TELEDYNE LECROY
Everywhereyoulook™

SierraNet™ T328

Ethernet and Fibre Channel Protocol Test System

Key Features

- Analyze Native Ethernet and Fibre Channel fabrics
  - 10/25/40/50/100GbE
  - 1/2/4/8/16/32GFC
- Fall-Back support for legacy links/speeds
  - 10/40GbE
  - 1/2/4/8/16GFC
- Layer 1 analysis support for link layer negotiation analysis
- Complete bi-directional capture of line rate traffic
- API for automation of test routines
  - Python scripts for popular Linux OS environments
  - Post capture, comprehensive analysis capabilities with Verification Script Engine™
- Deep memory buffers and pre-capture filtering for extended analysis needs
- 1U form-factor with optional rack mount kits
- Integrated 25GbE and 32GFC SFP-28 ports, backward compatible for SFP and SFP+ legacy applications
  - 8-Analog Pass Through
- Optical or copper cable connections supported
- QSPF28 to 4-SFP28 fan-out DAC cables included

The Teledyne LeCroy SierraNet™ T328 is a highly advanced, fully integrated Ethernet and Fibre Channel protocol analysis system. The SierraNet T328 platform provides best in class traffic capture for testing application or link characteristics. SierraNet T328 is the latest in the line of industry leading test and measurement tools from Teledyne LeCroy, designed for today's high-speed storage and communications fabrics. SierraNet T328 supports examination of Ethernet and Fibre Channel links utilizing Non-Return to Zero (NRZ) technologies.

To achieve 25Gb Ethernet and 32G Fibre Channel data rates, the industry adopted advanced physical layer signaling technologies and has added more complexity to basic link connectivity. SierraNet T328 leverages Teledyne LeCroy's renowned physical layer test capabilities, applying non-intrusive, high-speed – "bump in the wire" – probing methodologies resulting in the industry's only Layer 1 protocol capture and analysis functionality.

Complete Coverage

The SierraNet T328 combines the exceptional Teledyne LeCroy expertise for physical layer testing with triggering, analysis and debug functions for a wide range of current and evolving SAN and LAN specific protocols (i.e. NVMe-oF™, FCoE, iSCSI, and TCP/IP). The SierraNet T328 supplies Ethernet and Fibre Channel test and validation engineers 100% complete visibility into all layers of the communication protocols.

The SierraNet T328 also supports the PAM4 auto-negotiation and receiver link training signaling (Layer 1, Phy) requirements in Ethernet and Fibre Channel communications, in addition to supporting the large-scale installation of legacy NRZ based 10/25GbE and 1/2/4/8/16/32GFC networks and SANs. The result is the T328 - the most versatile and capable fabric and network test and analysis platform available!

Connectivity

Networks or Fabrics under examination are connected to the T328 through Small Form Factor Pluggable-28 (SFP-28) connectors.

For completely unaltered 25GbE and 32GFC traffic capture and analysis – a typical requirement when examining physical layer signaling – eight (8) SFP28 analog pass through connections are provided. Ethernet 50GbE and 100GbE testing is accomplished through logical aggregation of the individual SFP28 connectors, supported by the advanced Net Protocol Suite user application.

Multiple SierraNet platforms may be daisy-chained to examine higher port counts and analyze captured traffic across all systems in a single, easy to understand Net Protocol Suite™ trace view. SierraNet platforms may be connected via the CrossSync™ application to other Teledyne LeCroy protocol tools to observe traffic across multiple connections to understand how traffic, stimulus, or errors propagate across bridges or adapters.

Net Protocol Suite™

The Net Protocol Suite is a completely integrated software utility for use with the SierraNet products. It provides users with the ability to capture traffic, review, examine and annotate the resulting traces, create conditional triggering, filtering, or jamming profiles, and with its API functions supports powerful Python based automation capabilities.

Net Protocol Suite provides the most advanced triggering and filtering state machines available. Up to 24 states, with four transitions per state, and multiple trigger, filter, and timer conditions per capture project are standard features. Advanced triggering enables state-specific filtering to eliminate the capture of unwanted traffic, providing users intuitive and easy navigation to the information and events of importance.

Post capture analysis is augmented with the Verification Script Engine (VSE), providing users with advanced data processing tools for extensive investigation of the fabric or network, and the components under observation.

Specifications

Host Machine Minimum Requirements	Microsoft® Windows® 11, Windows 10, Windows Server 2016 (x64), Windows Server 2019 (x64); 2 GB of RAM; Storage with at least 200 MB of free space for the installation of the software and additional space for recorded data; display with resolution of at least 1024x768 with at least 16-bit color depth; USB 3.0 port and/or 100/1000 Mbps Ethernet network interface. For optimal performance, please refer to our recommended configuration in the product documentation.
Data Rates Supported	1, 2, 4, 8, 16, 32G Fibre Channel; and 10, 25, 40, 50, and 100 Gbps Ethernet
Recording Memory Size	Up to 128GB in a single T328 platform
Host System Interface	USB 3.0 and 1Gb Ethernet
Front Panel Indicators	Four LEDs (Link, Speed, Status, Errors) for each TX & RX pair, Status LCD Panel, Power LED
Front Panel Controls	Power ON/OFF, Menu Navigation and Selection Wheel
Front Panel Connections	Eight (8) Analog Pass Through SFP-28 cages; Two (2) SMA Trigger IN/OUT connectors; One (1) USB 3.0 compliant connector; One (1) 1GBASET connector
Rear Panel Connectors	AC Power, Expansion Port
Cascade and Expansion Capability	Up to 8 SierraNet Systems; 10/25GbE and/or 16/32GFC: Up to 32 Links: Up to 32 Links; 40/50/100GbE: Up to 8 Links (Configuration and rates under test will affect these)
Dimensions (H x W x D)	Chassis: 44x432x356mm (1.75”x17”x14.1”) With Bumpers: 52x455x367mm (2”x17.9”x14.5”)
Weight	4.3 Kg (9.5lb)
Power Requirements	100-240VAC, 50-60Hz, 500W
Environmental Requirements	Operating: 0 to 55C (32 to 131F); Non-operating: -20 to 80C (-4 to 176F); Humidity: 10 to 90% RH (non-condensing)

Ordering Information

Base Hardware Platform

	Product Code
SierraNet T328 Platform (Base HW platform with 32GB Memory)	HSF-T328-032-X
SierraNet T328 Platform (Base HW platform with 64GB Memory)	HSF-T328-064-X
SierraNet T328 Platform (Base HW platform with 128GB Memory)	HSF-T328-128-X

T328 License Option Examples

SierraNet 25G Ethernet Analysis, Supports fall back rates to 10GbE - License for 4 ports	NET-T025-004-A
SierraNet 50G Ethernet Analysis - License for 4 ports	NET-T050-004-A
SierraNet 100G Ethernet Analysis, Supports fall back rates to 40GbE - License for 8 ports	NET-T100-008-A
SierraNet 32G Fibre Channel Analysis, Supports fall back rates to 1-16GFC - License for 4 ports	FC-T032-004-A

Local sales offices are located throughout the world.
Visit our website to find the most convenient location.

1-800-5-LeCroy • teledynelecroy.com

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