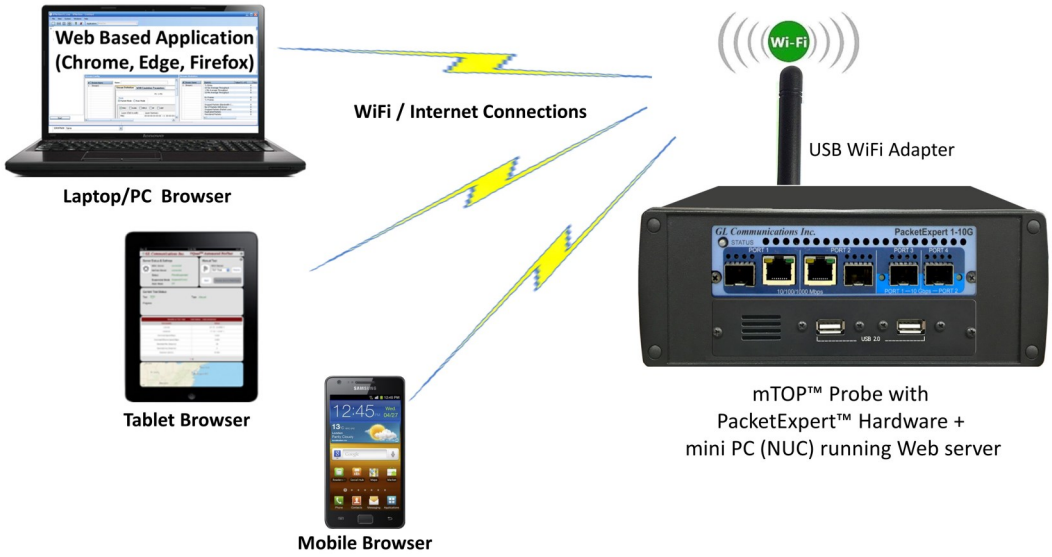
Portable Multi-Functional Ethernet/IP Tester



Overview

GL's latest PacketExpert™ mTOP™ Probe unit is a stand-alone hardware variant, an all-in-one self-contained test instrument. PacketExpert™ probe unit includes USB based PacketExpert™ 1G /10G Electrical /Optical interfaces along with the necessary PC, which can be controlled remotely using browser application. The rear panel displays the PC interfaces - USB 2.0 or 3.0 ports, GigaBit Ethernet port, HDMI, along with 256 GB HDD, 8G memory, i3/i7 NUC, and Windows® 10 64-bit OS.

External USB based Wi-Fi adaptor can be plugged to the USB ports 3.0 on the rear panel provides wireless connectivity. The tests and the configurations on the hardware can be controlled remotely using any browser-capable (Chrome, Edge, Firefox) device such as desktops, table PCs MAC systems (Mac, iPhone, iPad) or PDAs.

10Gbps/1Gbps Electrical/Optical ports supports various functionalities with each GigE port providing independent Ethernet/VLAN/ MPLS/IP/UDP layer-wise testing at wirespeed.

PacketExpert™ probe tester supports the following multiple functionalities -

- Wire speed BERT
- RFC 2544 Testing
- Smart Loopback
- ExpertSAM (ITU-T Y.1564)
- Record and Playback
- PacketBroker (Tap, Filter, Aggregate, Modify)
- Multi Stream UDP/TCP Traffic Generator and Analyzer
- ExpertTCP (RFC 6349)
- WAN IP link Emulation

For more information, please visit mTOP™ PacketExpert™ Probe test equipment webpage.

GL Communications Inc.

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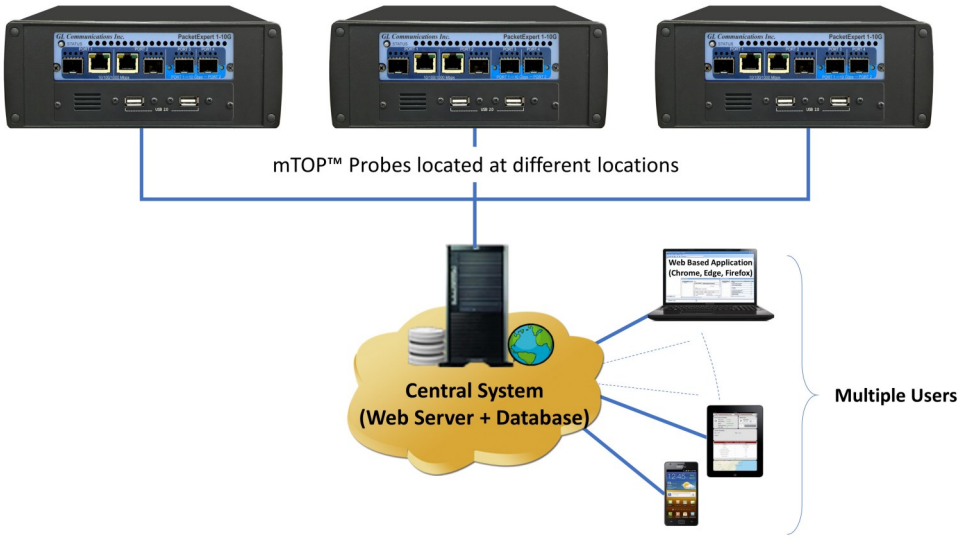
Main Features

- Handheld Portable Ethernet/IP Tester
- All-in-one Self Contained Test Equipment
- 1G/10G Electrical/Optical Interfaces with Mini NUC PC in a Single Box
- Centralized Web Application Controlling Remote Probes
- Multi-Functional Tester for Field Applications
- Wifi / Internet Wireless Connectivity
- Wire Speed BERT on all Ports for Long Term Service Integrity Testing
- Layer 1/2/3 + Ethernet Switch (and Router) Testing
- Testing Multi-Protocol Label Switching (MPLS), Q-in-Q (Stacked VLAN) enabled Networks
- End-to-end Testing of Network Paths for QoS Parameters

Centralized Web Application controlling mTOP™ PacketExpert™ Probes

As depicted in the centralized test scenario, multiple mTOP™ probe units deployed at different locations are all connected to the central system. The central system comprises of web server, and a web-based application, to facilitate remote access through web browser clients. Multiple users can access the web server located at central system via browser application controlling multiple mTOP™ probes located at different locations.

The active/idle status of the probe, test running on the hardware, ports configured for the test and all the probe related details are logged in the web server. The user can stop the running tests, change the configurations, and rerun the tests and also view the test results/statistics in the browser application, thus controlling the mTOP™ probe remotely.

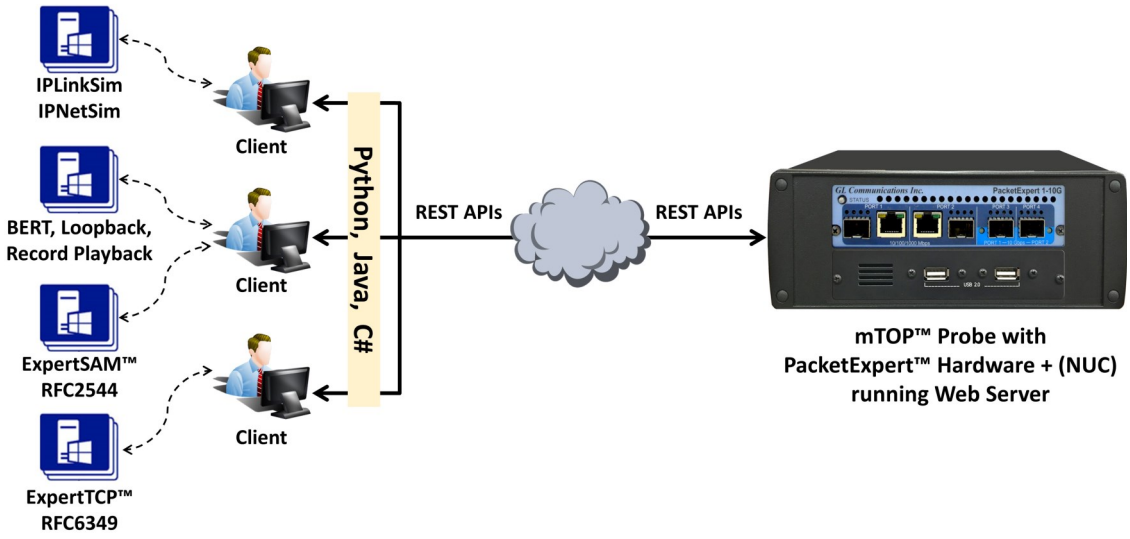


Test Automation with REST APIs

As depicted in the test scenario, the mTOP™ Probe with PacketExpert™ USB hardware and Web server running on the NUC mini PC acts as REST Web Service Server. Command line Interface (CLI) support allows remote controlling using Java, Python, C#, and other clients.

Web service uses REST APIs which are based on URLs and the HTTP protocol and use browser compatible JSON for a data format. The clients directly communicate with the server and controls mTOP™ Probe using high-level REST APIs. APIs uses HTTP requests to GET, PUT, POST and DELETE data. Web server receives the HTTP requests from clients and executes the tasks as per the request and sends back the response to the client in JSON format.

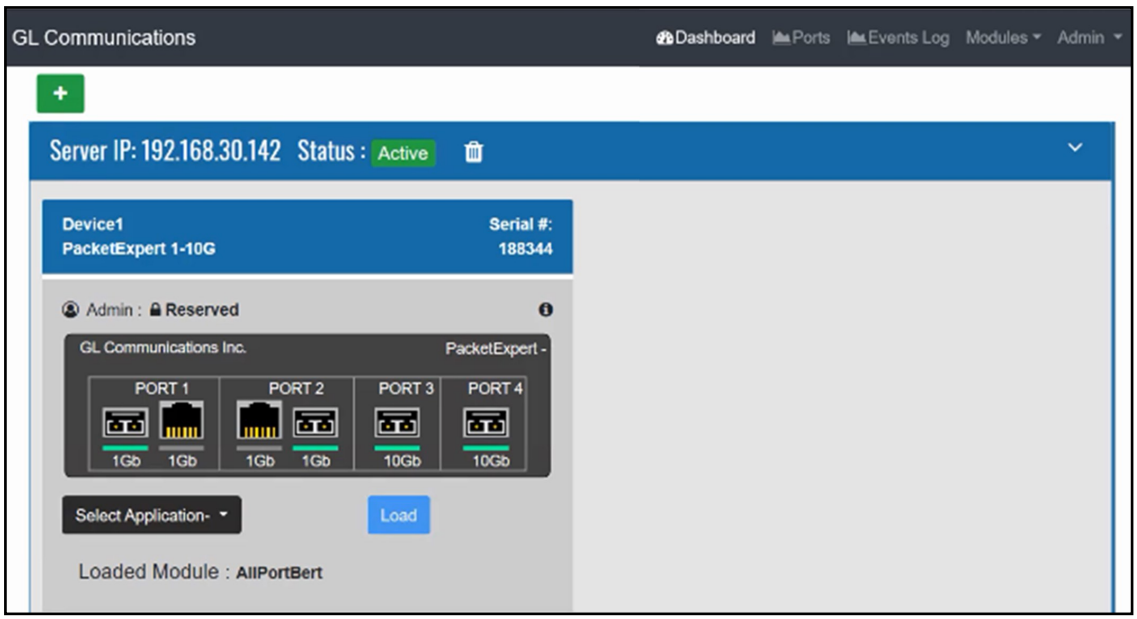
Different clients (Java, Python, C#,…..) can connect to single mTOP™ Probe (Web server) to run any functions (BERT, Loopback, RFC2544, Record Playback, WAN Emulation, Multi-stream Traffic Generation and Analysis), using the REST APIs, permitting complex real -time test scenarios.



Dashboard - Port Status and Configurations

Dashboard displays the device status indicating the board serial #, device type, interface type connected, module loaded for testing. Users can select and load the required application for testing.

Also, provides the user information controlling the device and the Server IP via which the device is being controlled.



Interface and Address Settings

Interface view allows the users to configure the interface type (Electrical/Optical) and the Link Speed in Mbps for all the displayed ports on the connected devices. By default, displays the currently active interface type and the link speed finalized through auto-negotiation.

Quick configuration of MAC, IP, Subnet Mask, Default Gateway Addresses settings for all the ports for all the active devices.

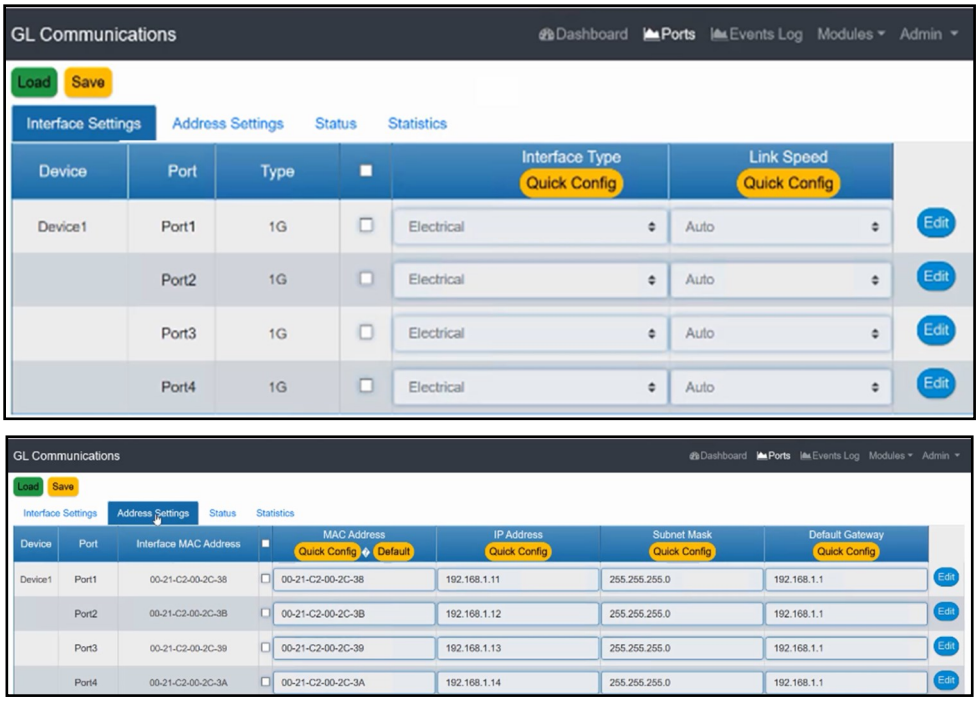


Figure: Interface and address settings

Bi-directional Tx Rx Alarms

Consolidated BER result view displaying bi-directional Tx Rx Alarms and Rate (Mbps) for all the ports. Tx Rx Alarms for Sync Loss, Bit Errors, No Traffic, Link Down, Out-of-Sequence providing a quick view of the BERT Test status. Real time Throughput graph display are plotted for the BERT testing.

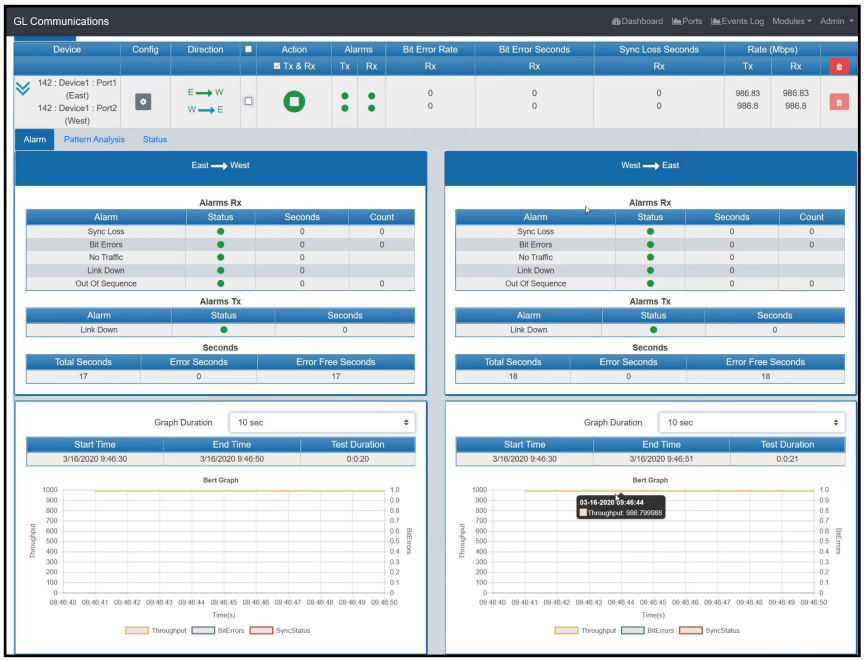


Figure: Bi-directional Tx Rx Alarms

Pattern Analysis

Pattern Analysis allows the user to insert Bit Errors into the outgoing (TX) BERT stream. Both Single manual error insertion and error rate range (10^-1 to 10^-9) insertion are supported. Bit Error Rate, Bit Error Count and Bits received statistics are displayed for both the directions.

Real time graph display of combined Throughput and Error Events are plotted found during BERT testing.

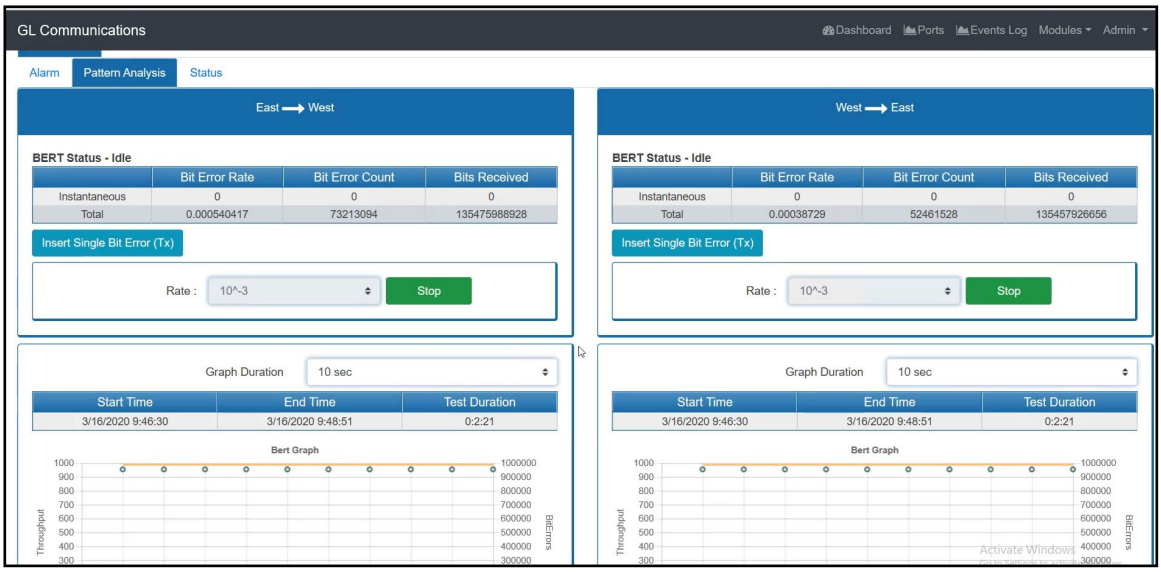


Figure: Pattern Analysis

Specifications mTOP™ PacketExpert™ 10GX Probe

Front View

4 TTL I/O Rear View

12 TTL I/O Rear View

Specifications mTOP™ PacketExpert™ 10GX Probe *(Contd.)*

Interfaces

- 4x 1G Base-X Optical OR 10/100/1000 Base-T Electrical
- 2x 10G Base-SR, -LR -ER Optical option
- 2 x 100 Mbps Base-FX optical interface
- Single Mode or Multi Mode Fiber SFP support with LC connector
- Optional 4/12-Ports SMA Jack Trigger Board (TTL Input/Output)
- External USB based Wi-Fi adaptor (optional)

SBC Specifications

- Intel Core i3 or optional i7 NUC Equivalent,
- Windows® 11 64-bit Pro Operating System
- USB 3.0 and USB 2.0 Ports, 12V/3A Power Supply
- USB Type C Ports, Ethernet 2.5GigE port
- 256 GB Hard drive, 8G Memory (Min)
- Two HDMI ports

External Dimensions

- Length: 10.4 inches
- Height: 3 inches
- Width: 8.4 inches

Temperature

Operating Temperature:

- 0° C to +50° C (only up to operating altitude of 5000 feet, and for Optical SFPs only i.e. Non Electrical SFPs)
- +5° to +40° C (for operating altitude up to 10,000 feet, and for both Electrical and Optical SFPs)
- **Non-Operating Temperature**: -30° to +60° C

Humidity

- Operating Humidity: 0% to 80% RH
- Non-Operating Humidity: 0% to 95% RH

Altitude

- Operating Altitude: up to 10,000 feet
- Non-Operating Altitude: up to 50,000 feet

Order information

- PXN100, PXN101
- MT005/MT005E
- PacketExpert™ Options

Power Supply

- 12 volts, 3 Amps

Buyer's Guide

Item No	Product Description
PXN100	PacketExpert™ 10GX
PXN101	10G option for PXN100
CXN100	CLI Server for PXN100
MT005	mTOP™ Probe with Intel i3 Core
MT005E	mTOP™ Probe with Intel i7 Core
MT001	mTOP™ 1U Rack Mount Enclosure w/SBC (Intel i3 Core)
MT001E	mTOP™ 1U Rack Mount Enclosure w/SBC (Intel i7 Core)
MT002	mTOP™ 1U Rack Mount Enclosure w/o SBC

Note: PCs which include GL hardware/software require Intel or AMD processors for compliance.

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