

Introduction to ELSFP Optical Modules



Article Overview

The ELSFP (External Laser Small Form-Factor Pluggable) is a pluggable optical module that provides a centralized, field-replaceable external laser source for co-packaged optics (CPO) systems.

Overview

The ELSFP module is designed to deliver continuous-wave (CW) laser light to optical engines (OEs) in co-packaged optical systems, where lasers are not integrated directly into the OEs but are instead located externally for improved performance and serviceability. It follows the OIF-ELSFP-01.0 implementation agreement, ensuring standardized form factor, optical interface, and blind-mate connectivity for safe and reliable operation.

Key Features

- **External Laser Source:** Centralizes high-power lasers outside the switch or ASIC package, allowing multiple silicon photonics optical engines to share a single laser, improving system efficiency and thermal management.
- **Pluggable and Field-Replaceable:** The module can be easily replaced at the system faceplate without disrupting the rest of the optical system, enhancing maintainability and reliability.
- **Thermal Decoupling:** By locating the laser externally, the ELSFP reduces thermal stress on co-packaged ASICs and optical engines, enabling higher reliability and longer laser lifetime.
- **High Optical Performance:** Supports high optical power, spectral purity, and stabili...

Article Content

Jul 27, 2026

What is ELSFP?

The core interface for the physical connection and electro-optical conversion between the ELSFP module and the system

Sep 05, 2025

O-Net Technologies

ELSFP Passive Module The O-Net External Laser Small Form-Factor Pluggable (ELSFP) passive module is a small form factor

May 14, 2026

OIF announces ELSFP Implementation Agreement

OIF has unveiled the External Laser Small Form-Factor Pluggable (ELSFP) Implementation Agreement (IA), defining a

Mar 19, 2026

Module MODULE CONNECTOR

-Mate Optical Connector SENKO's ELSFP optical connection is a cutting-edge solution designed application, particularly fo. external

May 05, 2026

ELSFP Handout

The External Laser Small Form-Factor Pluggable is a pioneering blind-mating optical and interconnect in a convenient pluggable

Jun 10, 2026

OIF Announces External Laser Small Form-Factor Pluggable (ELSFP ...

While the ELSFP project was originally envisioned to complement the 3.2T co-packaged optical module, its forward

Nov 25, 2025

OE Solutions Announces New ELSFP Module to Meet Growing

September 20, 2024 OE Solutions Announces New ELSFP Module to Meet Growing Demand for High-Speed Networking By OE

Apr 16, 2026

OIF Announces External Laser Small Form-Factor Pluggable (ELSFP ...

The ELSFP uses a multi-fiber blind-mate optical connector positioned at the rear of the module. This strategic design

Jun 03, 2026

ELSFP Implementation Agreement

The External Laser Small Form-Factor Pluggable (ELSFP) is a faceplate pluggable form factor to address the laser packaging

Oct 08, 2025

ELSFP Interconnect System

ELSFP Optical Connectors are pluggable-module direct-to-chip solutions that enable co-packaged optics (CPO) connectivity and

Sep 24, 2025

OIF serves up external laser small form-factor pluggable (ELSFP ...

OIF has debuted the External Laser Small Form-Factor Pluggable (ELSFP) Implementation Agreement (IA), defining a front panel

Dec 04, 2025

OE Solutions Announces New ELSFP Module to Meet Growing

The ELSFP form factor, characterized by its small size and low power consumption, is well-suited for a wide range of

Mar 31, 2026

ELSFP Interconnect System

External Laser Small Form Factor Pluggable (ELSFP) modules deliver high-performance optical connectivity with flexible laser

Jan 11, 2026

White Paper: Management of External Light Sources and Co

The recommended management architecture is that the transceivers and the light sources are managed jointly by a

Apr 23, 2026

Evaluating Co-Packaged Optics (CPO) Performance

Introduction Hyperscale data centers currently being deployed are focusing on changing the optical interface to facilitate the “Beyond

Sep 16, 2025

TARGET MARKETS KEY BENEFITS

TE Connectivity's (TE) ELSFP product is a faceplate pluggable form-factor to address the laser packaging requirements for 102.4T

May 31, 2026

What is ELSFP?

ELSFP stands for External Laser Small Form-factor Pluggable. It is a pluggable module for external laser sources that complies with

May 23, 2026

External Laser Small Form Factor Pluggable (ELSFP) Optical

The ELS pluggable module houses high-power continuous-wave lasers coupled to CPO optical engines via optical fibers, reducing

Mar 30, 2026

The world's first 100 mW optical power x 16-channel blind mate ELS

We developed 16-channel ELSFP module employing a blind mate connector and two 8-channel TOSAs, which

Apr 25, 2026

ELSFP HOST CONNECTOR

Precision Aligned Blind-Mate Optical Connector SENKO's ELSFP optical connection is a cutting-edge solution designed for

Apr 19, 2026

Implementation Agreement Builds on OIF's Co

The ELSFP uses a multifiber blind-mate optical connector positioned at the rear of the module. This design

Jul 29, 2025

External Laser Source (ELS) Module with Ultra-High-Power Laser

Designed for high-volume manufacturing and field replaceability, the ELSFP module enables scalable, energy-efficient optical fabrics

Aug 20, 2025

ELSFP Implementation Agreement

The ELSFP module electro-optic connector end face is shown in Figure 9 including specifications for the board thickness, location,

Jun 16, 2026

Pass-Through ELSFP with Optional Integrated Optical Mux and

We demonstrate a novel type of Pass-Through ELSFP module configuration with (or without) integrated optical Mux and Demux,

Mar 16, 2026

OIF Reveals Three Innovative Projects – External Laser Small Form ...

External Laser Small Form Factor Pluggable (ELSFP) Module Project – companion project to support co-packaged

Aug 23, 2025

ELSFP Module with CW Laser – Class VHP

ELSFP Module with CW Laser – Class VHP O-Net External Laser Small Form-Factor Pluggable (ELSFP) module with cooled or

Jun 17, 2026

ELSFP | TE Connectivity

Our External Laser Small Form-Factor Pluggable (ELSFP) product is a faceplate pluggable form-factor to

Contact Us

For more information, pricing, or custom solutions, please contact us:

Website: <https://www.greatpremiersolutions.co.za>

Email: sales@greatpremiersolutions.co.za

Phone: +27 82 914 3675

Address: Unit 5, Silicon Heights, 22 Electron Avenue, Cape Town, 8001, South Africa

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