

PRODUCT DATASHEET

# Rockport Switchless Network



The Rockport Switchless Network is a high-performance, direct-interconnect solution designed for the most demanding compute- and data-intensive workloads.

Architected to achieve consistently fast and predictable workloads, a Rockport network is a highly-resilient, highly-efficient fabric built in an entirely standards-based form factor and interface. Deployed without centralized switches by distributing the network switching function to each device endpoint, the Rockport Switchless Network eliminates inherent performance bottlenecks of traditional network architectures – while reducing heat, power, rack space, and management complexity.

**Key Benefits:**

- Predictable latency under load
- Zero congestive loss
- Self-healing
- Linear scalability
- Simplified management
- More resilient and secure
- Less space, weight and power
- Reduced cost (up to 60% savings)

# Inside the Rockport Switchless Network

Based on industry standard Ethernet technology, the Rockport Switchless Network replaces standard NICs within servers and storage enclosures along with the layers of centralized switches that form traditional network fabrics.

In a typical deployment, each server contains a network card connected to a passive optical

interconnect device using a fiber optic cable. This allows for the direct interconnection of the network cards, or nodes. Administrators can monitor the network using the Autonomous Network Manager. Deployed in hours, not days or weeks, the Rockport Switchless Network is intelligent, adaptable, self-healing, and simple to operate.

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**Rockport Network Operating System (rNOS) software** is at the core of the Rockport Switchless Network and runs on the network card, not the server. The rNOS enables the network to self-discover, self-configure and self-heal. It selects and continually optimizes the best path through the network to minimize congestion and latency, while breaking down packets into smaller pieces (FLITs) to ensure high-priority messages are not blocked by large messages or bulk data transfers, along with other advanced features to reduce data center workload completion time.

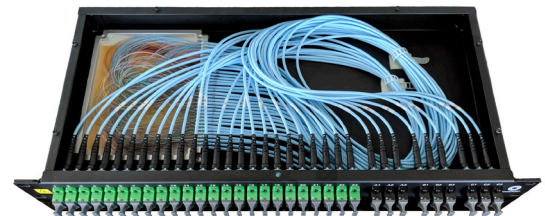
## Rockport NC1225 Network Card

The switchless network capability is implemented on an embedded FPGA on a network card that is installed in a standard, low-profile HHHH PCIe slot.\* The card aggregates the bandwidth of multiple parallel network paths, drawing from 300 Gbps of available network capacity.



## Rockport SHFL

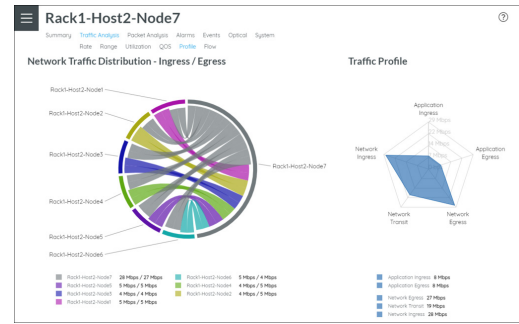
The SHFL (pronounced "shuffle") provides direct interconnectivity between the network cards (nodes) in the switchless network. This passive, non-electrical, pre-wired patch panel eliminates complexity from typical cabling requirements, which removes user error and facilitates operational simplicity. Multiple SHFL variants are available to support different configurations and deployment options.



\*The NC1225 is a commercial PCIe solution and is also available as an embedded solution.

## Rockport Autonomous Network Manager (ANM)

Network administrators can configure, manage, and troubleshoot the Rockport Switchless Network using an intuitive user interface and single dashboard approach to provide real-time health and performance monitoring. RESTful APIs can be used to retrieve reporting, monitoring, and management data to easily integrate with existing monitoring tools.



### Simple to Deploy. Simple to Operate.

Unlike traditional network approaches, even large-scale Rockport Switchless Networks can be installed in minutes, not days, with no specialized resources required. Rockport networks are self-configuring and self-healing; simply install the network card into any compute or storage server, connect the cable to the SHFL, then monitor and manage with the Autonomous Network Manager. And due to its standard Ethernet host interface, a Rockport Switchless Network seamlessly integrates with existing data centers, allows for interoperability with existing operating systems and existing, trusted, native drivers.

CATEGORY	SPECIFICATION	DETAILS
<b>Rockport Network Card</b>	Form Factor	Half-Height, Half-Width (low-profile) (single-width)
	Dimensions	68.90 mm height x 167.6 mm length
	Weight	400g
	PCIe Bus	Gen 3.0 x16 (Gen 4.0 compatible)
	Network Connector	MTP/MPO-24
	Power Consumption	36W
<b>Rockport SHFL</b>	Dimensions	Height: 1.75 in x Width: 19 in x Depth: 8 in (44.45 mm high x 482.6 mm x 203.2 mm)
	Weight	2.2 kg
	Connector	MTP/MPO-24 and MTP/MPO-32
<b>Host Software</b>	Host Driver	OFED 5.4 -1.0.3.0
	Operating System	CentOS/RedHat 7.7+
	Virtualization	VMware ESXi 7.x
<b>Network Management</b>	Operating System	CentOS/RedHat 7.7+
	Virtualization	Autonomous Network Manager supported in a VM running ESXi 7.x
	Client Browser	Google Chrome (version 86 and later)

## Autonomous Network Manager (ANM) System Requirements

Storage requirements are based on the number of managed nodes and the retention period of metrics saved to disk.

NUMBER OF NODES	LOGICAL CORES	SYSTEM MEMORY	METRIC DATABASE DRIVE SPACE
Up to 24 nodes	12 CPU cores, minimum 2.0 Ghz	64 GB	300 GB
Up to 72 nodes	24 CPU cores, minimum 2.2 Ghz	96 GB	700 GB
Up to 288 nodes	32 CPU cores, minimum 2.6 Ghz	256 GB	1.5 TB (SSD)
Up to 648 nodes	32 CPU cores, minimum 2.6 Ghz	256 GB	3.4 TB (SSD)
Up to 1536 nodes	32 CPU cores, minimum 2.6 Ghz	256 GB	9 TB (SSD)

## ABOUT ROCKPORT NETWORKS

Rockport Networks' next generation of high-performance networks unlocks the data center to produce more results, faster, and with better economics and environmental sustainability.

Modeled after the world's fastest supercomputers, the Rockport Switchless Network replaces centralized switch architectures with a distributed, high-performance direct interconnect that is self-discovering, self-configuring and self-healing, and that is simple and transparent to operate. By virtually eliminating congestion and latency, data center workloads can be completed significantly faster, enabling organizations to improve ROI and make critical decisions more quickly.