

Enabling new frontiers in scale and sustainability

Our future depends on networks that connect everyone to everything. Meet the surging traffic demands of video, cloud, Industry 4.0 and 5G with the Nokia PSE-6s — the industry's most advanced super-coherent optical engine. Whether you're a service provider, internet content provider (ICP), or webscale operator, maximize the capacity and performance of every link in your network for lower TCO and sustainable competitive advantage.

Ultimate scale

Maximize data rates for all network applications including DCI, metro, long-haul and subsea

Extreme performance

Dynamically maximize capacity and reach with continuously tunable baud rate and shaped PCS modulation

Sustainable growth

Lower TCO through lower power/bit transmission, reduced footprint and operational efficiency with simple upgrades

Address **all** network applications cost-effectively

Breakthrough scale and performance

As we approach the Shannon Limit, improvements in spectral efficiency are harder to come by. The Nokia PSE-6s opens new frontiers by dramatically scaling capacity, reach and performance to meet burgeoning network demand. The Nokia PSE-6s utilizes the latest 5-nm DSPs, combined with silicon photonics technology and advanced signal processing algorithms. It achieves 130 GBaud or greater data rates to scale capacity up to 1.2Tb/s per wavelength and break through the limitations of current coherent solutions.

Metro 800GE Transport

With current solutions

Requires 3x optics/line cards and adds cost, space, power

With PSE-6s

Single 2.4 Tb/s line card

Long haul 800GE Transport

With current solutions

Costly regens
Doubling of optics, space & power

With PSE-6s

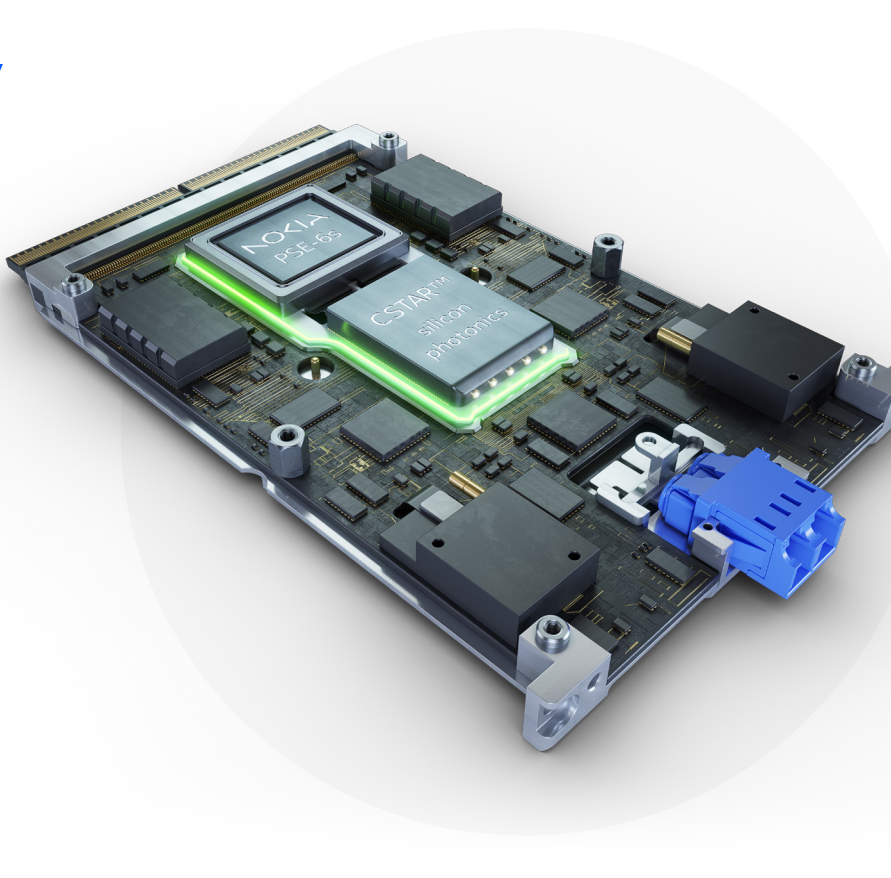
3X reach

Optimize fiber capacity across all applications

Unsurpassed power efficiency

The PSE-6s delivers a new benchmark in network power efficiency over **any distance**

Engineered with the latest high-performance 5-nm DSP and silicon photonics, the PSE-6s super coherent optics use 40% less power per bit than the previous generation. It supports 2.4Tb/s superchannels in a single line card with up to 1.2Tb/s per carrier and enables 3X longer reach. This enables the PSE-6s to reduce the number of optics at the network level enabling up to 63% power savings compared to existing coherent solutions.



Total network power consumption

Metro and regional networks

up to 22% savings

Long haul and continental networks

up to 63% savings

Reduce power to lower TCO – do more with less

Operational simplicity

The PSE-6s supports 150GHz channels that seamlessly work with any existing 50GHz ITU WDM channel plans. Available in different form factors, it is a simple upgrade to our existing 1830 optical networking platforms. The PSE-6s also works with open, model-driven data models to easily configure and manage the network.

Uses existing channel plan

No complex channel plan re-arrangement

Flexible form factors

Leverages existing platforms and operations

Open APIs and data models

Enables model driven programmability

Seamless implementation across Nokia 1830 platforms

Performance through innovation

Coherent modern innovation

Highest performance advanced algorithms enabling infinitely variable capacity with maximized performance

Gen 3 PCS, Gen 4 FEC

Electro-optic chip and module integration

Full vertical integration codesigned DSP, SiP, PIC, RF-ICs for best signal integrity

Multi-chip module

Chip to chip interfaces

Bandwidth optimization maximizing bandwidth and supporting 2.4T superchannels

Client Optics: 100G/200G/400G and 800GE
up to 2.4Tb/s WDM capacity

The PSE-6s uses Nokia's most advanced algorithms to maximize capacity over different fiber transmission conditions. Leveraging in-house design, production, and testing, we've achieved 130 GBaud performance, tightly integrating all components of the optical engine for advanced packaging of the ASICs and silicon photonics into the smallest form factor.

Address the complete spectrum of high bandwidth markets

Advanced monitoring, sensing and analytics

The PSE-6s understands the behavior of the fiber network and its surroundings without the need for special monitoring devices. Built-in ASICs provide advanced monitoring, sensing, and analytics capabilities by gathering information from light as it traverses the fiber links, providing key insights on transmission performance and the infrastructure environment. Determining whether the optical link is working at its maximum potential capacity or at risk of damage from the surrounding geographical environment. The PSE-6s uses telemetry to stream information to WaveSuite health and analytics. Using advanced AI/ML algorithms for problem diagnosis, as well as troubleshooting and repair, this information can uncover the sources of degradation and trigger automated processes to improve network service performance.

Production network → WaveSuite Health & Analytics → Monitoring and detection

Cognition and diagnosis
Optimization and analytics
React
Performance optimization
Monitoring and detection

Continuous coherent monitoring of the fiber infrastructure

- Identifies potential network threats or disruptions
- Lowers the cost of monitoring while improving network performance

Improve network performance and lower monitoring costs

Turn innovation to your commercial advantage

Scale

2.4Tb/s in a single line card
1.2Tb/s per wavelength

Performance

3x the reach at 800G (2000km+)
50% less coherent optics needed

Sustainability

60% lower network power usage
Upgrade into existing platforms

Open new frontiers with the **Nokia PSE-6s**.