range: 0-10000 frames Ratio: 0.00001%~99.9999% Repetition period: 0-10.0s, repetition period:period 0-600.0s, with step of 0.1s
Queue depth	32K-32M
Impairment profile	100G/40G: Each port group supports 1 forward and reverse impairment profile, which can be independently configured 25G/10G: Each port group supports 8 forward and reverse impairment profile, which can be independently configured
Physical Link Impairment	Physical link flashing and control impairments
Traffic Generator	
Maximum frames per port	64
Frame length	64 -1518 Byte (excluding CRC)
Transmit mode	Sequential, Random, Reverse
Number of transmission	0~232, 0 represents cyclic transmission
IPG settings	100G/40G/25G: 12~31Bytes, 10G: 8~31Bytes
Statistics	
Port Statistics	Total frames, total bytes, byte rate, frame rate, Pause frames, broadcast packets, VLAN packets, QinQ packets, ARP packets, MPLS packets, CRC error packets, Undersize packets, Oversize packets, Jumbo packets, Fragment packets, Jabber packets, IPv4 packets, IP length error packets, IPv4 header verification error packets, IPv6 packets, TCP packets, UDP packets, ICMP packets, Merge packet loss, UDP checksum, TCP checksum.
Impairment Statistics	Impairment profile frames, packet loss frames, out of order frames, duplicate frames, corrupt frames, FCS frames, Checksum frames, bandwidth limit tx rate, bandwidth limit rx rate, bandwidth limit tx byte rate, bandwidth limit rx bytes rate, Shaper tx frame rate, Shaper rx frame rate, Shaper tx byte rate, Shaper rx byte rate, Shaper output byte rate, Shaper Oversized frames
Capture	
Capture mode	Support capture by filtering template Supports 64-16383 byte capture with CRC
PDV download	Capture mode in network impairment: single and cyclic, capture buffer: 64K, and cyclic capture only captures the last 4 packets

IP network active monitoring system

Active monitoring is not only crucial for ensuring the stability of business operations but also central to enhancing productivity and reducing downtime. In a fast-paced, high-demand business environment, every pause can potentially result in significant losses. Active monitoring signifies early warning and prevention, resolving the potential issues and maximizing the continuity of operations.

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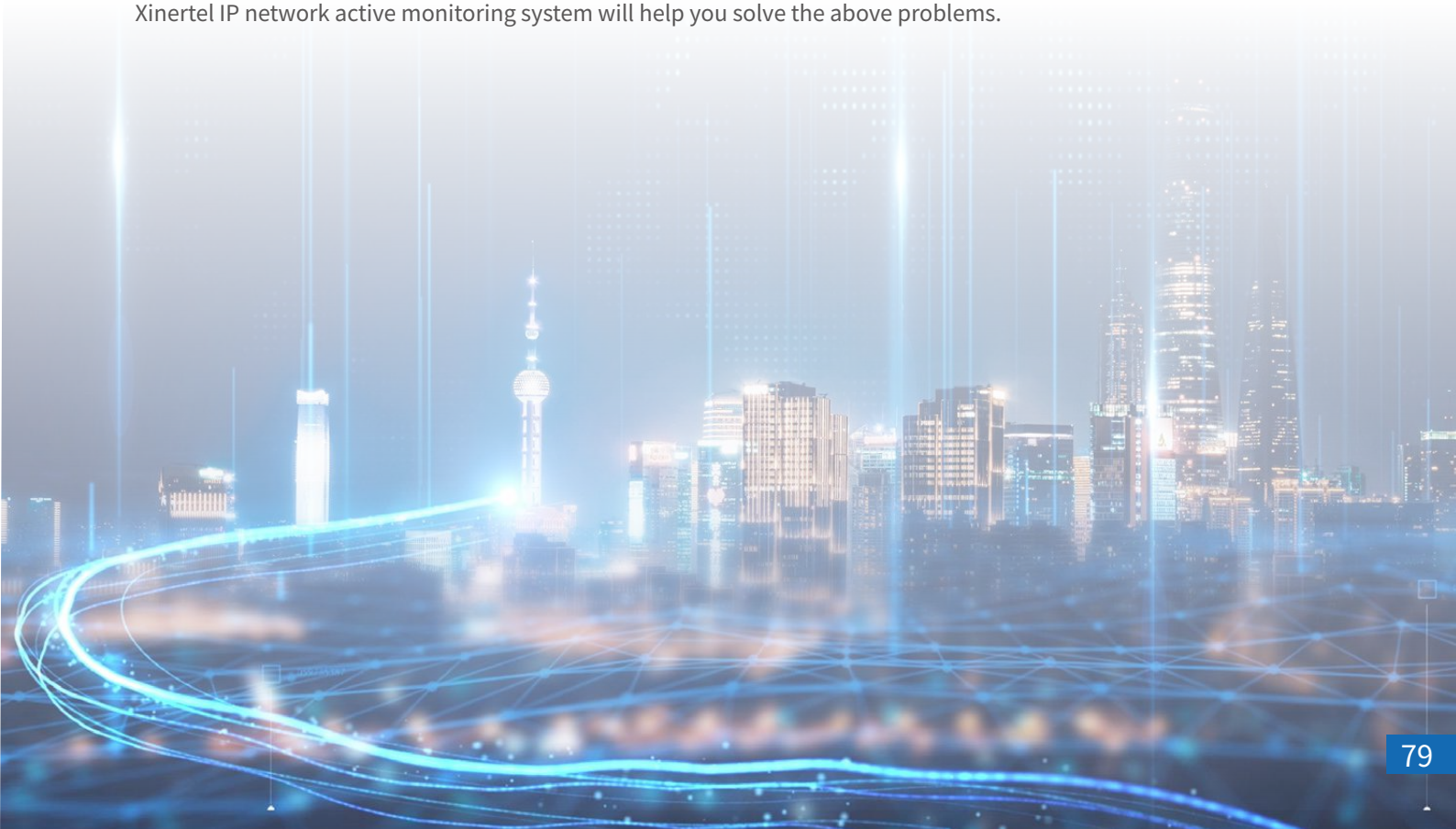
Product Introduction

With the widespread and rapid development of computer networks, the internet has become integrated into all aspects of daily life, including work, shopping, audio and video chats, video conferencing, social networking, online gaming, and streaming movies and TV shows. It is no exaggeration to say that the user experience of these services, particularly for audio and video data, is highly sensitive to network service quality metrics such as packet loss, latency, and jitter.

IT teams focus on the following issues:

- How to monitor the end-to-end network status in real time and network quality?
- How to monitor the health of application services (HTTP/FTP/MAIL/DNS/DHCP, etc.) in real time?
- How to improve the efficiency of troubleshooting and the quality of maintenance?
- How to conduct continuous and active 7x24 hours of scheduled test and measurement of user experience?
- How to find and solve problems in network applications in advance before the end user experience becomes worse, and report the alarm through email, SMS or WeChat?
- How to test the impact of wired, wireless (including 5G, Wifi6) and virtualization/cloud infrastructure on applications concisely and effectively?
- How to evaluate the optimization effect of new network technology architecture such as SD-WAN?

These will be a very big challenge, but also an urgent issue to be solved in the daily work of IT operations personnel. The Xinertel IP network active monitoring system will help you solve the above problems.

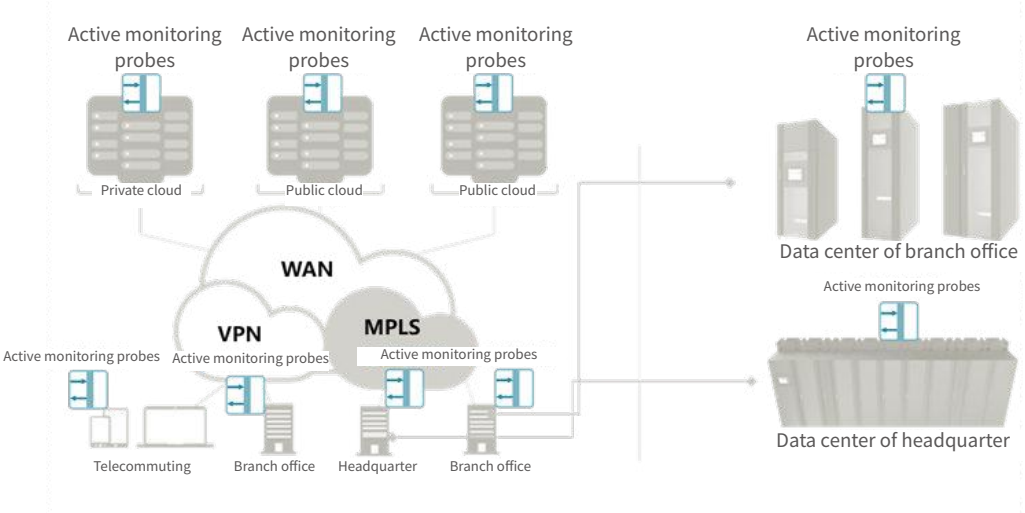


IP Network Active Monitoring System (X-Vision)

Introduction

The X-Vision IP network active monitoring system generates network traffic to measure end-to-end network and application quality, providing 24/7 real-time testing data. It reports real-time critical network metrics for all links, such as packet loss, latency, jitter, and out-of-order packets, and supports real-time alerts via email, SMS, and WeChat. This enables enterprise or telecom IT team to perform IP network performance test and evaluation, network quality SLA analysis and alerts, network optimization, equipment selection evaluation, and network troubleshooting and resolution.

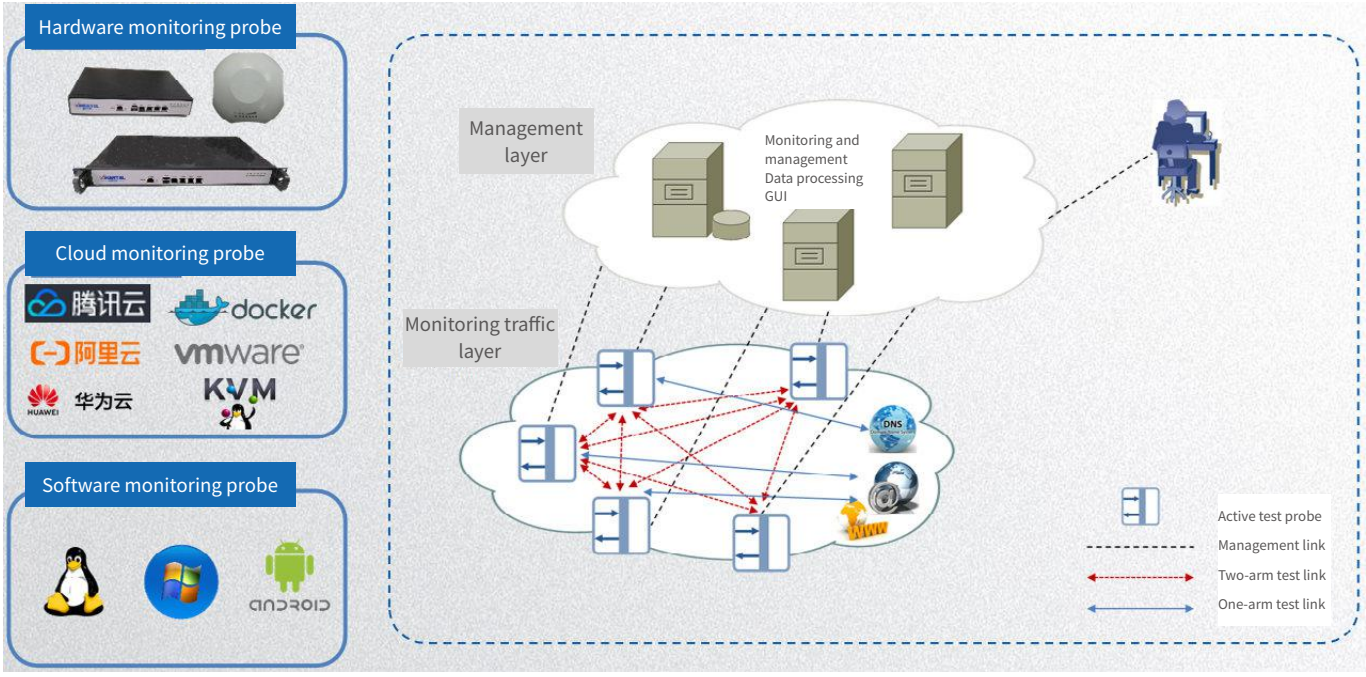
The X-Vision monitoring system features a software architecture based on a distributed design with a layered functional structure, consisting of a presentation layer, a business logic layer, and a data processing layer. Each layer can be scaled through server expansion to meet the demands of large-scale monitoring.



System

X-Vision consists of console and active monitoring probe:

- The X-Vision console can be deployed on a Cloud VPC, ESXi Linux, or a physical Linux host, which is accessible via a browser.
- Active monitoring probes: hardware probes, software probes, or cloud probes.



Active monitoring test type

The X-Vision network active monitoring system supports two- arm monitoring and one-arm monitoring.

◆ Two-arm test

The active monitoring probes at both ends of the link generate traffic (such as UDP, HTTP, FTP, or audio and video streams) to evaluate the network quality. The test scenarios are as follows:

（1）Network forwarding performance test: latency, jitter, out-of-order, packet loss ratio, etc., and support customized network test topology and test cases;

（2）Throughput test: supports UDP/TCP throughput test;

（3）Voice and video bearing quality test: support voice and video stream simulation, and test latency, jitter, out-of-order, packet loss ratio.

◆ One-arm test

Through an active monitoring probe at one side of the link, real application traffic such as HTTP and DNS is simulated to conduct real-time network quality assessments of real services in the network, such as WEB and DNS servers. The test scenarios are as follows:

（1）HTTP/HTTPS application test: support DNS resolution, TCP connection/s, first byte and last byte time, and download rate test;

（2）Internet VPN access test: access quality of different types of websites;

（3）Server performance test: DNS server, mail server, DHCP server test;

（4）Network node accessibilityn: Traceroute

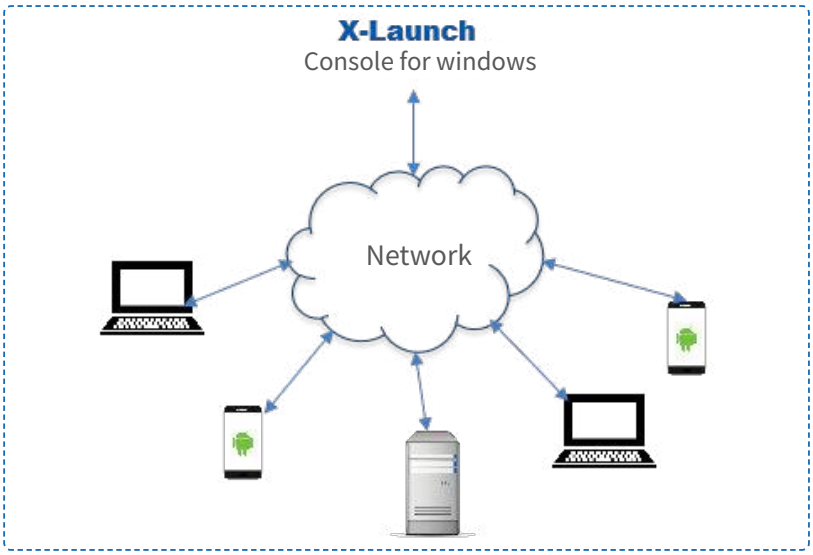
IP network performance test tool (X-Launch)

Introduction

The X-Launch tests the end-to-end performance of the network and the application quality of service by simulating real network traffic.

X-Launch supports comprehensive network performance evaluation and device test by simulating real application protocols on hundreds of endpoints

X-Launch can also evaluate the performance of wired or wireless networks; Support REST API to facilitate automated testing; Support PDF report and detailed test results; Support U-Key mode license.



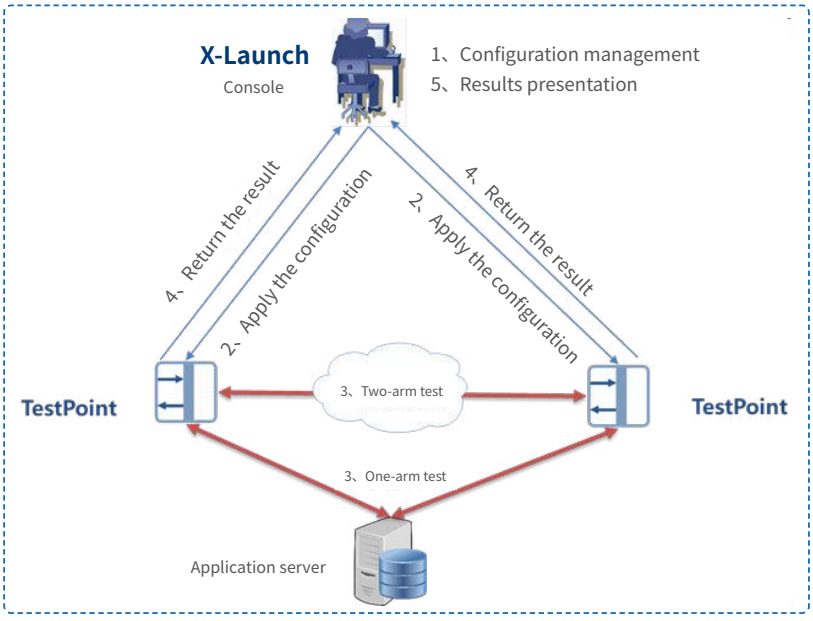
System

X-Launch consists of the control end (TestConsole) and the test endpoint (TestPoint):

- The X-Launch console software is installed in Windows 7/10 (64 bit), CentOS or Ubuntu. PC requirement : 4-core CPU, 8 GB memory or above, and 150 GB hard disk or above
- The test endpoint supports Linux, Windows, Android, IOS, VxWorks.

◆ Test process

After activation, the test endpoints proactively register with the X-Launch console. Then the users can configure test cases and parameters, which are applied to the test endpoints. The test endpoints conduct tests based on these configurations and return the results.



◆ Protocol

Application	Protocol	Metric
TCP service	TCP_TP TCP_RR TCP_CRR	TCP connection establishment time, throughput, transaction rate, transaction time
UDP service	UDP_TP UDP_STREAM UDP_RR	One way delay, jitter, out-of order, throughput, transaction rate, transaction time
Internet data service	HTTP, FTP, POP3, SMTP	TCP connection establishment time, user login time, service response time, TTFB, TTLB, and application layer throughput
Voice service	VOICE	Session establishment time, call success ratio, R value, MOS
DNS service	DNS	Resolution response time
Video service	RTSP	Delay, jitter, packet loss ratio
ICMP	PING Trace route	Response time, loss rate

Test topology

X-Launch supports two types of test: two-arm test and one-arm test.

◆ Two-arm Test

Both sides of the NUT/DUT are X-Launch test endpoints, which generate real traffic between test endpoints to test the performance of NUT/DUT.

◆ One-arm test

The test endpoint initiates an application session to test a real server (such as a website). In the test topology, one side acts as the test initiator, while the other side is the real server being tested.

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