

## Nokia 7750 Service Router

### Media Dependent Adapters

The Nokia 7750 Service Router (SR) Media Dependent Adapter2-XP (MDA2-e-XP) delivers high-density 10 Gigabit Ethernet (GE), 25GE, 40GE, 50GE, 100G, 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-based E5 MAC silicon, the Nokia MDA2-e-XP delivers a major leap forward in performance and security for Nokia's FP4-based 7750 SR systems. It brings native support for 800GE interfaces and unlocks the full potential of next-generation, energy-efficient 800G QSFP-DD, QSFP112, and SFP112 optics. Designed for the most demanding IP edge, metro, and core environments, the MDA2-e-XP also enables enhanced IEEE 802.1AE quantum-safe MACsec (ANYsec), providing future-ready, line-rate cryptography that protects networks against emerging cyber threats—without compromising performance or scalability.

Built on Nokia's proven FP4 routing silicon, the Nokia MDA2-e-XP supports up to 800 Gb/s full duplex (FD) in capacity, which scales to 1.0 Tb/s with intelligent aggregation (IA). The half-slot adapter supports 800G QSFP-DD, 400G QSFP-DD, 400G QSFP112, 100G QSFP28 and 100G SFP112 optics along with flexible 100G, 400G and 800G breakout options.

The innovative Nokia MDA2-e-XP combines advanced security with intelligent packet processing features to deliver unmatched performance and protection at scale. With quantum-safe MACsec and enhanced MACsec (ANYsec) supported at line rate across all connectors, it ensures future-proof cryptography without compromise. Built for today's most demanding IP networks, the MDA2-e-XP also enables granular IP payload filtering to defend against DDoS attacks, delivers best-in-class QoS, protects the control plane with built-in resiliency, and supports intelligent aggregation to efficiently scale services across the network edge, metro, and core.



2-connector 100G QSFP28 + 2-connector 800G QSFP-DD MDA2-e-XP



8-connector 100G SFP112 + 2-connector 800G QSFP-DD MDA2-e-XP



16-connector 100G SFP112 MDA2-e-XP



10-connector 100G QSFP28 MDA2-e-XP



The Nokia MDA2-e-XP redefines interface flexibility with its universal support for 800G QSFP-DD, 100G SFP112, and 100G QSFP28 connectors—empowering operators to tailor their networks with a wide range of compatible optics. Designed to maximize configuration versatility on Nokia 7750 SR-1 and SR-12e platforms, the MDA2-e-XP enables seamless adaptation to evolving bandwidth demands while optimizing space, power, and performance across IP edge, aggregation, and core networks. It's a powerful enabler for future-ready architectures, bringing unmatched modularity to high-performance routing.

Up to two Nokia MDA2-e-XP variants are inserted into a Nokia 7750 SR Input/Output Module5-e (IOM5-e). Enabled by Nokia's FP4 technology, this combination is always deterministic, for predictable performance under all operating conditions.

## Features and benefits

- Supports a new generation of energy-efficient 800G QSFP-DD, QSFP112, and SFP112 optics, as routing systems densify, making the energy savings behind these optics increasingly compelling.
- Building upon and enhancing our quantumsafe 802.1AE MACsec foundation for Ethernet networks, the Nokia MDA2-e-XP enables ANYsec, a low-latency, end-to-end, quantum-safe, multilayer network cryptography solution at speeds up to 400 Gb/s for MPLS, Segment Routing, and IP networks.
- Advanced DDoS mitigation capabilities enabled by the Nokia MDA2-e-XP uses signature-based ACLs to provide first-level payload inspection at line rate to filter out DDoS traffic, without compromising performance.
- Ensuring superior QoS performance on the Nokia 7750 SR, the Nokia MDA2-e-XP 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 MDA2-e-XP to discard unwanted traffic before it reaches the control processor.
- Intelligent aggregation allows the Nokia MDA2-e-XP 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 IOM5-e and MDA2-e-XP 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 MDA2-e-XP variants enable exceptional versatility, offering a mixand-match approach to system configuration and connector expansion, with support for both MDA2-e-XP and MDA-e-XP's in the same IOM5-e to meet diverse networking requirements, while reducing TCO and ensuring investment protection.
- Flexible licensing offered by the Nokia MDA2-e-XP and IOM5-e provides bandwidth options along with the scaling of egress hardware queues and policers for core, edge, and high-scale edge functionality.
- Nokia MDA2-e-XP variants house the forwarding plane and associated memory, performs all MAClayer and physical-layer functions and provide faceplate connectors for pluggable optical transceivers and cables.
- The Nokia MDA2-e-XP supports ITU-T Synchronous Ethernet (SyncE) and IEEE 1588v2 distribute precision network timing and synchronization over Ethernet.
- Field upgrades are simplified because hotswappable Nokia MDA2-e-XP variants can be exchanged in-service to change media type and physical interfaces as required.



# Technical specifications

Table 1. Nokia 7750 SR MDA2-e-XP overview

MDA2-e-XP variants	Speed options	Optical transceiver support	Breakout options	Capacity (FD, max): Line rate/IA	IOM support
2-connector 100G QSFP28 + 2-connector 800G QSFP-DD MDA2-e-XP	800G, 400G, 100G, 40G, 25G, 10G	800G QSFP112-DD, QSFP56-DD, QSFP28-DD, 400G QSFP112, QSFP28, QSFP+	2 x 400G, 8 x 100G, 4 x 100G, 3 x 100G, 2 x 100G, 4 x 25G, 8 x 10G, 4 x 10G	800G / 1.0T	7750 SR-12e: 1.5T IOM5-e with up to two MDA2-e-XP's
					7750 SR-1: With up to two MDA2-e-XP's
8-connector 100G SFP112 + 2-connector 800G QSFP-DD MDA2-e-XP	800G, 400G, 100G, 50G, 40G, 25G, 10G	800G QSFP112-DD, QSFP56-DD, QSFP28-DD, 400G QSFP112, QSFP28, QSFP+, SFP112, SFP56, SFP28, SFP+	2 x 400G, 8 x 100G, 4 x 100G, 3 x 100G, 2 x 100G, 4 x 25G, 8 x 10G, 4 x 10G	800G / 1.0T	7750 SR-12e: 1.5T IOM5-e with up to two MDA2-e-XP's
					7750 SR-1: Up to two MDA2-e-XP's
16-connector 100G SFP112 MDA2-e-XP	100G, 50G, 25G, 10G	SFP112, SFP56, SFP28, SFP+	-	800G / 1.0T	7750 SR-12e: 1.5T IOM5-e with up to two MDA2-e-XP's
					7750 SR-1: Up to two MDA2-e-XP's
10-connector 100G QSFP28 MDA2-e-XP	100G, 40G, 25G, 10G	QSF28, QSFP+	10 x 10G, 4 x 10G, 4 x 25G	800G / 1.0T	7750 SR-12e: 1.5T IOM5-e with up to two MDA2-e-XP's
					7750 SR-1: Up to two MDA2-e XP's

#### Table 2. Nokia 7750 SR MDA2-e-XP maximum density\*

MDA2-e-XP variants	Speed options	7750 SR-1	7750 SR-12e
2-connector 100G QSFP28 + 2-connector 800G QSFP-DD MDA2-e-XP	800G/400G/100G	2/4/20	18/36/180
8-connector 100G SFP112 + 2connector 800G QSFP-DD MDA2-e-XP	800/400/100G/ 50G/25G/10G	2/4/20/ 16/24/56	18/36/180/ 144/216/504
16-connector 100G SFP112 MDA2-e-XP	100G/50G/25G/10G	20/20/32/32	180/180/288/288
10-connector 100G QSFP28 MDA2-e-XP	100G/40/25G/10G	20/20/32/72	180/180/288/648

<sup>\*</sup> With intelligent aggregation (IA)



Table 3. Nokia 7750 SR MDA2-e-XP dimensions

MDA2-e-XP variants	Dimensions				
	Height	Width	Depth		
2p 100G QSFP28 + 2p 800G QSFP-DD MDA2-e-XP	3.6 cm (1.4 in)	19.3 cm (7.6 in)	19.3 cm (7.6 in)		
8p 100G SFP112 + 2p 800G QSFP-DD MDA2-e-XP	3.6 cm (1.4 in)	19.3 cm (7.6 in)	19.3 cm (7.6 in)		
16p 100G SFP112 MDA2-e-XP	3.6 cm (1.4 in)	19.3 cm (7.6 in)	19.3 cm (7.6 in)		
10p 100G QSFP28 MDA2-e-XP	3.6 cm (1.4 in)	19.3 cm (7.6 in)	19.3 cm (7.6 in)		

Note: Refer to the 7750 SR MDA2-e-XP product and release documentation for system details on dimensions, weights, hardware, safety standards, compliance agency certifications and protocol support.

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