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

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	Copper 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)	1.5
Dimensions(W×H×D)	196mm x 35.5mm x 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