Portable 2 Combo-Port 10G WireSpeed Streams Generator & Network Tap

OVERVIEW

Knight x2D is a handheld device with 2 combo 10G ports and 2 TAP ports for Ethernet testing. Knight x2D optionally functions as the multi-stream generator, network tap or both.

Knight x2D can work along with a series of utility software that qualify industrial standards such as RFC 2889, RFC 2544, and QoS. With these utilities, Knight x2D is able to conduct throughput test, latency test, error filtering test, forwarding test, network tap and so on. Utility software can provide a user-friendly interface for different test configurations when setting different test parameters and criteria. More optional software are available for extended test requirements.

With its unique Universal Stream Counter (USC), Knight x2D offers real-time statistics of network traffic testing and tapping.

Connecting Knight x2D to its RJ45 management port makes it possible for system configurations and managements. Knight x2D is an ideal device for in-field testing.

Knight x2D has new mechanism design, it's more convenient to replace the cooling fan, so Knight x2D became easier to maintain.

With these advantageous features, Knight x2D is your best partner for LAB researching and in-field troubleshooting.

KEY FEATURES

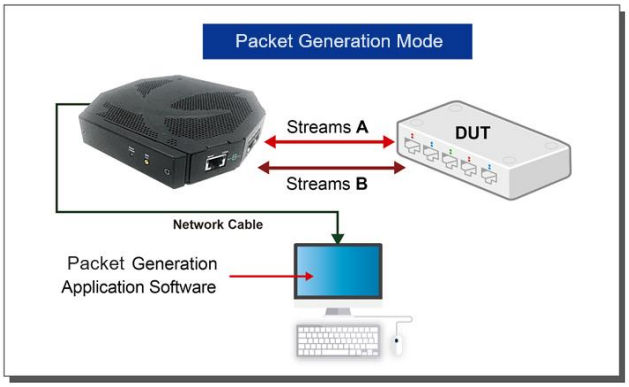
- Hardware based wire speed multi-stream generation, analysis, network TAP
- Supports multi-speed, 10G/5G/2.5G/1G/100Mbps(Full Duplex only)
- High precision performance for measuring throughput, latency, packet loss, disordered sequence
- Wire speed traffic capturing with programmable filter and trigger criteria with network tapping function
- Supports data statistics per stream
- Utility software that complied with RFC-2544, RFC-2889 and RFC-3918.
- High precision 1 ppm temperature-compensate oscillator provides accurate clock speed to ensure the reliability of the tests
- Adding errors in transmitted traffic to simulate and test abnormal situations
- Real-time statistics for each port, including transmitted/received frame for VLAN, IPv4, IPv4 fragment, IPv4 extension , ICMP, ARP, total bytes/packets, CRC, IPCS error and over-and-under size frames
- Utility software with user-friendly interface that supports various parameter configurations and meets various test requirements
- Dedicate fan module design makes it easy for replacement
- Optionally GPS modules for purchasing

MAIN APPLICATIONS

- **PG(Packet Generation) Mode**

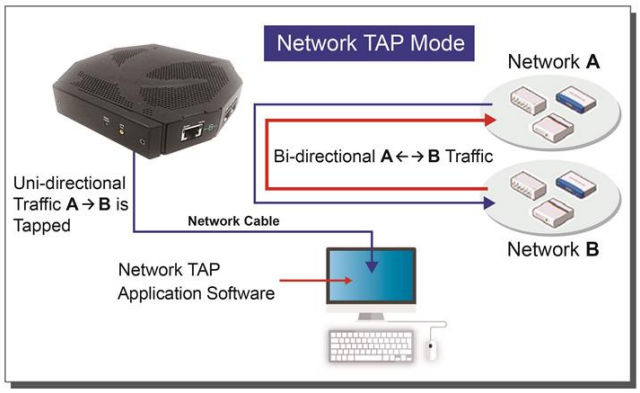
  In PG mode, Knight x2D generates wirespeed network streams for test requirements as the illustration below.

  Knight x2D's Port A/B and Monitor M0/M1 ports can generate and receive test streams. The test streams are sent and returned to the same Knight x2D for DUT (device under test) analysis.



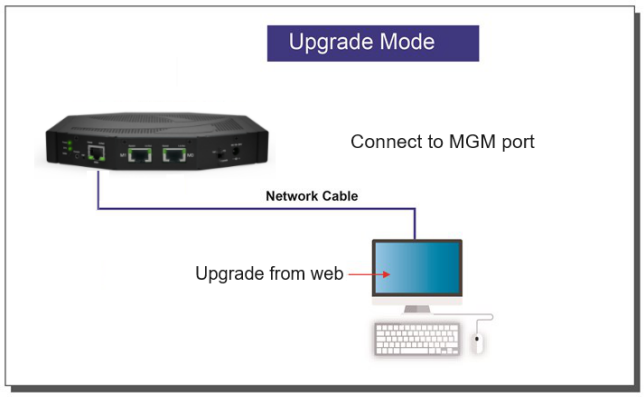
- **TAP Mode**

  In TAP mode, Knight x2D can monitor any data that flows through it. Network TAP is a method of monitoring network's situation dynamically without interference. Knight x2D can tap bi-directional or uni-directional traffic from different sides (port A and port B) and also provides abundant packet counters.



- **Upgrade Mode**

  In this mode, Knight x2D performs system upgrade.



SPECIFICATIONS

Knight x2D		
Supported Frame Format	• Ethernet Type II frame	• IEEE 802.3 frame
Application Mode		
Application Mode	**PG Mode**	PG Mode allows Knight x2D's PortA/B and Monitor Ports M0/M1 to generate wirespeed streams.
	TAP Mode	Knight x2D monitors any data that flows through it and also provides abundant packet counters
	Upgrade Mode	Knight x2D performs system upgrade.
Interface Ports		
Interface Ports	**Network Port A/B**	10G/5G/2.5G/1G/100Mbps Full Duplex RJ45 & 10G/5G/2.5G/1Gbps SFP/SFP+ Combo Port • **PG Mode:** Stream generation Tx port • **TAP Mode:** TAP port
	Monitor Port M0/M1	10G/5G/2.5G/1G/100Mbps Full Duplex RJ45 Port • **PG Mode:** Stream generation Tx port • **TAP Mode:** Monitor port
	Management Port	• **Upgrade Mode:** System upgrade
Functional Specification and Hardware Counter		
Functional Specification	• Active TAP without interfering monitored traffic • DA/SA Variation, VLAN ID in **Increase**, **Decrease**, or **Random** for testing DUT addressing capability • **Rapid-Matrix Mode:** multi-stream generation • **Frame Length:** Fixed from 64 ~16k bytes or random • **Payload in Frame:** Specific payload or random pattern • **Error Generation:** CRC, Alignment, Dribble bits, Undersize frame, Oversize frame • Capturing Network events with SDFR (Self-Discover Filtering Rules) • 2nd level CRC check and transmission sequence check • Support Jumbo Frame (up to 16K bytes)	
Hardware Counter	• **Rate:** Tx Packet, Tx Byte, Tx Rate, Rx Packet, Rx Byte, Rx Rate • **Collision counter:** Tx Collision, Tx Single Collision, Tx Multi Collision, Tx Excess Collision • **Error counter:** Dribble Error, Alignment Error, CRC Error, DI Error, IPCS Error, Error & Loss Packet • **Packet Size Counter:** Under Size, 64, 65-27, 128-255, 256-511, 512-1023, 1024-522, Over Size • **Layer 2 & Layer 3 Packet Counter:** Broadcast, Multicast, Unicast, VLAN, IPv4, IPv4 Fragment, IPv4 Extension, ICMP, ARP, and Pause • Trigger Counter by SDFR	
GPS Module	This module is optional in purchasing	
Utility Software		
Utility Software	**Knight-RFC:** Test Suites for RFC2544, RFC2889 and RFC3918 **Knight-Dashboard:** Control suite for multiple streams generator **Knight-TAP:** Ethernet TAP suite base on TAP mode with real streams counter and streams chart	
Main Frame Spec		
Dimension	186mm x 186mm x 31mm	
Net Weight	Approx. 750g	
Temperature	• **Operating:**0°C~ 40°C (32°F~ 104°F)	• **Storage:** 0°C~ 50°C (32°F~ 122°F)
Humidity	• **Operating:** 0% ~ 85% RH	• **Storage:** 0% ~ 85% RH
Power Source	External Power Adapter • **Input:** AC 100 V ~ 240 V, 50 Hz ~ 60 Hz	• **Output:** DC 12V

TECHNICAL TERMS

Knight x2D is an all-purpose handheld network test device that has many innovative technologies.

Rapid-Matrix

Rapid-Matrix, especially designed by Xtramus for generating multi-stream traffic per port simultaneously, is used to verify functions and performance of 10 Gigabit Ethernet devices/solutions/networks.

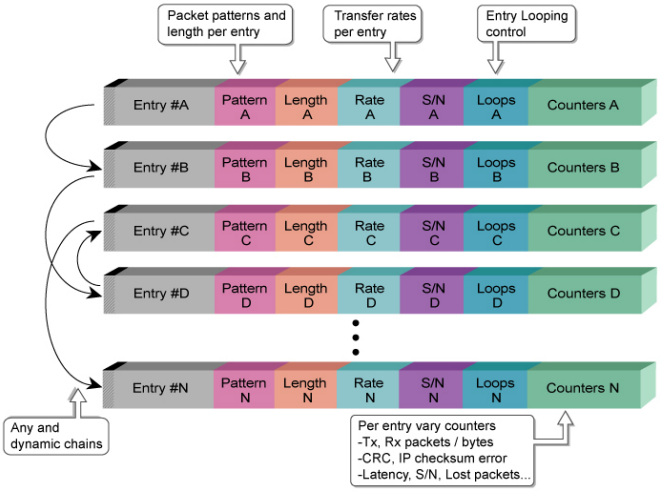
Features & Advantages

Rapid-Matrix is a technology that can generate multi-stream traffic simultaneously with different kinds of frames containing almost any required protocol headers, tags and payload for each port

In traditional network test procedures, testing different functions sequentially always takes lots of time, and if the test equipment is not sufficient enough, cost of time will be high. Unlike traditional test procedures in other test equipments, Rapid-Matrix technique activates multi-task test to DUTs simultaneously. This mechanism also synchronizes the test procedure to all DUTs under test; hence, the test duration of a multi task test for all DUTs is predictable and the test duration is reduced dramatically.

Generate up to 256 Streams per Port

Rapid-Matrix consists of 256 individual entries for each port. Each entry has its own independent settings for a unique data stream. Multiple entries can be correlated to compose a complicated data stream.



Network TAP

Network TAP is a way to monitor the network without interfere the running network. All data streams between point A and B can be duplicated and sent to PC for analysis.

Active TAP

Normal TAP only redirects all traffic flow between two locations into the PC and analyzes the traffic. If the traffic flow is at its peak, it is possible that the PC won't be able to deal with heavy traffic.

Active TAP handles all packet flows through the TAP device. Knight x2D is an Active TAP device that has these functions:

- **Packet Trigger:** Configure a criteria or content of packet that will be filter out for analysis.
- **Filter:** Packet data that fits certain criteria is redirect to the monitor port.
- **Packet Capture:** Packet data that fits certain content or criteria is captured and saved to the memory buffer of Knight x2D.
- **Comprehensive Real-Time Statistics:** Frames with varied size, packets, and certain error are all recorded in the real-time statistics counter.

SDFR

Self-Discover Filtering Rules

SDFR (Self-Discover Filtering Rules) is a technology that makes packet capturing/filtering over Ethernet easy and convenient.

SDFR's User-friendly interface can display values such as Source IP, Destination IP and so on. All these values (one single value or a specific range of values) can be input directly without calculating mask.

All captured packets are displayed in real-time without intervening network flow, and SDFR values can be changed dynamically during capture procedure.

SDFR parameters include filter of Layer 2 Destination MAC Address, Source MAC Address, VLAN ID, Layer 3 Destination IP Address, Source IP Address, Destination Port, and Source Port. Each filter is independent and can be activated in any combinations.

CONTACT INFORMATION

Website: http://www.xtramus.com
E-mail: Sales@xtramus.com
TS@xtramus.com
TEL: +886-2-8227-6611
FAX: +886-2-8227-6622