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