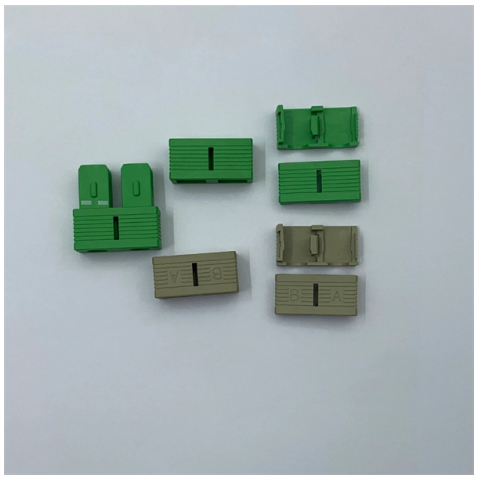
High-precision CFP8 test report



Overview

K400 CFP8-R400GE: A reduced-featured model with 1-port, 2-slot, native CFP8 400GE load module designed for hardware, ASIC, cable/optics qualification, and interoperability testing.

Key Takeaways

CFP8 test reports evaluate full line-rate performance, error statistics, and interoperability for 400GE modules, while high-precision FP8 (HFP8) reports assess numerical accuracy and scaling in deep learning models. CFP8 Load Module TestingCFP8 modules, such as the K400 CFP8-400GE, are tested for full line-rate traffic generation across frame lengths from 64B to 16,000B, enabling stress testing, hardware/ASIC bring-up, optics and cable qualification, and interoperability verification. Key test capabilities include: Traffic Generation and Capture: Wire-speed transmission and reception with Layer 1–3 protocol emulation.

Error Detection and Injection: Forward Error Correction (FEC), PCS lane Tx/Rx testing, and Layer 1 BERT tests with detailed statistics. Protocol Verification: IPv4, IP over IP, ICMP/GRE/TCP/UDP, L2TP, GTP, and multilayer checksum validation. Pattern Matching and Counters: 2 SA/DA pattern matchers, 2x16-byte user-definable patterns, and 6 UDS counters for frame offsets.

Software Integration: IxExplorer and IxNetwork provide realistic, dynamically controllable traffic modeling for routing, switching, MPLS, IP multicast, Carrier Ethernet, and data center Ethernet protocols. Reduced-feature models like CFP8-R400GE focus on hardware, ASIC, and cable/optics qualification while offering field-upgradable L2/3 feature sets to improve ROI.

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High-

Precision FP8 (HFP8) Testing in Deep LearningIn the context of 8-bit floating-point computation, high-precision FP8 (HFP8) test reports focus on numerical accuracy, scaling, and convergence during training and inference of deep neural networks. Key aspects include: Hybrid FP8 Formats: Forward pass uses 1-4-3 encoding for higher precision, while backward pass uses E5M2 to accommodate larger dynamic ranges for gradients. Scaling Methodology: Per-tensor dynamic scaling for weights, activations, and gradients ensures minimal accuracy loss compared to FP32 baselines.

Model Validation: HFP8 has been successfully applied to ImageNet models, GPT, and LLaMA 2 models ranging from 111M to 70B parameters without significant degradation.

Quantization and Fine-

Tuning: Pre-trained models can be quantized to 8-bit with batch normalization adjustments to maintain accuracy. Performance Metrics: Reports typically include per-tensor scale distributions, forward/backward pass error statistics, and convergence plots to verify high-precision behavior.

Summary

A high-precision CFP8 test report can refer to either: Network hardware testing: Evaluating CFP8 400GE modules for line-rate performance, error detection, protocol compliance, and interoperability. Deep learning FP8 testing: Assessing HFP8 numerical accuracy, scaling, and convergence for large neural networks, ensuring minimal deviation from FP32 baselines. Both types of reports provide detailed metrics, error statistics, and validation results to ensure reliability, performance, and precision in their respective domains.

Article Content

IXIA K400 CFP8 Load Modules

Provides an excellent test platform for full line-rate 400Gb/s to evaluate the new 400GE ASIC designs, FPGAs, and hardware switch fabrics that use the new 16x28Gb/s electrical interface with NRZ

400G ethernet test module | FTBx-88460 | EXFO

PDF file

10GBASE Gb/s SFP+ - multilaneinc

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This kit is essential for development, testing and characterization of CFP8 based products. It can also be used for testing 400G CDRs, 400G Gearbox devices, 400G CFP8 ports on routers and line-cards,

Field and laboratory trials of 400GBASE-LR8 over fibre distances up

In this Letter, we report successful experimental demonstration and field trial of the new 400GBASE-LR8 client technology using CFP8 pluggable optical transceivers over standard G.652

400GbE Technology Demonstration Using CFP8 Pluggable Modules

In this paper, we present a successful demonstration of the 400GE physical interface card (PIC) integrated in the core internet protocol/multi-protocol label switching (IP/MPLS) router, with the

Field and laboratory trials of 400GBASE-LR8 over fibre distances up

Successful experimental demonstration and field trial of 400GBASE-LR8 is reported based on 4-level pulse amplitude modulation format over standard G.652 single-mode fibre using CFP8

K400 CFP8 Load Modules

K400 CFP8-R400GE: A reduced-featured model with 1-port, 2-slot, native CFP8 400GE load module designed for hardware, ASIC, cable/optics qualification, and interoperability testing. The CFP8

High-precision CFP8 solution for edge computing

FP8 formats represent a newer reduced-precision approach. Unlike INT8"s fixed-point representation, FP8 maintains floating-point dynamic range advantages while using only 8 bits.

Introduction to CFP8 Optical Modules

The C form-factor pluggable (CFP) is a multi-source agreement to produce a common form-factor for the transmission of high-speed digital signals. The c

The CFP MSA Group Releases CFP8 Specifications for First Generation ...

The CFP8 form factor is expected to drive the first generation of interoperable 400Gb/s optical interfaces enabling a major leap in bandwidth for telecommunications, datacenters and

400G – Which form factor? (QSFP-DD, OSFP, CFP8)

QSFP-DD, OSFP, CFP8 We are all aware about the SFP+ for 10G and QSFP28 for 100G transmission. A small form factor pluggable, a low-power consumption and an interoperability

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Finisar_FTCD1314E1BCL_10km_Duplex_SMF_400G_CFP8_Optical

Finisar''s FTCD1314E1BCL 400G CFP8 transceiver modules are designed for use in 400 Gigabit Ethernet interfaces over single mode fiber. They are compliant with the CFP MSA1, IEEE P802.3bs

CFP vs CFP2 vs CFP4 vs CFP8 Optical Transceivers: Key Differences

Explore the differences between CFP, CFP2, CFP4, and CFP8 optical transceivers, including size, power usage, bandwidth, and DSP integration.

VIAVI ONT-600 400G CFP8 Modules

General Information The ONT-600 400G CFP8 Module is a three-slot module and is compatible with the ONT-603, -606 and -612 mainframe products. The module is adequately powered and cooled by the

High Speed Input Output Connectors | ExtremePort | CFP8 | QSFP DD

Amphenol ICC is a global provider of high speed interconnect solutions that meet high-speed data requirements up to 400G. We offer a wide range of I/O solutions to support applications in data

400GbE Technology Demonstration Using CFP8 Pluggable Modules

400GbE Technology Demonstration Using CFP8 Pluggable Modules Yang Yue *, Qiang Wang, Jian Yao, Jason O''Neil, Daniel Pudvay and Jon Anderson

10GBASE Gb/s SFP+

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Analysis of 400G Optical Module Packaging Types

Under the background of high-speed development of data centers and telecommunication networks,400G optical module,as a key component,is gradually becoming the focus of the market. In

What are CFP8 and CDFP connectors?

Signal and power integrity and test measurement are the biggest parts of the challenge. We''ll look further at these pioneering designs in future blogs. The post What are CFP8 and CDFP

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This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

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