Nokia 7750 SR-s Service Router

Media Dependent Adapters

The Nokia 7750 SR-s Media Dependent Adapter-s (MDA-s) delivers high-density Ethernet interfaces for highly scalable IP routing functions and services.

With support for 10 Gigabit Ethernet (GE), 25GE, 100GE and 400GE interfaces, the Nokia MDA-s provides modular interface flexibility with a variety of variants, connector types, optical breakouts and density configurations to maximize system configuration versatility and investment protection. It houses the forwarding plane, performs all MAC-layer and physical-layer functions and provides faceplate connectors for optical modules and cables.

The Nokia MDA-s is based on the Nokia FP4 network processing silicon and supports up to 1.5 Tb/s full duplex (FD) in capacity. With intelligent aggregation (IA), this goes up to 2 Tb/s per adapter. Up to two MDA-s types are supported by the Nokia FP4-based Input/Output Module-s (IOM-s) in the 7750 SR-2s, SR-7s and SR-14s. The 7750 SR-1s modular variant has an integrated IOM-s and supports up to two MDA-s types.

Available in eight variants, the hot-swappable MDA-s uses front faceplate connectors and supports a mix of speed and optic types including 400G QSFP-DD, 100G QSFP28, 100G SFP-DD and CFP2 Digital Coherent Optics (CFP2-DCO) pluggable optics with flexible 10GE and 100GE breakout options. All QSFP-DD, QSFP28 and SFP-DD cages also support a variety of compatible optics for any speed in any connector. Optics support for QSFP-DD connectors includes 400G ZR and 400G ZR+ pluggable optics.

Enabled by Nokia FP4 technology, the combination of the 7750 SR-s IOM-s and MDA-s delivers deterministic forwarding performance at scale, ensuring that even at full capacity when complex processing-intensive operations are required, performance does not degrade.

4-connector 400G QSFP-DD + 4-connector 100G QSFP28 MDA-s

18-connector 100G QSFP28 MDA-s

24-connector 100G SFP-DD MDA-s

16-connector 100G SFP-DD (MACsec) + 4-connector 100G QSFP28 MDA-s

6-connector CFP2-DCO MDA-s

This combination enables exceptional system versatility, allowing operators to mix and match the IOM-s with MDA-s types to meet a wide range of networking requirements in a single system while supporting the full array of IP networking functions and services and protecting hardware investments over time.

Features and benefits

- Modular, compact MDA-s adapters and IOM-s modules provide a flexible, mix-and-match approach to system configuration and connector expansion, for reduced TCO and investment protection.
- The MDA-s is available in eight variants with several density, optics and combination options, and include 400G QSFP-DD, 100G QSFP28, 100G SFP-DD and CFP2-DCO optics.
- QSFP-DD connectors are universal an support a mix of port speeds, optic types and breakouts including: 1 x 400G (QSFP56-DD), 4 x 100G (QSFP-DD), 2 x 100G (QSFP-DD), 1 x 100G (QSFP28), 10 x 10G (QSFP28) and 4 x 10G (QSFP+). Optics support for MDA-s variants with QSFP-DD connectors includes 400G ZR and 400G ZR+ QSFP56-DD pluggable optics.
- QSFP28 connectors are universal and support a mix of port speeds, optic types and breakouts including: 1 x 100G (QSFP28), 10 x 10G (QSFP28) and 4 x 10GE (QSFP+).
- SFP-DD faceplate connectors are supported on two variants. The combination MDA-s variant has 16 x SFP-DD connectors plus 4 x QSFP28 connectors. The SFP-DD connectors support MACsec along with a mix of port speeds and optic types including 100G SFP-DD, 10/25G SFP28 and 10G SFP+. The QSFP28 connectors are universal and also support a mix of port speeds, optic types and breakouts including 1 x 100G (QSFP28), 10 x 10G (QSFP28) and 4 x 10G (QSFP+). The 24 connector SFP-DD variant supports 10/100G SFP-DD and 10G SFP+ speeds and optics.
- CFP2-DCO connectors are available in 3 and 6 connector variants supporting 100G and 2 x 100G in any connector.
- With the IOM-s and MDA-s, a flexible pay-as-you-grow licensing model provides a choice of entry points for immediate requirements and the ability to scale in-place for evolving needs with software-only upgrades. Capacity licenses provide bandwidth and intelligent aggregation mode options. Functional licenses scale services through control options on egress hardware queues and egress policers for core and edge routing applications.
- The MDA-s enables the IOM-s to support intelligent aggregation, a leading capability with Nokia FP4 network processing silicon. Intelligent aggregation enables the IOM-s to support much higher capacity and density in a fully deterministic way.
- Field upgrades are simplified because hot-swappable MDA-s types can be exchanged in-service to change media type and physical interfaces as required.
- ITU-T Synchronous Ethernet (SyncE) and IEEE 1588v2 distribute precision network timing and synchronization over Ethernet.
- Pluggable optics with Digital Diagnostic Monitoring (DDM) is supported for extended operations, administration and maintenance (OAM) and improved installation, activation and troubleshooting.

Technical specifications

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

MDA-s types (connector	optic)	Ethernet speed options	7750 SR-1s (modular)	7750 SR-2s	7750 SR-7s	7750 SR-14s
4-connector QSFP-DD + 4-connector QSFP28/QSFP+	400G/100G/10GBASE	8/40/160	16/80/320	48/240/960	96/480/1920
2-connector QSFP-DD + 2-connector QSFP28/QSFP+	400G/100G/10GBASE	4/20/80	8/40/160	24/120/480	48/240/960
18-connector QSFP28/QSFP+	100G/10GBASE	36/360	72/720	216/2160	432/4320
24-connector SFP-DD/SFP+	100G/10G	40/48	80/96	240/288	480/576
16-connector SFP-DD/SFP+ (MACsec) + 4-connector QSFP28/QSFP+	100G/25G/10GBASE	40/32/112	80/64/224	240/192/672	480/384/1344
8-connector SFP-DD/SFP+ (MACsec) + 2-connector QSFP28/QSFP+	100G/25G/10GBASE	20/16/56	40/32/112	120/96/336	240/192/672
6-connector CFP2-DCO	100G	12	24	72	144
3-connector CFP2-DCO	100G	6	12	36	72

* With intelligent aggregation.

Table 2. MDA-s weights and dimensions

MDA-s type	Weight	Dimensions		
		Height	Width	Depth
4-connector QSFP-DD + 4 connector QSFP28	1.45 kg (3.2 lb)	6.01 cm (2.37 in)	20.35 cm (8.01 in)	24.26 cm (9.55 in)
2-connector QSFP-DD + 2 connector QSFP28	1.3 kg (2.9 lb)	6.01 cm (2.37 in)	20.35 cm (8.01 in)	24.26 cm (9.55 in)
18-connector QSFP28	1.68 kg (3.7 lb)	6.01 cm (2.37 in)	20.35 cm (8.01 in)	24.26 cm (9.55 in)
24-connector SFP-DD	1.54 kg (3.4 lb)	6.01 cm (2.37 in)	20.35 cm (8.01 in)	24.26 cm (9.55 in)
16-connector SFP-DD + 4 connector QSFP28	1.8 kg (4.0 lb)	6.01 cm (2.37 in)	20.35 cm (8.01 in)	24.26 cm (9.55 in)
8-connector SFP-DD + 2 connector QSFP28	1.6 kg (3.5 lb)	6.01 cm (2.37 in)	20.35 cm (8.01 in)	24.26 cm (9.55 in)
6-connector CFP2-DCO	1.77 kg (3.9 lb)	6.01 cm (2.37 in)	20.35 cm (8.01 in)	24.26 cm (9.55 in)
3-connector CFP2-DCO	1.1 kg (2.5 lb)	6.01 cm (2.37 in)	20.35 cm (8.01 in)	24.26 cm (9.55 in)

Note: Refer to the 7750 SR and 7450 ESS platform data sheets and product documentation for full system details on safety standards, compliance agency certifications and protocol support.

About Nokia

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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.

Nokia OYJ
Karakaari 7
02610 Espoo
Finland
Tel. +358 (0) 10 44 88 000

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