

Luceda and LIGENTEC launch the first statistical LIGENTEC AN800 PDK for Luceda Photonics Design Platform, developed through the EU-funded photonixFAB Project



Ghent, Belgium, and Lausanne, Switzerland – 09 September 2026

[Luceda Photonics](#) and [LIGENTEC](#) today launched the first LIGENTEC Process Design Kit (PDK) for the Luceda Photonics Design Platform to support statistical compact models and process-corner simulation. The release ships alongside a new [Design Rule Check \(DRC\)](#) deck for the AN800 platform, providing a unified workflow that seamlessly connects manufacturing-aware simulation with foundry-qualified layout verification.

Photonic integrated circuits (PICs) are moving from lab demonstration to volume production across AI infrastructure, datacom, quantum technologies, and sensing technologies. At that scale, nominal device models are not enough, designers need to know how a circuit performs across real fabrication variation, not just under ideal conditions. LIGENTEC's AN800 platform, built on 800 nm-thick SiN, delivers the high-confinement, low-loss waveguides that nonlinear applications such as optical frequency combs and supercontinuum generation demand, and it serves equally well for compact linear devices and heterogeneous integration of Thin Film Lithium Niobate (TFLN) or III-V materials.

The new [Luceda PDK](#) closes the gap between prototype and production. Built from statistical compact models derived from measured wafer data, it lets engineers run process-corner simulations directly inside the Luceda Photonics Design Platform using Luceda's Circuit Analyzer. This enables designers to assess circuit performance across realistic fabrication variations using process-aware compact models, rather than validating only nominal device behavior. That means users can make yield-aware design decisions before tape-out, rather than first fabricating and performing experimental characterization. The companion DRC deck lets designers validate their PIC layouts against the AN800 process design rules ahead of submission, increasing confidence in design reliability, reducing the costly design iterations, and giving LIGENTEC pre-verified GDS files that reduce time on the foundry side.

The work was developed within [photonixFAB](#), an industrial initiative co-funded by the European Union through the Chips Joint Undertaking (Chips JU) and led by X-FAB in which Luceda and LIGENTEC are both partners. photonixFAB exists to strengthen Europe's open-access PIC design and manufacturing ecosystem and this release is a direct output of that mandate: a foundry, a design software provider, and a manufacturing partner shortening the distance between circuit concept and manufacturable chip. The technical data required to upgrade this PDK from LIGENTEC's AN800 technology was generated from lots manufactured at X-FAB through a joint effort between LIGENTEC and X-FAB.

“Statistical modeling and DRC bridge the gap between an innovative design and a manufacturable product. With this PDK, our customers can identify process variation and layout violations before tape-out, significantly reducing development risk and accelerating time to market. This is First-Time-Design-Right in practice, delivered on a platform that seamlessly scales from MPW prototyping to high-volume 200 mm production,” said Mariam Aamer Benelfaqui, Design Enablement Team Lead at LIGENTEC.

“Statistical compact models represent an important step toward manufacturing-ready photonic design.” adds Pieter Dumon, CEO at Luceda Photonics. *“By integrating process variability directly into the PDK, designers can take the process window into account, making better engineering decisions earlier in the development cycle. Together with the new DRC capabilities, this further strengthens a fully manufacturing-aware design flow, from simulation to layout verification.”*

This release marks another milestone in Luceda's strategy to deliver a complete design workflow for high-yield manufacturing. Building on this milestone, Luceda will continue expanding its portfolio of statistical PDKs and Design Rule Check (DRC) decks to enable manufacturing-aware PIC design across a growing range of foundry platforms. Together, these capabilities represent a major step toward a fully integrated design workflow, combining robust, yield-aware circuit design with comprehensive layout verification in a single environment.

The Luceda PDK and DRC deck for LIGENTEC's AN800 platform is now available for all Luceda users!

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About LIGENTEC

Since 2016, LIGENTEC has pioneered custom Photonic Integrated Circuits on its proprietary Silicon Nitride platform, with active photonics — Thin Film Lithium Niobate (TFLN) modulators and III-V photodetectors integrated onto SiN — enabling a customer journey from prototype to volume production on an automotive-qualified 200mm CMOS line, in partnership with X-FAB. Headquartered in Ecublens, Switzerland, with sites in Corbeil-Essonnes, France, and Ghent, Belgium, LIGENTEC is ISO 9001 certified. Learn more at www.ligentec.com.

About photonixFAB

The photonixFAB project aims to empower photonics innovation by SMEs and large entities by providing low barrier access to both low-loss silicon nitride (SiN) and silicon-on-insulator (SOI) based photonics platforms with indium phosphide (InP) and lithium niobate (LNO) heterogenous integration capabilities. The photonixFAB consortium is spearheaded by X-FAB and consists of major public and private enterprises, plus highly respected research institutes, all focusing on the development and production of next-generation silicon photonics. For more information, visit www.photonixfab.eu.

About Luceda Photonics

Luceda Photonics is a leading provider of photonic integrated circuit (PIC) design software and services. The Luceda Photonics Design Platform enables designers to design, simulate, verify, and optimize PICs and empowers them to achieve their tape-out quickly, getting their designs right the first time. Luceda also offers photonics data management and data analytics tools, enabling a standardized infrastructure for hardware validation through a fully integrated, automated data pipeline. Luceda Photonics supports access to a wide range of foundry PDKs, ADKs and TDKs, and provides DRC decks to streamline the process from design to high-yield manufacturing. The company is active in various application areas, such as the data and telecom market, lidar for self-driving cars, quantum computing, sensing and biosensing, and more. For more information, visit www.lucedaphotonics.com.