Nokia 7750 SR-s Service Router

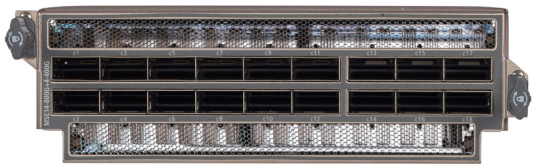
Media Dependent Adapters

The Nokia 7750 SR-s Media Dependent Adapter (MDA-se) delivers high-density, high-scale Ethernet interfaces, including 10 Gigabit Ethernet (GE), 25GE, 40GE, 50GE, 100GE, 400GE, and 800GE interfaces, enabling enhanced quantum-safe IP network cryptography and advanced packet processing to support demanding IP applications.

Powered by Nokia's cutting-edge FP5 routing silicon, the Nokia MDA-se unleashes native support for blazing-fast 800GE interfaces, energy-efficient systems and optics, and enhanced MACsec (ANYsec) cryptography. These powerful capabilities enable exceptional per-slot modularity, minimize energy use, and provide next-generation speed, density, and scale, along with uncompromising security for the most demanding network environments.

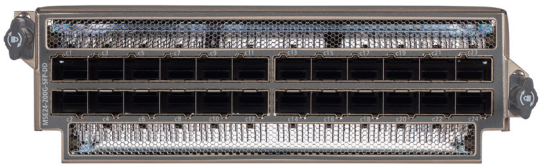
The half-slot Nokia MDA-se delivers up to 3.0 Tb/s full-duplex (FD) capacity in a compact form factor. Its flexible breakout capabilities span 100G, 400G, and 800G, offering FlexE 2.0 capability and supporting an extensive portfolio of pluggable optics – including 800G QSFP-DD, 400G QSFP-DD, 400G QSFP112, 200G SFP-DD, and CFP2-DCO – which gives operators flexible interface connectivity and modularity to optimize network scale and performance as needed.

The innovative design and advanced packet processing of the Nokia MDA-se drive advanced security with quantum-safe MACsec and enhanced MACsec (ANYsec) cryptography at full line rate across all adapters. It also offers precise IP payload filtering to mitigate DDoS attacks. Additionally, it delivers superior Quality of Service (QoS), fortifies control plane protection, and employs intelligent aggregation, ensuring networks stay secure, resilient, and efficient under all conditions.



14-connector 800G QSFP-DD and 4-connector 400G QSFP112 MDA-se

6-connector 800G QSFP-DD MDA-se



24-connector 200G SFP-DD MDA-se

6-connector CFP2-DCO MDA-se

The Nokia MDA-se is designed with versatility in mind, offering universal support for 800G QSFP-DD, QSFP112, and SFP-DD connectors. This flexibility enables seamless integration of a broad range of optics, maximizing configuration options and empowering operators to tailor their high-capacity network designs to meet their evolving needs perfectly on the Nokia 7750 SR-s platform.

Built for high scalability and predictable performance, up to two Nokia MDA-se variants can be deployed within a single FP5-based Nokia 7750 SR-s Input/Output Module2-se (IOM2-se). Powered by Nokia's industry-leading FP5 technology, this combination supports the full range of IP networking applications in a single slot and consumes 75% less energy than the Nokia FP4, enabling operators to build energy-efficient, high-capacity, secure, and future-ready networks that drive business success.

Features and benefits

- Enables a new generation of energy-efficient 800G QSFP-DD, 400G QSFP-DD, 400G QSFP112, 200G SFP-DD optics, as routing systems densify, making the energy savings behind these optics increasingly compelling.
- FlexE 2.0 support enables the bonding of 4 x 400GE interfaces to create a single interface with the full 1.6 Tb/s bandwidth available, mitigating the inefficiencies associated with link aggregation group hashing.
- Building upon and enhancing our quantum-safe IEEE 802.1AE MACsec foundation for Ethernet networks, the MDA-se enables ANYsec, a low-latency, end-to-end, quantum-safe, multi-layer network cryptography solution for MPLS, Segment Routing, and IP networks, without compromising performance.
- Advanced DDoS mitigation capabilities enabled by the Nokia MDA-se uses signature-based ACLs to provide first-level payload inspection at line rate to filter out DDoS traffic, without compromising performance.
- Superior QoS performance of the Nokia MDA-se delivers full packet pre-classification and pre-buffering with priority tagging to guarantee priority traffic for all critical flows regardless of network congestion.
- Resilient control plane protection and availability are enabled by configurable hardware-based ACL filters, which, combined with pre-classification and rate-limiting functions enable the Nokia MDA-se to discard unwanted traffic before it reaches the control processor.
- Intelligent aggregation allows the Nokia MDA-se to aggregate port capacity beyond its forwarding capacity in a deterministic way with full respect for QoS and packet priority, enabling the elimination of pre-aggregation layers, driving CAPEX and OPEX savings.
- Together, the performance of the Nokia 7750 SR-s IOM-se and MDA-se is always deterministic. Even at full scale and with demanding processing-intensive applications, performance remains certain and throughput does not degrade, with no compromises.
- Modular, compact Nokia MDA-se variants provide exceptional versatility, offering a mix-and-match approach to system configuration and connector expansion to meet diverse networking requirements, while reducing TCO and ensuring investment protection.
- Flexible licensing offered by the Nokia MDA-se and IOM-se provides bandwidth options along with the scaling of egress hardware queues and policers for core, edge, and high-scale edge functionality.
- Nokia MDA-se variants house the forwarding plane and associated memory, perform all MAC-layer and physical-layer functions, and provide faceplate connectors for pluggable optical transceivers and cables.
- ITU-T Synchronous Ethernet (SyncE) and IEEE 1588v2 distribute precision network timing and synchronization over Ethernet.
- Field upgrades are simplified with hot-swappable Nokia MDA-se variants that can be exchanged in-service to change media type and physical interfaces as needed.

Technical specifications

Table 1. Nokia 7750 SR-s MDA-se variant overview

MDA-se variants	Speed options	Optical transceiver support	Breakout options	Capacity (FD, max): Line rate/IA	IOM support
14-connector 800G QSFP-DD + 4-connector 400G QSFP112 MDA-se	800G, 400G, 200G,100G, 50G, 40G, 25G, 10G	QSFP112-DD, QSFP56-DD, QSFP112, QSFP28-DD, QSFP28, QSFP+, QSFP	2 x 400G, 8 x 100G, 4 x 100G, 2 x 100G, 4 x 25G, 10 x10G, 8 x 10G, 4 x 10G	3.0 IOM2-se: 1.5T / 6.4T 6.0T IOM2-se: 3.0T / 6.4T	IOM2-se with up to two MDA-se variants
6-connector 800G QSFP-DD MDA-se	800G, 400G, 200G,100G, 50G, 25G, 10G	QSFP112-DD, QSFP112, QSFP56, QSFP28, QSFP+	2 x 400G, 8 x 100G, 4 x 100G, 2 x 100G, 4 x 25G, 10 x10G, 8 x 10G, 4 x 10G	3.0 IOM-se: 1.5T / 3.2T 6.0 IOM2-se: 3.0T / 3.2T	IOM2-se with up to two MDA-se variants
24-connector 200G SFP-DD MDA-se	200G,100G, 50G, 40G, 25G, 10G	SFP112, SFP-DD SFP28, SFP+	-	3.0 IOM2-se: 1.5T / 3.2T 6.0 IOM2-se: 3.0T / 3.2T	IOM2-se with up to two MDA-se variants
6-connector 800G CFP2-DCO MDA-se	800G, 400G, 100G	CFP2-DCO, CFP2	4 x 100G, 3 x 100G, 2 x 100G	3.0 IOM2-se: 1.5T / 3.2T 6.0 IOM2-se: 3.0T / 3.2T	IOM2-se with up to two MDA-se variants

Table 2. Nokia 7750 SR-s MDA-se maximum density*

MDA-se variants	Speed options	7750 SR-2se	7750 SR-7s	7750 SR-14s
14-connector 800G QSFP-DD + 4-connector 400G QSFP112 MDA-se	800G/400G/100G	32/64/256	96/192/768	192/384/1536
6-connector 800G QSFP-DD MDA-se	800G/400G	16/32	48/96	96/192
24-connector 200G SFP-DD MDA-se	200G/100G	48/96	144/288	288/576
6-connector 800G CFP2-DCO MDA-se	100G	24	72	144

* With intelligent aggregation (IA)

Table 3. Nokia 7750 SR-s MDA-se weights and dimensions

MDA-se variants	Weight	Dimensions		
		Height	Width	Depth
14-connector 800G QSFP-DD + 4-connector 400G QSFP112 MDA-se	2.09 kg (4.6 lb)	6.02 cm (2.37 in)	20.35 cm (8.01 in)	24.26 cm (9.55 in)
6-connector 800G QSFP-DD MDA-se	1.63 kg (3.6 lb)	6.02 cm (2.37 in)	20.35 cm (8.01 in)	24.26 cm (9.55 in)
24-connector 200G SFP-DD MDA-se	1.72 kg (3.8 lb)	6.02 cm (2.37 in)	20.35 cm (8.01 in)	24.26 cm (9.55 in)
6-connector 800G CFP2-DCO MDA-se	1.99 kg (4.4 lb)	6.02 cm (2.37 in)	20.35 cm (8.01 in)	24.26 cm (9.55 in)

Note: Refer to the 7750 SR-s platform data sheet and product documentation for full system details on safety standards, compliance agency certifications and protocol support.

About Nokia

At Nokia, we create technology that helps the world act together.

As a B2B technology innovation leader, we are pioneering networks that sense, think and act by leveraging our work across mobile, fixed and cloud networks. In addition, we create value with intellectual property and long-term research, led by the award-winning Nokia Bell Labs, which is celebrating 100 years of innovation.

With truly open architectures that seamlessly integrate into any ecosystem, our high-performance networks create new opportunities for monetization and scale. Service providers, enterprises and partners worldwide trust Nokia to deliver secure, reliable and sustainable networks today – and work with us to create the digital services and applications of the future.

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