

PRODUCT BRIEF

48-Port Non-Blocking 100 Gb/s
Managed or Externally Managed Switch



CORNELIS™ OMNI-PATH EXPRESS™ EDGE SWITCH

CN-100SWE

Cornelis Networks provides the industry's leading edge switch.

Omni-Path Express Edge Switches cost-effectively deliver high bandwidth and use advanced technologies to meet the key challenges to application performance, maximizing message rate while minimizing average and tail latency.

Cornelis Omni-Path Express scale-out interconnect

Unprecedented requirements on the scale-out interconnect are being driven by advances in artificial intelligence and high performance data analytics, and traditional modeling and simulation environments, coupled with extremely capable processing and storage infrastructures.

Cornelis Omni-Path Express is the next generation of high performance fabrics, a proven hardware foundation combined with the OpenFabrics Interfaces (OFI) framework that delivers the industry's lowest latency, highest message rate, and best collectives performance, all at the industry's lowest CPU utilization.

Accelerated application performance at scale

Cornelis Omni-Path Express Edge Switches provide forty-eight 100 Gbps ports, delivering full bisectional bandwidth per port.



Edge Switch – Fixed



Edge Switch – Hot Swappable

Cornelis Omni-Path Express Edge Switches are very versatile, as the only switch in small clusters, the first-tier switch in larger clusters, and the network core in intermediate clusters.

These systems ensure optimal application performance by delivering key features for efficiency, including dynamic adaptive routing and congestion control. These features are complemented by a unique sub-link layer architecture that enables Packet Integrity Protection (zero latency protection against bit transmission errors) and Traffic Flow Optimization (pausing the transmission of a lower priority packet in favor of a higher priority packet).

These capabilities, together with advanced Virtual Fabrics support, provide unique interconnect capabilities to deliver industry-leading application performance and manageability at scale.

“Enormous compute power along with performant fabric interconnects enable our research findings to push forth political decisions and actions through pandemic (COVID-19) virus spread predictions and refining workflows for new drug design or drug proposals currently under clinical bio-medical trials.”

Dr. Thomas Steinke
Head of Supercomputing Department
Zuse Institute Berlin

HIGHLIGHTS

Benefits

- Accelerated application performance at scale
- Industry leading best price-performance
- Advanced sub-link layer capability eliminating link protection and tail latency penalties

Key Features

Performance

- 48 x 100 Gbps ports in 1U
- 9.6 Tb/s aggregate switch throughput
- Sub-110 ns post-protection switch latency

Highly optimized design

- Redundant power and fans
- Reversible air flow
- Optional internal management

Advanced features

- Dynamic Adaptive Routing
- Packet Integrity Protection
- Traffic Flow Optimization
- Dynamic Lane Scaling
- Congestion Control
- Virtual Fabrics

Switch Features

- Omni-Path Switch Silicon 100 Series 48-Port ASIC
- 100 Gbps bisectional bandwidth per port
- Virtual lanes: Configurable from one to eight VLs plus one management VL
- Configurable MTU size of 2 KB, 4 KB, 8 KB, or 10 KB
- Maximum multicast table size: 8192 entries
- Maximum unicast table size: 49151 entries
- QSFP28 Quad Small Form Factor Pluggable cabling
- Supports passive copper or active optical cables

Management Features

- Optional internal management capability
- Subnet Management Agent (SMA)
- Performance Management Agent (PMA)
- Command Line Interface Chassis Management GUI
- Serial Console through USB Serial Port
- Network Time Protocol, SNMP, and LDAP
- FastFabric Toolset and Fabric Management GUI

Specifications	
100 Gb ports	48
Total System Bandwidth (bisectional)	9.6 Tbps (1.2 TB/s)
Chassis Dimensions (w x h x d)	Fixed Edge: 19" rack mountable, 1U chassis (441 mm x 43.7 mm x 438 mm) Hot Swap: 19" rack mountable, 1U chassis (441 mm x 43.7 mm x 671 mm)
Weight	Fixed Edge: 6.1 kg (unmanaged), 6.4 kg (managed) Hot Swap: 7.7 kg (unmanaged), 8.0 kg (managed)
Fixed Edge Options	Reverse Air Flow / Management Module
Power (Typ/Max)	189/238 W (Using direct attach copper cables) 285/330 W (Using 2W QSFP active optical cables)
Input Range	100-240 VAC 50-60 HZ

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CN-100SWE

Item Name	Item Number	Item Description
100SWE48QF2	948588	Omni-Path Edge Switch 100 Series 48 Port Managed Forward 2 PSU
100SWE48UF2	948678	Omni-Path Edge Switch 100 Series 48 Port Forward 2 PSU
100SWE48QFH	955016	Omni-Path Edge Switch 100 Series 48 Port Managed Forward Hot Swap 100SWE48QFH
100SWE48UFH	955213	Omni-Path Edge Switch 100 Series 48 Port Forward Hot Swap 100SWE48UFH
100SWEADKIT	950880	Omni-Path Edge Switch Air Duct Kit 100 Series 100SWEADKIT (optional accessory)
100SWEHSFTF	955106	Omni-Path Edge Switch Hot Swap Fan Tray Forward 100 Series 100SWEHSFTF
100SWEHSPSF	955107	Omni-Path Edge Switch Hot Swap Power Supply Forward 100 Series 100SWEHSPSF
100SWEIKIT1	945820	Omni-Path Edge Switch Installation Kit 100 Series 100SWEIKIT1 (replacement kit)

Safety

US/Canada	cTUVus NRTL 62368-1
Europe	TUV SUD EN 62368-1
International	CB Scheme: IEC 60950/62368-1

Operating Conditions

Temperature	Operating: 0° to 40° C (derated 1C/175m above 900m) Storage: -40° to 70° C
Humidity	Operating: 5% to 85% non-condensing Storage: 5% to 95% non-condensing
Altitude	Operating: 0 – 3,200m Storage: 0 – 10,000m

Emissions/Immunity

US/Canada	FCC Part 15, Subpart B, Class A, ICES-3(A)/NMB-3(A)
Europe	EN55032 Class A, EN55035, EN55024
Japan	VCCI, Class A
AS/NZ	AS/NZ CISPR 32, Class A
Korea	RRA/KC (KN32, KN35), Class A
Taiwan	BSMI (CNS 13438), Class A

Environmental

RoHS	RoHS II Directive 2011/65/EU
REACH	(EC) No 1907/2006

Discover the future of high performance fabrics

For more information, visit www.cornelisnetworks.com

