

**PRODUCT BRIEF**

48-Port Non-Blocking 100 Gbps  
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 cluster scalability and message rate while minimizing



Edge Switch – Fixed



Edge Switch – Hot Swappable

#### Cornelis Omni-Path Express scale-out interconnect

Unprecedented demands on the scale-out interconnect are being driven by advances in artificial intelligence, 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) software framework, that delivers the industry's lowest latency, highest message rate, and best collective 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 bidirectional bandwidth per port.

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.

The Omni-Path Express Edge Switches 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 features, together with advanced Virtual Fabrics support, provide the 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

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### 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 Tbps 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 bidirectional 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 and active optical cables

#### Management Features

- Subnet Management Agent (SMA)
- Performance Management Agent (PMA)
- Serial Console through USB Serial Port
- Optional internal management capability
- NTP, SNMP, and LDAP support
- Chassis Management via CLI and GUI
- FastFabric Toolset and FM GUI support

Specifications	
100 Gbps ports	48
Total System Bandwidth (bidirectional)	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)
Configuration Options	Forward (P/S-to-I/O) or Reverse (I/O-to-P/S) 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

# CORNELIS™ OMNI-PATH EXPRESS™ EDGE SWITCH

## CN-100SWE

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

## Safety

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

## Operating Conditions

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

## Emissions/Immunity

<b>US/Canada</b>	FCC Part 15, Subpart B, Class A, ICES-3(A)/NMB-3(A)
<b>Europe</b>	EN55032 Class A, EN55035, EN55024
<b>Japan</b>	VCCI, Class A
<b>AS/NZ</b>	AS/NZ CISPR 32, Class A
<b>Korea</b>	RRA/KC (KN32, KN35), Class A
<b>Taiwan</b>	BSMI (CNS 13438 Class A , CNS 14336, CNS 15663)

## Environmental

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

**Discover the future of high performance fabrics**

For more information, visit [www.cornelisnetworks.com](http://www.cornelisnetworks.com)

