ATxTel

BENCHMARK DVT SERIES PRODUCT PORTFOLIO

Accelerate | Innovate | Optimize

ATX-BENCHMARK-DVT SERIES

INTRODUCTION

Our ATX-Benchmark DVT series network tester is an R&D test product for mid- and low-end routers, switches, and other network forwarding equipment. Our modular design comprises a chassis, test modules, and a powerful, easy-to-use software UI. This chassis can provide 2 or 6 slots and support any combination of test modules from 10M to 400GbE. This platform boasts a small lab footprint and the lowest power consumption in the industry.

Bring the test lab to the field! With an added handle, the two-slot DVT 220 is also ideal for troubleshooting and demonstrating requirements in the field. Our noise reduction technology reduces the maximum operating noise to only 65dBa, making this solution an excellent fit for a workbench test or office-based solution. DVT 220 draws an environmentally friendly amount of power (just 150W at full load), reducing the cost of operation while also helping the planet!

ATX-Renix software is based on our PCT architecture, providing Layer 2-3 traffic emulation control plane protocol simulation with comprehensive test suites and capability in terms of functionality, performance, and validation to meet the complex requirements for hardware and software development, system tests for the R&D for chip/component, telecommunications equipment, and pre-production verification for the network.

CHASSIS

ATX-BENCHMARK DVT 220

Our ATX-BENCHMARK-DVT 220 portable chassis is a new generation R&D test chassis leveraging our global leading architecture. It adopts a modular design, provides 2 slots, and supports any combination of test modules from 10M to 400GbE speeds. This is ATxTel's smallest chassis, adapting well to a lab environment and field test requirements.

Bring the test lab to the field! With an added handle, the two-slot ATX-BENCHMARK-DVT 220 is also ideal for troubleshooting and demonstrating requirements in the field. Our noise reduction technology reduces the maximum operating noise to only 65dBa, making this solution an excellent fit for a workbench test or office-based solution. DVT 220
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Our ATX-Renix software is based on our PCT architecture, providing Layer 2-3 traffic emulation control plane protocol simulation with comprehensive test suites and capability in terms of functionality, performance, and validation to meet the complex requirements for hardware and software development, system test for the R&D for chip/component, telecommunications equipment, and pre-production verification for the network.

Key Features

- Supports 400GbE,100GbE, 40GbE, 25GbE,10GbE and 10/100/1000Mbps
- Chassis offers great portability, low power consumption and low noise output
- Supports multiple management IP modification methods
- Supports local software download based on Web browser
- Supports network sharing and remote control to improve test efficiency
- Renix API interface supports TCL and Python automation testing capability

ATX-Benchmark DVT 220 Chassis System Specification	
Slots	2
Size	400mm×340mm×95mm (15.7ins×13.4ins×3.7ins)
Weight	Empty chassis: about 6.6kg (14.6 lbs) Full board card: about 9.2kg (20.3 lbs)
Maximum power supply capacity of the system	200W
Indicators and controls	Rear AC power switch Power, Fan, Temp, Link LED indicator, 16*02 character LCD Chassis master reset button Chassis LCD control buttons
Connectors	1 DB15 display interface 1 RJ45 10/100 / 1000M management interface 1 RJ45 10/100 / 1000M 1588 clock input interface 1 RJ45 RS232 serial port 1 SYNC-OUT, 1 SYNC-IN chassis cascade interface 1 DB9 GPS RS232 serial port 1 1PPS, 1 10MHz input BNC 1 IRIG-B DC TTL input BNC 2 USB Type A ports
Temperature	Work: 0°C to 35°C (32 °F to 95 °F) Storage: -40°C to 70°C (-40 °F to 158 °F)
Humidity	Work: 20% to 85% RH, no condensation Storage: 20% to 85% RH
Power	One 110VAC / 220VAC 50 / 60Hz @ 3A single-phase power input
Noise	≤ 65dba
Operating system	CentOS7.X, 64bit
Administration and operation	IPv4 Management Network Support panel keys 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 webpage download client, modify IP, query status Supports license management and hardware management through client software
Client software	ATX-Renix test application: For control and data plane performance testing of routers and switches with complex protocol support including BGP, OSPF, IS-IS, MPLS, IP Multicast, including IPv4 and IPv6 variations and many more protocols
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
Board support	ATX-V6000 series Gigabit functional test module (10M/100M/1000M) ATX-V8000 series 10G functional test module (1GbE/10GbE) ATX-V2-10G series 10G multi-speed functional test module (100M/1GbE/2.5GbE/5GbE/10GbE) V2-100G series 100G multi-speed functional test module (10GbE/25GbE/40GbE/100GbE) V2-400G series 400G multi-speed functional test module (100GbE/200GbE/400GbE)

CHASSIS

ATX-BENCHMARK DVT 6200

The ATX-BENCHMARK-DVT 6200 rack-mounted chassis provides greater test module capacity for larger test labs. Its modular design offers 6 slots and supports any combination of test modules of various speeds from 10M to 400GbE.

The ATX-BENCHMARK-DVT 6200 chassis has an optimized hardware architecture, managed fan/noise control, and energy-saving technology, effectively reducing noise and power consumption while providing efficient operation and limiting environmental impact. The ATX-BENCHMARK-DVT 6200 chassis is backward compatible, supporting all the existing V2 series test modules and all the previous V series test modules, and will also be compatible with the 200GbE/400GbE test modules developed in the future. This ensures peace of mind, knowing the CAPEX investment and test bed integration cost are protected.

ATX-Renix software is based on our PCT architecture, providing Layer 2-3 traffic emulation, control plane protocol simulation with comprehensive test suites and capability in terms of functionality, performance, and validation to meet the complex hardware and software development requirements, system tests for the R&D for chip/component, telecommunications equipment, and pre-production verification for the network.

Key Features

- Supports 400GbE,100GbE, 40GbE, 10GbE and 10/100/1000Mbps
- High port density, space saving
- Supports multiple management IP modification methods
- Supports local software download based on Web browser
- Supports network sharing and remote control to improve test efficiency
- The Renix API interface, supports TCL and Python

ATX-Benchmark DVT 6200 Chassis System Specification	
Slots	6
Size	446 mm × 413 mm× 132 mm (17.6ins×16.3ins×5.2ins)
Weight	Empty chassis: about 12.5kg (27.6 lbs) Full board card: about 20kg (44.1 lbs)
Maximum power supply capacity of the system	600W
Indicators and controls	Rear AC power switch Power, fan, temp, link, Sys LED indicator, OLED display Reset button of main control of chassis Chassis OLED control button
Connectors	1 DB15 display interface 1 RJ45 10/100/1000M management interface 1 RJ45 10/100/1000M 1588 clock input interface 1 RJ45 RS232 serial port 1 SYNC-OUT, 1 SYNC-IN chassis cascade interface 1 DB9 GPS RS232 serial port 1 1PPS, 1 10MHz input BNC 1 IRIG-B DC TTL input BNC 4 USB Type A ports
Temperature	Work: 0°C to 35°C (32 °F to 95 °F) Storage: -40°C to 70°C (-40 °F to 158 °F)
Humidity	Work: 20% to 85% RH, no condensation Storage: 20% to 85% RH
Power	One 110VAC / 220VAC 50 / 60Hz @ 8.5A single-phase power input
Noise	≤ 75dba
Operating System	CentOS7.X, 64bit
Administration and operation	IPv4 Management Network Support panel keys 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 webpage download client, modify IP, query status Supports license management and hardware management through client software
Client software	ATX-Renix test application: For control and data plane performance testing of routers and switches with complex protocol support including BGP, OSPF, IS-IS, MPLS, IP multicast, including IPv4 and IPv6 variations and many more protocols
Client system requirements	System: Microsoft Windows 7/Windows 10/Windows Server 2012 R2 Standard Edition CPU: i7-4700EQ CPU @ 2.40GHz and above Memory: 4 GB and above
Board support	ATX-V6000 series Gigabit functional test module (10M/100M/1000M) ATX-V8000 series 10G functional test module (1G/10G) ATX-V2-10G series 10G multi-speed functional test module (100M/ 1G/2.5G/5G/10G) V2-100G series 100G multi-speed functional test module (10G/25G/40G/100G) V2-400G series 400G multi-speed functional test module (100GbE/200GbE/400GbE)

MODULES

ATX-V2-400G SERIES TEST MODULE

ATX-V2-400G series module supports both functional and performance testing of 400G network infrastructure, network equipment, and traffic scenarios required for the performance testing of routers, switches, NICs, TAP switches, optical modules, DAC cables, etc. Fully interoperable with all leading vendors, this module offers the best 400G testing available on the market.

With the rapid expansion in Data Centers, 5G/ Mobile Internet, IOT and Cloud Computing, AR/VR/UHD, and other OTT technologies, the demand for bandwidth and need for performance is even more critical today. To meet this demand in bandwidth and performance requirements of these technologies, the backbone supported by 400GE technology must be robust. Low latency, availability, and superior throughput are key. The V2-400G allows for NEMs, Component Manufactures, and Providers to more reliably develop the components, devices, and other elements supporting the network to ensure better end-to-end performance and improved end- user experience.

Key Features

- QSFP-DD 400GbE interface
- Quad-speed: 100/200/400GbE
- Support Layer 2-3 stream test and RFC2544 benchmark test suites
- FPGA-based 100% line rate traffic generation, statistics and capture
- Comprehensive and extensible test report and analysis system

ATX-V2-400G-2QDD-Q test module

2 ports, three-speed 100G/200G/400G functional test module

ATX-V2-400G Series Test Module Specification

Hardware and electrical characteristics	
Port rate	Optical port:400GbE/200GbE/100GbE
Port density	2 interfaces
Run mode	PAM4 - 400/200GbE Ethernet NRZ:100GbE Ethernet
Port occupancy	Occupied by single port
Rate switching	Two ports shall be classified as one group and the rate switching is performed according to the port group.
Module weight	1.1kg (2.4 lbs)
Module size (W*H*D)	196mm x 70mm x 271mm (7.7ins×2.8ins×10.7ins)
Operating temperature range	0°C to 35°C (32 °F to 95 °F)
Working relative humidity	20% to 85%
Maximum power consumption(W)	133 watts
Traffic transmission	
Stream per port	400G: 256; 200G:256; 100G:64
Frame length (bytes)	64-16K
Frame length type	Support fixed, increasing, decreasing, random and other frame length types
VFDs per stream	Each stream supports source MAC and terminal MAC VFDs; Support fixed, increment, decrement, list and random modes
Generation model	Port-based: Continuous, Burst, Time Flow-based: Continuous, Burst
Speed regulation mode	Based on Port
Delay and jitter settings	Delay test pattern is supported: LILO
Frame time stamp resolution	2.5 nanoseconds
Built-in frame template	Built-in multiple frame templates, such as VLAN, ICMP, PPPoE, GRE, DHCP, L2TP, IPv6, MPLS, GTP, GOOSE, VXLAN etc.
Custom data	Support user-defined message, and the edited message template can be saved Support the checksum checking of user-defined field
User defined data	Support introduction of 16k bytes user-defined message and the first 128 bytes custom configuration, other bytes only support: fixed, increment and random mode
Traffic statistics	
Stream per port	400GbE: 256; 200GbE:256; 100GbE:64
Statistical mode	Statistical results can be displayed in the form of data table and graph. Statistics can also be saved as Excel files
Statistics item(port)	Number of transmitted/received frames, transmitted/received frame rate, received bandwidth, error frame statistics, FCS error statistics, Pause frame statistics, average latency statistics, etc.
Statistics item(stream)	Number of transmitted/received frames, transmitted/received stream rate, received bandwidth, error, frame statistics, real-time packet loss statistics, out-of-order statistics, etc.

ATX-V2-400G Series Test Module Specification	
Statistical operation	Support sorting statistical results, performing mathematical operation such as addition, subtraction, multiplication, division and custom paging statistics, etc.
Protocol Simulation	
Routing and MPLS	RIPv2/RIPng, OSPFv2/v3, BGP4/4+, IS-ISv4/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
Traffic capture	
Capture Buffer/port(bytes)	32K
Capture type	Capture data and control plane receive frames; Capture the transmit and receive frames of the control plane; Frame capture based on error packet; Support to specify the number of download capture packets
Test suite	
Software platform	RFC2544, Smart Script
Software platform	
Client software	ATX-Renix test platform: Support layer 2-3 traffic test and protocol simulation
API secondary development	TCL,Python3.x,GUItoTCL,GUItoPython
Interface language	English, Simplified Chinese
Hardware platform	
Adapter chassis	ATX-DVT 220, ATX-DVT 6200
Chassis operating system	Linux CentOS 7.X

MODULES

ATX-V2-100G SERIES TEST MODULE

ATX-V2-100G series modules meet the needs of software and hardware development for chip components and NEMs, from basic functional testing to performance validation at very high scale and port density. These modules are also widely used by cloud and network service providers, data centers, and enterprises in preproduction to ensure the end-to-end performance of the network and its underlying infrastructure.

Key Features

- QSFP28 100G native interface
- Compatible with 40GbE / 100GbE interfaces
- Detachable support 10GbE / 25GbE interface
- Supports Layer 2-3 traffic test and protocol simulation
- Supports 100% line-rate traffic generating, statistic and capture based on FPGA
- Support RFC2544, RFC2889, RFC3918 benchmark test
- Comprehensive and extensible test report and analysis system

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

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

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

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

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

V2-100G-2QSFP28-D Test module
2-port 100G/25G functional test module

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

V2-100G-2QSFP28-S Test module
2-port 100G functional test module

ATX-V2-100G Series Board Module Specification

Hardware and electrical characteristics

Port rate	Optical port: 100GbE/40GbE/25GbE/10GbE
Port density	Up to 4 interfaces in a single slot
Interface standard	100GbE: 100GBASE-SR4, 100GBASE-LR4 40GbE: 40GBASE-SR4, 40GBASE-LR4 25GbE: 802.3by 25GBASE-SR 10GbE: 10GBASE-SR 100GbE FEC: 100GBase-SR4 RS-FEC91 25GbE FEC: 25GBase-SR RS-FEC108, 25GBase-SR FEC CL74, 25GBase-SR RS-FEC CL91
Port occupation	Occupied by single port
Rate switching	Two ports are grouped, and the rate is switched according to the port group
Module weight (kg)	1.2kg (2.6 lbs)
Module size (W*H*D)	196mm x 35.5mm x 271mm (7.7ins×1.4ins×10.7ins)
Range of working temperature	0°C to 35°C (32 °F to 95 °F)
Working relative humidity	20% to 85%
Maximum power consumption	48 watts

Traffic Generation

Stream per port	100GbE/40GbE: 1024 25GbE/10GbE: 256
Frame length (bytes)	64-16383
Frame length type	Support fixed, increasing, decreasing, random, automatic, IMIX and other frame length types
VFDs per stream	Each stream supports 4 jump fields; Support fixed, increasing, decreasing, list and random jump modes
Generation model	Port-based Continuous transmission, Burst and Time burst Flow-based Continuous transmission and Burst
Speed regulation mode	Port speed regulation and flow speed regulation
Delay and jitter settings	Four delay test modes are supported: LIFO (Store-and-Forward), FIFO (Straight-Through Switching), LILO and FILO
Frame timestamp resolution	8 nanoseconds
Stream Template	Built-in message templates, such as VLAN, ICMP, PPPoE, GRE, DHCP, L2TP, IPv6, MPLS, GTP, GOOSE, VXLAN, OSPF, TCP, UDP, etc.
Custom packet	User-defined messages are supported, and the edited message template can be saved; Checksum checking of custom fields is supported
User-defined data	Support user-defined message import of 16 kbytes, in which the first 256 bytes support configuration jump
Flow Control	Full duplex flow control
Error frame	CRC error, oversize frame

ATX-V2-100G Series Board Module Specification	
Traffic Statistics	
Stream per port	100GbE/40GbE: 2048 25GbE/10GbE: 512
Statistical mode	Statistics results can be displayed in the form of data table and graph. Statistics can also save Excel files automatically.
Statistics item (port)	Number of transmitted / received frames, transmitted / received frame rate, received bandwidth, Rx Filter Frames and custom statistics, FCS error statistics, TCP / UDP Checksum error, Rx Pause Frames, Port Average Latency Statistic, etc.
Statistics item (stream)	Number of transmitted/received frames, transmitted / received frame rate, received bandwidth, error frame statistics, real-time packet loss statistics, out-of-order statistics, latency jitter, and custom statistics, etc.
Statistical operation	Support sorting statistical results, performing mathematical operations such as addition, subtraction, multiplication, division, and custom paging statistics, etc.
Traffic Capture	
Capture Buffer/port (bytes)	32K
Capture type	Capture data and control plane receive frames; Capture the transmit and receive frames of the control plane; Frame capture based on filter template; Frame capture based on error packet; Support wrap capture; Support to specify the number of download capture packets
Protocol Simulation	
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, BGP VPLS, LDP VPLS, PWE, LSP Ping
Access	PPPoEClient/Server, DHCPv4 Client/Server, DHCPv6 Client/Server, DHCPv6 PDClient/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 , Automatic configuration of IPv6, Y.1731
Test suite	RFC2544, RFC2889, RFC3918, Asymmetric Testing, Intelligent Script
Software Platform	
Client software	Renix test platform: Support layer 2-3 traffic test and protocol simulation
API secondary development	TCL, Python3.x, GUItoTCL GUItoPython
Interface language	English, Simplified Chinese
Hardware Platform	
Adapter chassis	ATX-DVT 220, ATX-DVT 6200
Chassis operating system	Linux CentOS7.X

MODULES

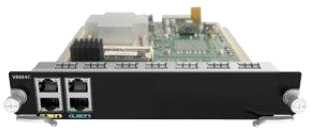
ATX-V6000 SERIES BOARDS

ATX-V6 series board card is a new generation of test board cards with global leading architecture, which can meet equipment manufacturers' requirements from basic function tests and consistency tests to high-density port performance tests. At the same time, it can verify whether the network system can achieve the expected goal when the enterprise, the operator, and the data center deploy the network solution.

Key Features

- 10 / 100 / 1000M RJ45 self-adaption (electrical interface)
- 100 / 1000M SFP (optical interface)
- Supports Layer 2-3 traffic test and protocol simulation
- 100% line speed traffic generation, statistics and capture function based on FPGA
- Easy to configure RFC2544, RFC2889 RFC3918 and other benchmarking test suites
- Comprehensive and extensible test report and analysis system

V6004C Test Module
4 Port，RJ45 1 Gigabit Function Test Module



V6004F Test Module
4 Port，SFP 1 Gigabit Function Test Module

V6008C Test Module
8 Port，RJ45 1 Gigabit Function Test Module

V6008M Test
4 Port RJ45 and 4 Port SFP 1 Gigabit Function Test Module

V6016C Test Module
16 Port，RJ45 1 Gigabit Function Test Module

V6016M Test Module
8 Port RJ45 and 8 Port SFP 1 Gigabit Function Test Module

V6016F Test Module
16 Port，SFP 1 Gigabit Function Test Module

ATX-V6000 Series Boards Module Specification

Hardware and electrical characteristics	
Port Rate	Electrical port: 10m/100m/1000m Optical port: 100m/1000m
Port Density	Up to 16 interfaces per slot(max)
Interface Standard	1000BASE-SX, 1000BASE-LX, 10/100/1000BASE-T
Port Occupancy	Occupied by single port
Rate Switching	Self-adaption
Module Weight	1.1kg (2.4 lbs)
Module size (W*H*D)	196mm x 35.5mm x 271mm (7.7ins×1.4ins×10.7ins)
Operating Temperature Range	0° C to 35° C (32 °F to 95 °F)
Working Relative Humidity	20% to 85%
Maximum Power Consumption (W)	31 Watts
Traffic transmission	
Number of Streams per Port	64
Frame Length Range (bytes)	Electrical port: 60-16383; 1000M optical port: 60-16383; 100M optical port: 60-9215.
Frame Length Type	Support fixed, increasing, decreasing, random, automatic,IMIX and other frame length types
VFDs per stream	Each stream supports 4 jump fields; It supports multiple jump modes such as fixed, increasing, decreasing, list and random
Generation model	Port-based: Continuous, Burst and Time burst Stream-based : Continuous, Burst
Speed regulation mode	Based on Port, based On Stream
Delay and Jitter Settings	Four delay modes are supported: LIFO (store and forward), FIFO (cut-through), LILO and FILO
Frame Time Stamp Resolution	8 nanoseconds
Built-in Frame Template	Built-in multiple frame templates, such as VLAN, ICMP, PPPoE, GRE, DHCP, L2TP, IPv6, MPLS, GTP, GOOSE, VXLAN, OSPF, TCP, UDP.
Custom Data	Support user-defined message, and the edited message template can be saved Support the checksum checking of user-defined field
User Defined Data	Support 32k bytes user-defined data, in which the first 256 bytes support configuration jump
Error Frame	CRC error, undersize frame, oversize frame
Flow Control	Full duplex flow control, half duplex back pressure

ATX-V6000 Series Boards Module Specification	
Traffic Statistics	
Number of Statistics Streams per Port	256
Statistical Form	Table statistics, chart statistics, automatic saving of Excel files
Statistics Item (port)	Tx/Rx frames, Tx/Rx frame rate, Rx bandwidth, error frame statistics, filtering statistics and custom statistics, FCS error statistics, TCP / UDP Checksum error, Pause frame statistics and average delay
Statistics Item (stream)	Tx/Rx frames, Tx/Rx stream rate, Rx bandwidth, error frame statistics, real-time packet loss statistics, out of order statistics, delay jitter and custom statistics, etc
Statistical Operation	Support sorting statistics results, adding, subtracting, multiplying and dividing, and customizing paging statistics quantity
Traffic Capture	
Capture Buffer(bytes)	512M (per port)
Capture Type	Capture the Rx frame of data and control plane Capture Tx and Rx frame of control plane Capture frame based on filter template Capture frame based on error message Support cycle capture Support downloading a specified number of captured messages
Protocol simulation	
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, BGP VPLS, LDP VPLS, PWE, LSP Ping
Access	PPPoE Client/Server, DHCPv4 Client/Server, DHCPv6 Client/Server, DHCPv6 PD Client/Server, L2TPv2, 802.1x
Multicast	IGMPv1/v2/v3, MLDv1/v2, IGMP/MLD Querier, PIM-SMv4/v6, PPPoE over Multicast
Data Center	VXLAN IPv4/IPv6, VXLAN EVPN IPv4/IPv6, OVSDB, OpenFlow 1.3 Controller, BGP/EVPN for VxLAN, LACP
Others	BFD, 802.1ag, 802.3ah, Automatic configuration of IPv6, Y.1731
Test Suites	RFC2544, RFC2889, RFC3918, Asymmetric Performance, Smart Script
Software platform	
Client	ATX-Renix test platform: Layer2-3 traffic test and protocols simulation
API Development	TCL, Python3.x, GUItoTCL GUItoPython
GUI Language	English, simplified Chinese
Hardware platform	
Adaptive Chassis	ATX-DVT 220, ATX-DVT 6200
Chassis operating system	Linux CentOS7.X

MODULES

ATX-V8000 SERIES BOARDS

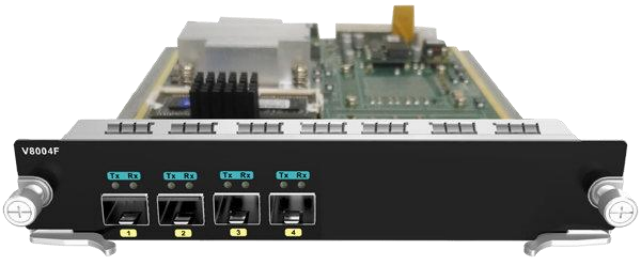
ATX-V8000 series are next-generation modules that can meet the requirements of equipment manufacturers, from basic functional testing to high-scale/high-density performance verification.

Key Features

- Supports 10G SFP+(optical interface)
- Supports 10G RJ45 (electrical interface)
- Supports L2-3 traffic emulation and control plane protocol simulation
- 100% line-rate traffic generation, statistics and capture based on FPGA
- Easy to configure RFCs 2544, 2889, 3918 and other industry benchmark suites
- The Renix API interface, supports TCL Python

V8008F Test Module

8 Ports,SFP+ 10G functional Test Module



V8004F Test Module

4 Ports,SFP+ 10G functional Test Module

V8008D Test Module

8 Ports,SFP+ 1G/10G functional Test Module

ATX-V8000 Series Boards Module Specification

Hardware and electrical characteristics	
Port Speed	Copper cable media : 10G； fiber cable media: 1G, 10G
Number of Ports	8 ports per card(MAX)
Interface Standard	1000MBASE-SX/LX, 10GBASE-SR/SW, 10GBASE-LR/LW, 10GBASE-T
Port Reservation	Occupied by single port
Rate switching	Self-adaption
Module weight	1.2kg (2.6 lbs)
Module size (W*H*D)	196mm x 35.5mm x 271mm (7.7ins×1.4ins×10.7ins)
Range of working Temperature	0°C to 35°C (32 °F to 95 °F)
Range of Working humidity	20% to 85%
Maximum power consumption (watts)	29W
Traffic Generation	
Stream per port	256
Frame length (bytes)	60-16383
Frame Length Type	Support fixed, increasing, decreasing, random, automatic, IMIX and other frame length types
VFDs per stream	Each stream supports 4 jump fields Support fixed, increasing, decreasing, list and random jump modes
Generation model	Port-based Continuous transmission, Burst and Time burst Flow-based Continuous transmission and Burst
Speed regulation mode	Port speed regulation and flow speed regulation
Delay and jitter settings	Four delay test modes are supported: LIFO (Store-and-Forward), FIFO (Straight-Through Switching), LILO and FILO
Frame Timestamp Resolution	8 nanoseconds
Frame Tempate	A variety of newspaper templates are built in, such as VLAN, ICMP, PPPoE, GRE, DHCP, L2TP, IPv6, MPLS, GTP, GOOSE, VXLAN,OSPF, TCP, UDP...
Custom Packet	User-defined messages are supported, and the edited message template can be saved; Checksum checking of custom fields is supported.
User-Defined Data	Support user-defined message import of 16 kbytes, in which the first 256 bytes support configuration jump
Flow Control	Full duplex flow control
Error Frame	CRC error, undersize frame, oversize frame
Traffic statistics	
Stream Per Port	1024
Statistical Mode	Statistics results can be displayed in the form of data table and graph. Statistics can also save Excel files automatically
Statistics item (port)	Number of transmitted / received frames, transmitted / received frame rate, received bandwidth, Rx Filter Frames and custom statistics, FCS error statistics, TCP / UDP Checksum error, Rx Pause Frames, Port Average Latency Statistic, etc.

ATX-V8000 Series Boards Module Specification	
Statistics Item (stream)	Number of transmitted/received frames, transmitted / received frame rate, received bandwidth, error frame statistics, real-time packet loss statistics, out-of-order statistics, latency jitter, and custom statistics, etc.
Statistical Operation	Support sorting statistical results, performing mathematical operations such as addition, subtraction, multiplication, division, and custom paging statistics, etc.
Traffic Capture	
Capture Buffer/ port(bytes)	1024M
Capture Type	Capture data and control plane receive frames Capture the transmit and receive frames of the control plane Frame capture based on filter template Frame capture based on error packet Support wrap capture Support to specify the number of download capture packets
Protocol Simulation	
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, BGP VPLS, LDP VPLS, PWE, LSP Ping
Access	PPPoE Client/Server, DHCPv4 Client/Server, DHCPv6 Client/Server, DHCPv6 PD Client/Server, L2TPv2, 802.1x
Multicast	IGMPv1/v2/v3, MLDv1/v2, IGMP/MLD Querier, PIM-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, Automatic configuration of IPv6, Y.1731
Test Suite	RFC2544, RFC2889, RFC3918, Asymmetric Testing, Intelligent Script
Software Platform	
Client Software	ATX-Renix test platform: Support layer 2-3 traffic test and protocol simulation
API Secondary evelopment	TCL, Python3.x, GUItoTCL GUItoPython
GUI Language	English, Simplified Chinese
Hardware Platform	
Chassis	ATX-DVT 220, ATX-DVT 6200
Chassis OS	Linux CentOS7.X

MODULES

ATX-V2-10G SERIES BOARDS

The V2-10G series test module integrates with ATxTel's ATX-Renix, next-generation test software based on the PCT architecture, to provide a complete test solution for Layers 2- 3. Each port of the V2-10G series test module supports wire-speed traffic generation and analysis, high-performance routing/multicast/user access emulation, and a comprehensive and extensible test report and analysis system.

Key Features

- Supports 10GbE/5GbE/2.5GbE/1GbE/100Mbps
- Supports 2-3 layer stream test and protocol simulation
- FPGA-based 100% line rate traffic generation, statistics and capture
- Supports RFC2544, RFC2889 and RFC3918 benchmark test suites
- Comprehensive and extensible test report and analysis system

V2-10G-8C-Q test module

8- port RJ45 100M/1G/2.5G/5G/10G five-speed function test module

ATX-V2-10G Series Board Module Specification

Hardware and electrical characteristics	
Port rate	Electrical port: 10GbE/5GbE/2.5GbE/1GbE/100Mbps (full duplex)
Port density	Up to 8 interfaces per slot
Interface standard	100BASE-T, 1000BASE-T, 2.5GBASE-T, 5GBASE-T, 10GBASE-T, 802.3 bz, NBASE-T, MGBASE-T
Port occupation	Occupied by single port
Rate switching	Self-adaption, Manual switching
Module weight	1.1kg (2.4 lbs)
Module size (W*H*D)	196mm x 35.5mm x 271mm (7.7ins×1.4ins×10.7ins)
Range of working temperature	0°C to 35°C (32 °F to 95 °F)
Working relative humidity	20% to 85%
Maximum power consumption	41 watts
Traffic Sending	
Stream per port	256
Frame length (bytes)	60-16383
Frame length type	Support fixed, increasing, decreasing, random, automatic, IMIX and other frame length types
VFDs per stream	Each stream supports 4 jump fields Support fixed, increasing, decreasing, list and random jump modes
Generation model	Port-based continuous transmission, burst and time burst Stream-based continuous transmission and burst
Speed regulation mode	Base on port, base on stream
Delay and jitter settings	Supports four latency test modes: LIFO (store and forward), FIFO (through-exchange), LILO, and FILO
Frame timestamp resolution	8 nanoseconds
Built-in message template	A variety of newspaper templates are built in, such as VLAN, ICMP, PPPoE, GRE, DHCP, L2TP, IPv6, MPLS, GTP, GOOSE, VXLAN,OSPF, TCP, UDP...
Custom message	Support custom messages, and edited message templates can be saved; support checksum check of custom segments
User-defined data	Supports 16K bytes of user-defined message import, where the first 256 bytes support configuration jumps
Error frame	CRC error, undersize frame, oversize frame
Flow Control	Full duplex flow control
Traffic Statistics	
Stream per port	1024
Statistical mode	Table statistics, chart statistics, automatically save EXCEL files
Statistics item (port)	Number of sent / received frames, sent / received frame rate, received bandwidth, errored frame statistics, filtering statistics and custom statistics, FCS error statistics, TCP / UDP Checksum errors, Pause frame statistics, average delay statistics
Statistics item (stream)	Send / receive frame number, send / receive stream rate, receive bandwidth, error frame statistics, real-time packet loss statistics, out-of-order statistics, delay jitter, and custom statistics

ATX-V2-10G Series Board Module Specification	
Statistical operation	Supports sorting statistical results, performing mathematical operations such as addition, subtraction, multiplication and division, and custom paging statistics
Traffic Capture	
Capture Buffer/port (bytes)	1024M
Capture type	Capture data and control plane receive frames Capture the transmit and receive frames of the control plane Frame capture based on filtering template Frame capture based on error message Support cyclic capture Support to specify the number of captured capture packets
Protocol Simulation	
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, BGP VPLS, LDP VPLS, PWE, LSP Ping
Access	PPPoE Client/Server, DHCPv4 Client/Server, DHCPv6 Client/Server, DHCPv6 PD Client/Server, L2TPv2, 802.1x
Multicast	IGMPv1/v2/v3, MLDv1/v2, IGMP/MLD Querier, PIM-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, Automatic configuration of IPv6, Y.1731
Test suite	RFC2544, RFC2889, RFC3918, Asymmetric Testing, Intelligent Script
Software Platform	
Client software	ATX-Renix test platform: 2~3 layer stream test and protocol simulation
API secondary development	TCL, Python3.x, GUItoTCL, GUItoPython
Interface language	English, Simplified Chinese
Hardware platform	
Adapter chassis	ATX-DVT 220, ATX-DVT 6200
Chassis operating system	Linux CentOS7.X

SOFTWARE
ATX-RENIX TEST SOFTWARE

ATxTel

ATX-Renix is an incredibly easy-to-use and intuitive software interface for the ATX-Benchmark test system. The ATX-Renix application allows the user to configure complex and comprehensive test scenarios with limited clicks required. ATX-Renix also has the ability to create test cases directly from the GUI directly to automated scripts. From hardware development to software verification testing to system-level performance, ATX-Renix provides a single environment for functional testing, RFC benchmark testing, complex routed topology emulation, and system-level verification.

Supporting multiple users, Renix allows for the sharing of test ports/resources, configuration files and results across all functions of test and engineering organizations.

With the continuous evolution of telecommunications technologies, the hardware and software architecture is becoming increasingly complex. The protocols supported by network equipment are more abundant, and the scale of network traffic on the Internet is rapidly expanding. 5G network connectivity requirements, such as ultra-high bandwidth, expanded connectivity, lower latency, and improved reliability introduce even greater challenges. ATX-Renix allows the flexibility to configure the test conditions, and the traffic load needed to properly conduct tests in the lab.

Key Features

- Unified 2~3 layer test environment/ interface to the Benchmark systems
- Easy to interface allowing for simplified and complex test scenarios
- The Renix software supports Ethernet speeds from 10Mbps~400GbE
- Convenient configurations Wizards to reduce test set up and configure
- Integrated, customizable packet capture and analysis capability
- Customizable test reporting and comprehensive results analysis
- Simple export of GUI test cases directly to script (both TCL and Python)

ATX-Renix Features & Specification

Machine frame management	
Adapting machine frame	ATX-DVT 220, ATX-DVT 6200, ATX-XP3000, ATX-XP12000
Frame operating system	Linux CentOS 7.6
Machine frame management	Add, delete, connect and disconnect the boot box
Machine frame operation	Restart, close, upgrade the frame, and the frame status
Port management	
Port management	Port migration, online, offline, delete
License management	
License management and operation	Install, clean, merge, delete and download licenses
Multiple users/processes	
multiuser	Support (up to 32 users)
multiprocess	support
Send	
Frame length type	Fixed, Increment (supporting step setting), Decrement (supporting step setting), Random (supporting random seed),iMIX
Sending mode	Port based: Continuous, Burst,Time Flow based: Continuous, Burst Transmission mode: synchronous transmission and asynchronous transmission
Speed regulation mode	Port speed regulation and flow speed regulation
Stream template	Layer 2, IPv4, IPv6, TCP, UDP, ARP, pause, goose, PPPoE, VLAN, MPLS, ICMP, IGMP, GRE, GTP, L2TPV2, L2TPv3, IPv6, OSPF,STP, MLD, IS-IS, etc.
Delay mode	LILO, FIFO, LIFO, FILO Support delay mode configuration
Error frame	CRC error, undersize frame, oversize frame
Statistics	
Statistical form	Table statistics (paging statistics), chart statistics
Statistical sampling	Real time statistics
Functional support	Filter statistics
Statistical item	Send/receive stream frame number, send/receive rate, receive bandwidth,Packet error statistics, stream frame delay,delay jitter, real-time packet loss rate, filtering statistics, etc.
Catch	
Capture type	Transmit / receive capture at control level Data and control level reception and capture (line speed) The received message contains CRC Cyclic capture

ATX-Renix Features & Specification	
Capture filtering	Pattern custom capture: 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/jumbo 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 surface
Protocol simulation	
Routing	RIPv2, RIPng, OSPFv2, OSPFv3, BGP4 , BGP4+, IS-IS
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
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
Data Center	VXLAN, VXLAN EVPN, OVSDB, OpenFlow 1.3 Controller, BGP/EVPN for VxLAN, LACP
High Availability	BFD, OSPFv2 BFD, OSPFv4 BFD, IS-IS BFD, BGP BFD
Protocol Wizard support and protocol binding flow support	OSPFv2/v3, BGP4/BGP4+, IS-ISv4/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 suite	RFC2544, RFC2889, RFC3918, Asymmetric Performance
Automatization	
API	TCL, Python3.x, GUIToTCL, GUIToPython
Others	
Smart Scripter	Support
Interface language	English and Chinese

ATxTel

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