

Huawei OptiX OSN 9800 - Official Technical Overview & Hardware Datasheet

HUAWEI OPTIX OSN 9800 OFFICIAL TECHNICAL OVERVIEW & HARDWARE DATASHEET

EXECUTIVE SUMMARY

The Huawei OptiX OSN 9800 is a next-generation, high-capacity, intelligent optical transmission platform purpose-built for the 100G and beyond era. As a leader in the core and metro WDM markets, recognized by GlobalData for its superior technical architecture, the platform converges optical and packet functionality within a unified, T-bit universal switching architecture .

Designed to address the exponential growth in data traffic driven by cloud services, AI, and 5G, the OptiX OSN 9800 series delivers unmatched scalability, operational efficiency, and intelligence. Its modular design supports service access from 2M to 400GE, facilitates seamless evolution to 1.2T/2T per wavelength, and, combined with Super C+L optical technology, achieves a record single-fiber capacity of 96 Tbit/s . This document provides a comprehensive technical overview and hardware specification for the OptiX OSN 9800 series, detailing its architecture, capabilities, and value proposition for modern telecom networks.



ARCHITECTURE & CHASSIS DESIGN

The OptiX OSN 9800 series is engineered with a high-performance, modular architecture that provides unprecedented flexibility and investment protection. At its core is an industry-leading, T-bit unified switching platform that enables the flexible handling of multiple service types, including OTN, fgOTN, OSU, VC, and PKT . This unified matrix simplifies network layers, reduces the variety of equipment types, and maximizes bandwidth utilization.

The series comprises multiple chassis variants, each tailored for specific deployment scenarios:

* ****OptiX OSN 9800 M Series (M05, M12, M24):**** These compact and high-density subracks are ideal for metro edge and aggregation applications.

They offer a balanced combination of switching capacity and port density in a space-efficient form factor.

* **OptiX OSN 9800 U32 Enhanced:** This high-capacity, 32-slot subrack is designed for core network nodes. It provides massive switching capacity and is engineered to handle the most demanding traffic aggregation and switching requirements at the network's core.

* **OptiX OSN 9800 K Series (K12, K36):** This series is the industry's first DC-oriented OTN platform, designed for the modern data center environment. Featuring a front-to-rear airflow design for optimal thermal efficiency, the K-series is built for high-density, high-energy-efficiency deployments in data center interconnect (DCI) and colocation scenarios, adeptly handling PUE < 1.2 .

This modular approach ensures that the OptiX OSN 9800 can scale from the metro edge to the national backbone, providing a consistent, future-proof platform for network operators.

HARDWARE FEATURES & PERFORMANCE

The OptiX OSN 9800's hardware excellence is defined by its robust technical specifications and advanced features, including a high-reliability design, comprehensive interface support, and industry-leading operational metrics.

****Unprecedented Capacity and Scalability****

The platform is built to handle the data deluge of the cloud era. Its core capabilities include:

- * ****Massive Switching Capacity:**** It provides an industry-leading, non-blocking optical-electrical-optical (OEO) cross-connect capacity of up to 64 Tbit/s, which can be cluster-expanded to over 100 Tbit/s . This capacity, coupled with a per-slot capacity of up to 1 Tbit/s, enables operators to confidently manage traffic growth .
- * ****Single-Fiber Capacity:**** Leveraging Super C+L band technology, the platform supports a maximum of 120 waves per band at a 50 GHz channel spacing, delivering a total capacity of up to 96 Tbit/s per fiber pair .
- * ****High-Speed Client and Line Interfaces:**** It supports a comprehensive range of client services, including SDH/SONET, Ethernet (1GE to 400GE), SAN, and OTN . The line-side supports programmable rates from 100G to 1.2T, with a clear evolution path to 2T and beyond .

****Reliability and Energy Efficiency****

Designed for carrier-grade networks, the platform incorporates high-availability features and energy-saving technologies:

- * ****High Availability:**** The system supports 1+1 power supply redundancy and hot-swappable modules. Combined with intelligent ASON capabilities, it delivers a network availability of up to 99.999% .

* ****Energy Efficiency:**** The K-series subracks are optimized for green data centers, using intelligent heat dissipation to reduce per-Gbit power consumption by up to 65% compared to previous generations . The all-optical cross-connect variants can achieve up to 90% less footprint and 60% less power consumption .

****Advanced Intelligence and Automation****

The OptiX OSN 9800 is a cornerstone of the autonomous driving network vision. It integrates with the Huawei NCE-T (Network Cloud Engine-Transmission) digital map, which enables automated network planning, proactive fault prevention, and rapid fault diagnosis . This software-defined architecture (T-SDN) enhances network programmability, optimizes bandwidth utilization, and significantly reduces operational expenditure (OPEX).

TECHNICAL SPECIFICATIONS

The following tables provide a detailed breakdown of the technical specifications for the key models within the OptiX OSN 9800 series.

Paramet er	OSN 9800 M05	OSN 9800 M12	OSN 9800 M24	OSN 9800 U32	OSN 9800 K12	OSN 9800 K36
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				Enhanced		
Form Factor (H x W x D)	177 x 442 x 295 mm	347.2 x 442 x 295 mm	747.2 x 442 x 295 mm	1900 x 498 x 295 mm	263.9 x 442 x 500 mm	997.5 x 442 x 582.4 mm
Service Slots	5	13	12/24	32	12	36
Switching/Cross-connect Capacity	N/A	N/A	Up to 32 Tbit/s (ODUk/PKT/VC)	Up to 64 Tbit/s (ODUk/PKT/VC)	N/A	Up to 57.6 Tbit/s (ODUk)
Max. Rate Per Wavelength	100G/200G/400G/600G/800G	100G/200G/400G/600G/800G	100G/200G/400G/600G/800G	100G/200G/400G/600G/800G	1.2 Tbit/s	1.2 Tbit/s
Supported Services	SDH/Sonet, NET, Ethernet, SAN, OTN, Video	SDH/Sonet, NET, Ethernet, SAN, OTN, Video	SDH/Sonet, NET, Ethernet, SAN, OTN, Video	SDH/Sonet, NET, Ethernet, SAN, OTN, Video	Ethernet, FlexE, OTN	SDH/Sonet, NET, Ethernet, FlexE, SAN, OTN,

						Video
Wavelength Range	DWDM: Super C/L Band	DWDM: Super C/L Band	DWDM: Super C/L Band	DWDM: Super C/L Band	DWDM: Super C/L Band	DWDM: Super C/L Band
Power Supply	-48V DC/-60V DC, 220V AC/110V AC	-48V DC/-60V DC, 220V AC/110V AC, 240V HVDC	-48V DC/-60V DC, 220V AC/110V AC, 240V/33 6V HVDC	-48V DC/-60V DC, 220V AC/110V AC, 240V/33 6V HVDC	-48V DC, 220V AC/110V AC, 240V/33 6V HVDC	-48V DC, 220V AC/110V AC, 240V/33 6V HVDC

MODULAR EXPANSION AND COMPLIANCE

The OptiX OSN 9800 series is built on a philosophy of modular expansion, protecting a carrier's initial investment while allowing for seamless growth. All chassis feature a common set of line cards and optical modules, simplifying sparring and operational logistics. The platform's design supports a wide variety of optical transceivers for both short-reach (e.g., 10km, 40km) and long-haul (e.g., 80km+) applications .

From a compliance perspective, the platform adheres to the most stringent international standards for telecommunications equipment, including:

- * **Safety:** EN 60950-1, IEC 60950-1, UL 60950-1.
- * **EMC:** EN 300 386, FCC Part 15, ICES-003.
- * **Environment:** RoHS, WEEE, and REACH directives.
- * **Network Security:** Compliant with common criteria and relevant national security standards.

The OptiX OSN 9800's compliance with these standards ensures it can be deployed globally within any regulatory framework .

