Nokia 7220 IXR-H series Interconnect Router for SONiC

As part of the Nokia Data Center portfolio, the Nokia 7220 IXR-H4-32D and 7220 IXR-H4 Interconnect Routers (IXR) are designed for the leaf and spine layers of data center fabrics. These routers deliver high-scale interconnectivity for webscale, service provider, enterprise data center and cloud environments.

Overview

High-bandwidth servers are driving the need for greater port speeds and density in data center architectures. Similarly, the need for more power-efficient and enhanced network operating system (NOS) design is driving the modernization of network aggregation and interconnect within data centers.

The 7220 IXR-H series of routers are high-performance, fixed-configuration platforms designed for data center leaf-spine deployments. They offer 400GE, 200GE and 100GE interfaces for intra-fabric and server connectivity.

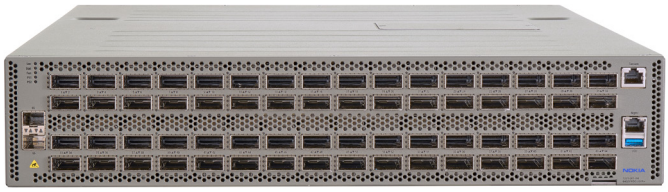
The 7220 IXR-H series of routers deliver a robust and comprehensive set of capabilities, including IP routing, Layer 2 Ethernet, QoS, telemetry and model-driven management.

7220 IXR-H4-32D 32QSFPDD 1SFP+

The 7220 IXR-H4-32D is 1 RU high with a system capacity of 12.8 Tb/s FD. It is equipped with 32 400GE QSFP-DD ports and one 1/10GE SFP+ port.

All QSFP-DD ports include hardware support for native 400GE, 200GE, 100GE, 50GE and 40GE. The SFP+ ports include hardware support for native 10GE speeds.

7220 IXR-H4-32D



7220 IXR-H4

These port options allow for high-performance intra-fabric uplinks, storage and server connectivity.

The 7220 IXR-H4-32D supports two power supplies with 1+1 redundancy using either AC or DC power options. The system supports front-to-back airflow configuration with seven N+1 hot swappable fans.

7220 IXR-H4 64QSFPDD 2SFP+

The 7220 IXR-H4 is 2 RU high with a system capacity of 25.6 Tb/s FD. It is equipped with 64 x 400G QSFP-DD ports and 2 SFP+ ports.

All QSFP-DD ports include hardware support for native 400GE, 200GE and 100GE speeds as well as breakout options supported by this platform's silicon chipsets.

These port options provide exceptional flexibility in a variety of leaf or spine deployment configurations.

The 7220 IXR-H4 supports two power supplies with 1+1 redundancy using either AC or DC power options.

The system supports front-to-back airflow configuration with 4 N+1 hot-swappable fans.

SONiC

Software for Open Networking in the Cloud (SONiC) is an open-source NOS based on Linux. It offers a full suite of network functionality, including Border Gateway Protocol (BGP) and Remote Directory Memory Access (RDMA), that has been production hardened in the data centers of some of the largest cloud-service providers.

SONiC offers teams the flexibility to create the network solutions they need while leveraging the collective strength of a large ecosystem and community[1].

The Nokia 7220 IXR-H4-32D and 7220 IXR-H4 platforms implement SONiC.

Software features

SONiC offers a comprehensive set of open-source features that are readily available and maintained via the SONiC community. For a complete list of capabilities and software support functions, please consult the SONiC website.

1 https://sonicfoundation.dev/

Technical specifications

Table 1. 7220 IXR-H series specifications

Feature	7220 IXR-H4-32D	7220 IXR-H4
System throughput: Full duplex (FD)	12.8 Tb/s	25.6 Tb/s
Ports	32 x 400G QSFP-DD 1 x SFP+	64 x 400G QSFP-DD 2 x SFP+
Management ports	1 x 1000BASE-T	1 x 1000BASE-T
USB ports	1 x USB2.0	1 x USB2.0
Console port	1 x RJ45	1 x RJ45
Processor	8-core x86	8-core x86
Memory	32G DDR4	32G DDR4
Memory buffer size	113.5 MB	113.5 MB
SSD	32G MLC	128G MLC
Power	1+1 redundant AC: 100V to 240V DC: -48V / -60V 1600 W AC 1600 W DC	1+1 redundant AC: 200V to 240V DC: -48V / -60V 2400 W AC 2100 W DC
Hot-swappable power supplies	Yes	Yes
Fan modules	7 Front-to-back or back-to-front airflow	4 Front-to-back airflow
Hot-swappable fan modules	Yes	Yes
Dimensions	Height: 4.35 cm (1.75 in); 1 RU Width: 43.85 cm (17.26 in) Depth: 55 cm (21.65 in) Fits in standard 19-in mounting rack	Height: 8.7 cm (3.43 in); 2 RU Width: 44 cm (17.32 in) Depth: 64.92 cm (25.56 in) Fits in standard 19-in mounting rack
Weight	9.3 kg (20.50 lb) (unpopulated) 12.5 kg (27.56 lb) (fully populated)	6.5 kg (36.37 lb) (unpopulated) 21.50 kg (47.39 lb) (fully populated)
Discrete Trusted Platform Module (TPM)	Yes	Yes
Normal operating temperature range	0°C to +40°C (32°F to +104°F) sustained	0°C to +40°C (32°F to+104°F) sustained
Shipping and storage temperature	-40°C to +70°C (-40°F to +158°F)	-40°C to +70°C (-40°F to +158°F)
Normal humidity	5% to 95%, non-condensing	5% to 95%, non-condensing

Table 2. 7220 IXR-H maximum chassis density*

Ethernet speed	7220 IXR-H4-32D	7220 IXR-H4
400GE	32	64
200GE	64	128
100GE	128	256
50GE	128	256
40GE	32	64
10GE	1	2

* The port densities listed correspond to the maximum ports supported and are dependent on software support.

Standards compliance[2]

Environmental and NEBS

- ETSI EN 300 019-2-1; Storage Tests, Class 1.2
- ETSI EN 300 019-2-2; Transportation Tests, Class 2.3
- ETSI EN 300 019-2-3; Operational Tests, Class 3.2
- ETSI EN 300 753; Acoustic Noise, Class 3.2[3]
- GR-3160-CORE

Safety

- AS/NZS 62638-1
- FDA CDRH 21-CFR 1040
- IEC/BS/EN 60825-1
- IEC/BS/EN 60825-2
- IEC/UL/CSA/BS/EN 62368-1

Electromagnetic compatibility

- AS/NZS CISPR 32 Class A
- BS EN 55035
- BS EN 61000-3-2
- BS EN 61000-3-3
- BS EN 55032 Class A
- BSMI CNS 15936 Class A
- BT GS-7
- CNS 13438 Class A
- EN 55035
- EN 55032 Class A
- ETSI EN 300 132-1 (AC)
- ETSI EN 300 132-2 (LVDC)
- ETSI EN 300 386
- ETSI ES 201 468
- FCC Part 15 Class A
- ICES-003 Class A
- IEC CISPR 32 Class A
- IEC CISPR 35
- IEC/EN 61000-3-2
- IEC/EN 61000-3-3
- IEC/EN 61000-6-2
- IEC/EN 61000-6-4
- KCC Korea - Immunity KS C 9835
- KCC Korea - Emissions KS C 9832
- VCCI Class A

Directives and regional approvals

- Directive 2011/65/EU RoHS (including Commission Delegated Directive EU 215/863)
- Directive 2012/19/EU WEEE
- Directive 2014/30/EU EMC
- Directive 2014/35/EU Low LVD

2 System design intent is according to the listed standards. Refer to product documentation for detailed compliance status.
3 Certain airflow configurations will impact acoustics. Please contact Nokia for details.

- CE Mark: Europe
- CRoHS: China RoHS
- KC Mark: South Korea
- RCM Mark: Australia
- UKCA Mark: United Kingdom
- VCCI Mark: Japan

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.

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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