Nokia 7250 IXR-X3b Interconnect Router for SONiC

Nokia community SONiC Release 202505

The Nokia 7250 Interconnect Router (IXR)-X3b offers high-speed, high-density interfaces in a 1 RU form factor. It is well-suited for data-center deployments that require deep packet buffering.

Overview

High-bandwidth interfaces are driving the need for higher port speeds and densities in data center architectures.

A compact router with a capacity of 14.4 Tb/s, the Nokia 7250 IXR-X3b meets growing bandwidth demands, delivering high-speed, high-density 100GE and 400GE interfaces at scale.

Nokia 7250 IXR-X3b 36QSFPDD

The 7250 IXR-X3b offers 36 400G QSFP-DD within a 1RU space. All 400G QSFP-DD connectors are backward compatible to QSFP28-DD and QSFP28.

Pluggable Digital Coherent Optics (DCO) 100G and 400G ZR/ZR+ are also supported on the platform.

7250 IXR-X3b

SONiC

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 and Nokia Community SONiC release notes.

Network security

The Nokia 7250 IXR-X3b hardware provides user plane protection through low-latency, line-rate encryption, ensuring that data is safeguarded against snooping or tampering by any intermediate device or network.

The 7250 IXR-X3b supports Root-of-Trust capabilities and features a multi-core x86e CPU that delivers control plane scalability and performance — crucial for data center leaf-spine designs. It includes an integrated 80 Gb/s SSD, a discrete trusted platform module, and is designed to meet all demanding performance benchmarks.

Innovative hardware design

The 7250 IXR-X3b is designed with a component-minimizing approach that uses only essential components and optimizes system layouts, leveraging Nokia intellectual property throughout.

The intellectual property integrated into each platform's hardware design includes honeycomb mesh air intakes that maximize air flow for cooling and the full exploitation of the inmate chipset's capabilities. The net result is leading power efficiency, a design optimized for the supply chain and inherent support for a leading ESG model.

Honeycomb mesh air intakes not only create a 90% open faceplate — compared to a 50 - 60% open faceplate formed with holes punched in bent metal but also form a full Faraday Cage for the platform, ensuring that EMI is always best isolated between platforms.

Redundant fans and power supplies enhance network availability.

Technical specifications

Table 1. 7250 IXR-X1b and IXR-X3b specifications

Feature	7250 IXR-X3b
System throughput: Full duplex	14.4 Tb/s
Ports	36 x 400G QSFP-DD
Hardware support (maximum ports per chassis)	
100GE	36
400GE	36
Control interfaces	Console, management, Bluetooth, USB, SD slot with security cover
Security	MACsec Root-of-Trust TPM2.0, Secure boot
Timing and synchronization	• Stratum 3E oscillator • RFC 5905 Network Time Protocol (NTP)
Internal storage	80GB SSD
Memory buffer size	16 GB
Dimensions	• Height: 1RU, 4.5 cm (1.75 in) • Depth: 64.7 cm (25.5 in) • Width: 44.45 cm (17.5 in)
Common equipment redundancy	Power supplies (1+1), cooling fans (n+1)
Power supply options	Modular AC power supplies
Power requirements	HV AC input (rated): 200 V AC to 240 V AC, 50 Hz to 60 Hz
Cooling	• Modular replaceable fans (3 total) • Front-to-back airflow
Normal operating temperature range	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)
Normal humidity	5% to 95%, non-condensing

Standards compliance[1]

Environmental

- ATIS-0600015.03
- 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)
- GR-63-CORE
- GR-295-CORE
- GR-3160-CORE
- VZ.TPR.9205
- VZ.TPR.9203 (Data Centers)

Safety

- AS/NZS 62368.1
- IEC/EN 60825-1
- IEC/EN 60825-2
- IEC/EN/UL/CSA 62368-1
- IEC 60529 IP20

Electromagnetic compatibility

- AS/NZS CISPR 32 (Class A)
- ATIS-600315.01.2015
- BT GS-7
- EN 300 386
- EN 301 489-1
- EN 301 489-17 (Bluetooth)
- BSMI CNS 15936 (Taiwan)
- EN 55035
- EN 55032 (Class A)
- ES 201 468
- ETSI EN 300 132-2 (LVDC)
- ETSI EN 300 132-1 (AC)
- FCC Part 15 (Class A)
- GR-1089-CORE
- ICES-003 (Class A)
- IEC 61000-3-2
- IEC 61000-3-3
- IEC CISPR 35
- IEC CISPR 32 (Class A)
- IEC 61000-6-2
- IEC 61000-6-4
- IEC/EN 61000-4-2 ESD
- IEC/EN 61000-4-3 Radiated Immunity
- IEC/EN 61000-4-4 EFT
- IEC/EN 61000-4-5 Surge
- IEC/EN 61000-4-6 Conducted Immunity
- EC/EN 61000-4-11 Voltage Interruptions
- KS C 9832 Class A (Emissions; South Korea)
- KS C 9835 (Immunity; South Korea)
- KS C 3124 (South Korea)
- KS C 3126 (Bluetooth; South Korea)
- VCCI CISPR32 Class A (Japan)

Directives, regional approvals and certifications

- DIRECTIVE 2011/65/EU RoHS
- DIRECTIVE 2012/19/EU WEEE
- DIRECTIVE 2014/30/EU EMC
- DIRECTIVE 2014/35/EU LVD
- DIRECTIVE 2014/53/EU RED
- MEF CE 3.0 compliant
- Australia: RCM Mark
- United Kingdom: UKCA Mark
- China RoHS: CRoHS
- Europe: CE Mark
- Japan: VCCI Mark
- South Korea: KC Mark
- Taiwan: BSMI Mark
- TL9000
- ISO 14001
- ISO 9001
- ISO 14001
- ISO 9001

1 System design intent is according to the listed standards. Refer to product documentation for detailed compliance status.

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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