RELY–TSN–LAB TSN Testing Tool

RELY–TSN–LAB is a new concept of intelligent device that integrates IEEE IEEE 802.1AS sub–microsecond synchronization for analysing the behaviour of a network segment under certain stress condition.

RELY–TSN–LAB can simulate surges conditions and other interferences In the network by forcing FCS (CRC) errors in selected frames. Last bit of the check sequence is changed leaving the rest of the frame untouched.

Additionally, the device permits the measurement of the bandwidth and latency of a certain traffic in a specific device or network segment. This feature is performed by hardware timestamping the packet before it is injected in the network or device under analyse and after receiving it from the network or DUT.

The timestamp of the packets is based on the IEEE 802.1AS synchronization, which becomes an important benefit when used in Deterministic networking.

The timestamps can be stored along with useful package information that can be post–processed in order to generate performance results about IEEE 802.1Qbv.

Additionally, an embedded web manager tool together with a Linux based OS simplifies the configuration, the creation of filters and the customization of the tool, to the specific requirement of any customer.

Specifications
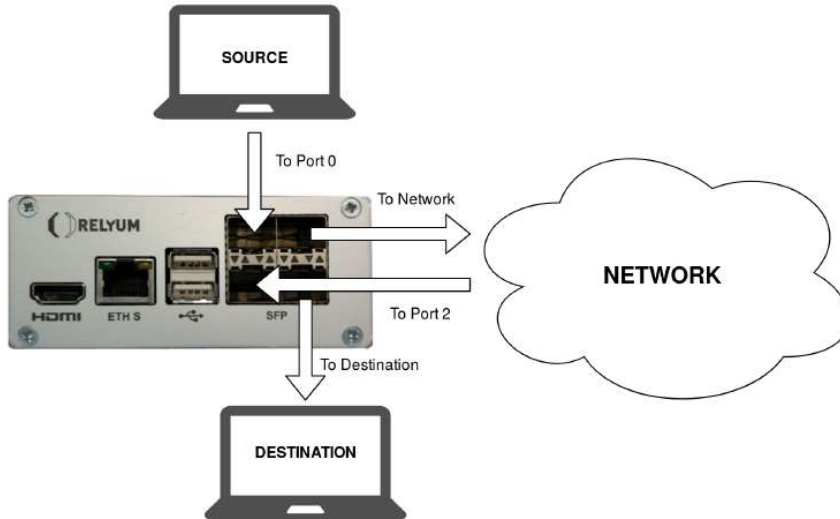
Testing tool features

- Frame filtering by:
  - » Destination MAC address
  - » Source MAC address
  - » VLAN ID
  - » VLAN Priority
  - » Custom Pattern
- Configurable error injection
- Bandwidth metering
- Latency metering

Communication interfaces

- 4 x Tri-speed Ethernet Ports
- 1 x Gigabit Ethernet Service Port
- 1 x Pulse-Per-Second (PPS) SMA output
- 2 x USB Ports

Synchronization

- IEEE 802.1AS synchronization support
- Hardware (FPGA) timestamping

Processing performance

- Xilinx Zynq FPGA with embedded dual-core ARM9 processor
- 1GB DDR3 RAM Memory
- Linux Operating System

Rugged devices

- Fanless design and full metal enclosure
- Redundant Power Supply: 6VDC to 36 VDC
- Optional PS: 48VDC / 125VDC
- Operating. temperature.: -40°C to +70°C
- Storage temperature.: -40°C to +85°C
- Optional mounting: DIN rail

Configuration and management

- SNMPv3, SSH
- Web-based HTML5-GUI access/configuration
  - » Accessible through HTTP(S)
  - » Configuration profiles and Firmware updates
  - » Real-time network monitoring