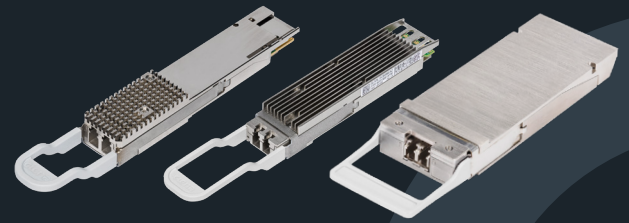


WaveLogic 5 Nano 100G–400G Transceivers

Ciena Optical Microsystems



Ciena’s WaveLogic™ 5 Nano family of standards-based and extended-reach pluggable transceivers incorporates Ciena’s advanced coherent optical Transceiver-on-Chip technology to deliver footprint-optimized 100G-400G interconnect technology for next-generation access, metro-regional, and Data Center Interconnect (DCI) network applications.

What is the WaveLogic 5 Nano 100G-400G family?

High growth in network bandwidth—along with the need for higher-capacity, low-latency connectivity at the network edge—is driving the need for the next generation of pluggable coherent transceivers that offer the benefits of coherent technology and are optimized for the best systems performance within pluggable form factors. With industry-leading innovation in coherent optical technology, Ciena is extending the addressable applications for footprint-optimized coherent solutions with a family of WaveLogic 5 Nano 100G–400G pluggables.

For applications requiring the benefits of reduced power, highest port density, and multi-vendor interoperability, the WaveLogic 5 Nano standards-based modes are ideal. Where operators need to combine the density and modularity of pluggable coherent solutions with support for broader feature sets and longer reach,

the WaveLogic 5 Nano extended-reach modes will deliver best-in-class pluggable performance. Available in compact form factors with optimized thermal budgets and taking advantage of higher symbol rates, Probabilistic Constellation Shaping (PCS), and advanced Forward Error Correction (FEC), WaveLogic 5 Nano transceivers support extended reach for metro-regional multi-span networks.

Ciena combines advanced coherent optical technology with experience in volume manufacturing, delivery of high-quality, robust products, and network operational know-how—all critical for the successful deployment of new solutions. As a leading global manufacturer of coherent optics, Ciena is the ideal partner for customers who want a trouble-free experience transitioning to this new paradigm.

Where does WaveLogic 5 Nano 100G-400G fit?

WaveLogic 5 Nano 100G-400G coherent pluggable transceivers are used in host platforms for DWDM transmission over optical links in DCI, access, and metro-regional applications. These modules provide 400GbE and OTN FlexO transport in MSA-standard pluggable form factors, making this technology ideal for integration with high-performance 400G DCI fabric switch-routers, as well as OTN transport platforms. Sub-rated capacity for packet and OTN clients is also supported for lower-rate line

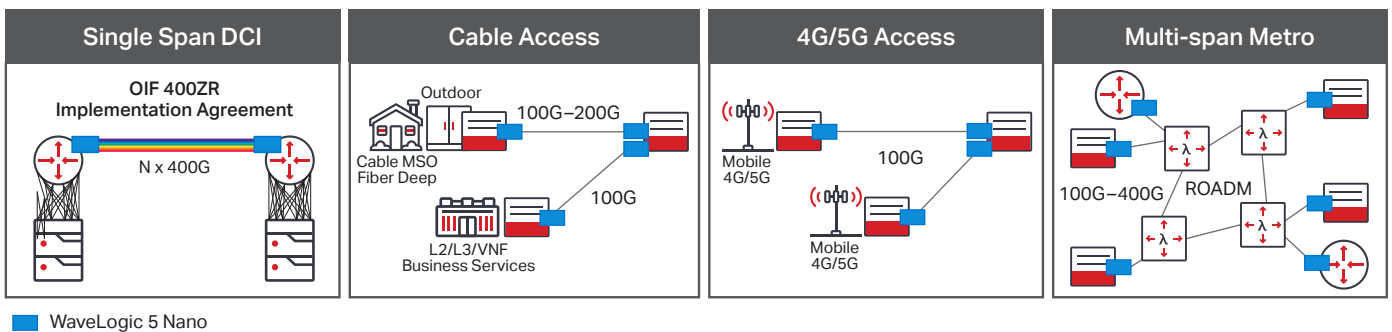


Figure 1. WaveLogic 5 Nano applications

transmission and still longer reaches. With integrated 100GbE and OTU4 client framer capabilities, WaveLogic 5 Nano pluggables can be used as highly integrated muxponders for $n \times 100\text{GbE}/\text{OTU4}$ clients for both DCI and high-capacity access aggregation applications. Aggregation of multiple lower-rate clients can also be supported in a multiservice muxponder configuration.

Why WaveLogic 5 Nano 100G-400G pluggables?

Ciena's coherent pluggable transceivers are the result of continued investments in vertical integration and innovation in component-level design, providing cost efficiencies for new network applications. At the heart of these products is the WaveLogic 5 Nano Transceiver-on-Chip, a multi-chip module comprising Ciena's 7nm CMOS DSP and silicon photonics High-Bandwidth Coherent Optical Sub-Assembly (HB-COSA), co-packaged to enable compact, coherent pluggables in compact form factors.

Ciena is uniquely positioned to deliver this new generation of coherent pluggable products based on the company's advanced design competencies and technology ownership, combined with its understanding of the requirements for real-world networks. From ensuring compatibility with photonic line systems and mitigation of optical impairments for extended reach, to definition of line interoperability specifications, host management interfaces, and embedded networking features, Ciena's leadership in coherent optical technology extends to WaveLogic 5 Nano 100G-400G pluggables, with all of the features and performance needed for access, DCI, and metro-regional applications.

Key features and applications

- Single-carrier 100G-400G
- 50GHz, 75GHz, 100GHz fixed grid support, as well as operation in flexible grid
- Multiple FEC options
- Support for multiple standards and MSAs (OIF, ITU, Open ROADM, CableLabs)
- Versatile client and management interface support
- Multiple form factors (QSFP-DD, OSFP, CFP2-DCO)
- Environmental hardening for exterior cabinets

400ZR – interoperable 400G coherent pluggables optimized for switch/router platforms and transport of Ethernet clients

PKT-MAX – maximum performance coherent pluggables optimized for packet platforms for extended-reach Ethernet client transport

OTN-STND – standards-compliant, interoperable coherent pluggables optimized for transport of both Ethernet and OTN clients

OTN-MAX – maximum performance coherent pluggables optimized for transport of both Ethernet and OTN clients

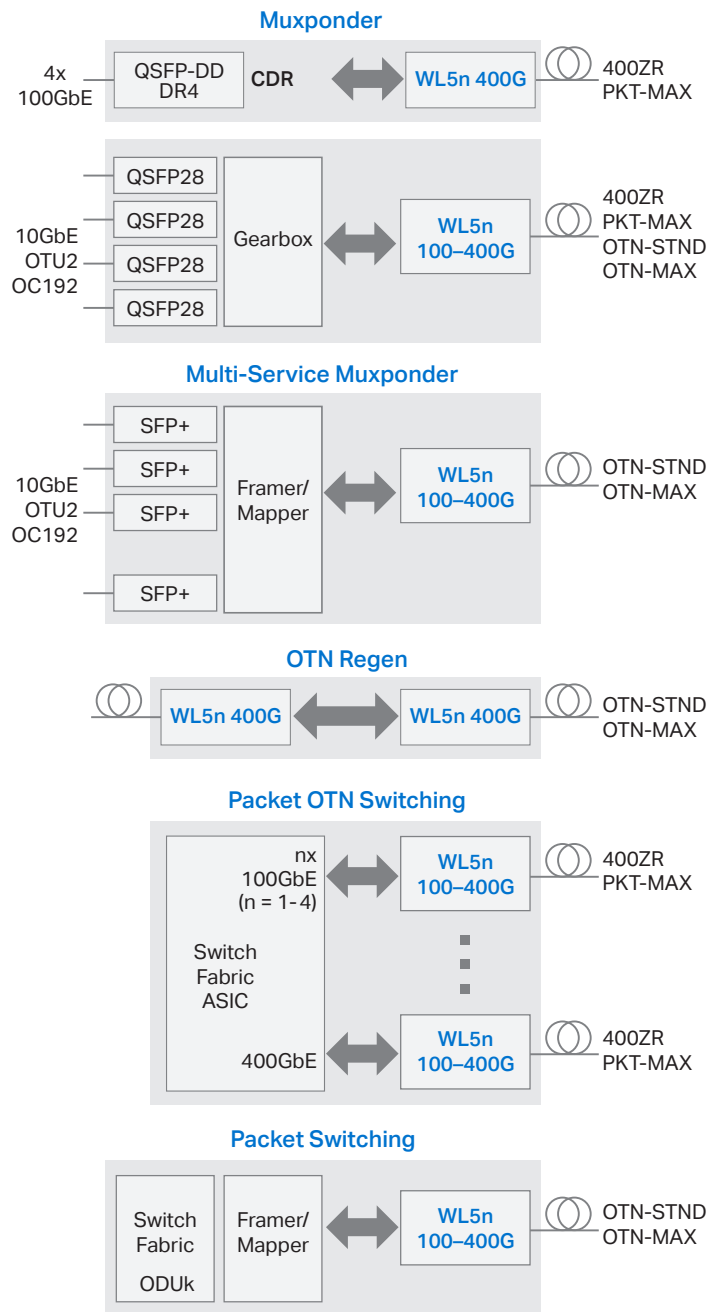


Figure 2. WaveLogic 5 Nano implementations

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