



PRODUCT BRIEF

CN8000 Multi-Link Ethernet Encryptor

10 x 10 Gbps - 100 Gbps Total Encrypted Bandwidth

The quantum powered CN8000 enables ultra-secure multi-link encryption of Layer 2 network Ethernet traffic, up to 100 Gbps in one compact chassis, with no overhead and minimum latency.

CN8000 is versatile

The CN8000, a Swiss-manufactured multi-link encryptor, delivers cost-effective protection of high-speed data traffic on large-scale data networks. Encrypting up to 100 Gbps of Ethernet Layer 2 network traffic, it delivers the performance capabilities of ten 10 Gbps encryptors in one appliance. The CN8000 provides highly secure, full line rate transparent encryption over Ethernet networks in point-to-point, hub and spoke, or meshed environments for LANs, MANs, or WANs.

CN8000 is scalable

Ensuring maximum cost-effectiveness, flexibility, and scalability, the CN8000 offers transparent end-to-end network encryption to enable seamless network migrations and upgrades.

Variable speed licenses up to ten 10 Gbps Ethernet and a 'Bump-in-the-wire' design make the CN8000 easy to install and highly cost-effective. "Set-and-forget" and transparency are underlying design themes, helping to ensure simplicity of implementation, operation, and management, and reducing resource requirements to a minimum. The CN8000 ensures ultra-low latency (8µs microseconds) at 10 Gbps for high performance.

Working in point-to-point, point-to-multipoint, and fully meshed multipoint modes, the CN8000 supports the encryption of unicast, broadcast, and multicast communications. Compatible with all CN encryptors, CN8000 encryption cards can be connected in a meshed network to multiple other encryptors in a campus or wide area network. This enables customers to standardize on one platform to secure data in motion across large hub and spoke or meshed networks.

Advanced group key encryption ensures easy management of such multipoint environments, with separate keys for different VLANs or MAC addresses.

Supporting over 500 concurrent encrypted connections, the CN8000 operates at full line speed without packet loss to ensure the confidentiality of encrypted data regardless of frame size or application.

Why CN8000 Series Encryptors?

No-compromise performance

- > Near-zero latency
- > Maximum bandwidth
- > Minimum overhead
- > Scalable and flexible
- > Simple to manage
- > Secure transmission of data through Layer 2 networks
- > Quantum powered
- > Defense-grade and ultra-reliable 99.99% up-time data security

FPGA flexibility

- > Field Programmable Gate Array chip technology
- > Provides cut-through architecture
- > Enables customization
- > Hardware flexibility

Our high-speed encryptor technology is used by governments, defense forces, and commercial organizations in more than 25 countries.

CN8000 is secure

Providing high quality encryption key generation and distribution, the quantum powered CN8000 has a quantum random number generator built into its hardware. Designed to be certified Common Criteria & FIPS 140-2, the CN8000 is tamper resistant, employs automatic key management, and utilizes robust AES 256-bit algorithms. Advanced security features also include granular policy management and separation of duties on a per-card and per-device level. This is ideal for multi-tenant environments, enabling, crypto separation between data center clients or divisions within an organization.

The intrinsic key generation and distribution capability in CN8000 removes reliance on external key servers and provides robust fault-tolerant security architecture, while its rugged tamper-resistant chassis gives uncompromising protection to key material held in the encryptor.

Data Center Interconnect and WAN/MAN/LAN Ethernet Services

With the pervasive growth of Ethernet services, CN8000 is the ideal solution for enterprises, government, and service providers. The CN8000 addresses the need for highly secure, highly resilient wire-speed encryption of Ethernet traffic for data center interconnect and metro or wide area Ethernet services.

Management and Network

SafeNet offers two management options. Security Management Center* (SMC) is an enterprise manager and CM7 is an "element manager" more suited for smaller, more homogenous deployments. Both offer a simple-to-use local and remote encryptor management application that provides users with comprehensive and intuitive management functionality. Both encryptor managers provide simple, secure remote management either out-of-band using a dedicated Ethernet management interface, or in-band using the encrypted Ethernet port. Local management using a command line interface is available via a serial console connector.

SFP optical interfaces allow operation over single mode fibre, multi mode fibre, or over WDM services by choosing an appropriate wavelength.

Ethernet standards compliant, the CN8000 is fully interoperable with industry standard network equipment from leading vendors.

CN8000 At-A-Glance

MODEL	CN8000
Protocol	Ethernet
Maximum port speed	10 Gbps
Maximum chassis throughput	100 Gbps
Support for jumbo frames	✓
Security	
Tamper resistant and evident enclosure	✓
Flexible encryption policy engine	✓
Per packet confidentiality and integrity with AES-GCM	✓
Encryption policy	
AES 128-bit or 256-bit keys	128/256-bit keys
Quantum random generator	✓
Supports optional 3rd party quantum key distribution (QKD)	✓
Policy based on MAC address or VLAN ID	✓
Self-healing key management	✓
Performance	
Low overhead full duplex line rate encryption	✓
Latency (microseconds per link)	<8
FPGA based cut-through architecture	✓
Management	
Centralized config & management using CM7/SMC* & SNMPv3	✓
Support for external (X.509v3) CAs	✓
Remote management using SNMPv3 (inband and out-of-band)	✓
NTP (time server) support	✓
CRL and OCSP (certificate) server support	✓
Maintainability / interoperability	
In-field firmware upgrades	✓
Dual hot swappable AC power supplies	✓
User replaceable fans	✓
Fully interoperable with related CN models	✓
Physical and installation	
Front panel access for all interfaces	✓
Chassis airflow	Front to rear

Specifications

Cryptography

- > AES 128-bit or 256-bit key, X.509 certificates
- > CTR, GCM modes

Performance

- > 10 Gbps full-duplex Ethernet encryption per card - (< 8µs latency) up to 100 Gbps total bandwidth

Device management

- > Dedicated management interface (out-of-band)
- > Or via the encrypted interface (in-band)
- > SNMPv3 remote management
- > SNMPv2c traps
- > SNMPv1 read only monitoring
- > IPv4 & IPv6 capable
- > Supports Syslog, NTP
- > Alarm, event, and audit logs
- > Command line serial interface

Installation

- > Size: (4U), 430,460,175mm / 17.2, 18.1, 6.9 inches (WxHxD)
- > Rack mountable
- > Maximum Weight: 22kg / 49lbs.

Interfaces

- > SFP+
- > Front panel network connections
- > Front panel LED display status

Indications

- > Color backlit LCD display
- > RS-232 serial console for CLI connection
- > USB port
- > RJ45 SNMP management port
- > RS-232 serial console for quantum key channel (for QKD connection)

Power Requirements

- > Input: 100 to 240V AC;1.5A; 60/50Hz
- > Power: 300 watts for 10 links

Physical security

- > Active/passive tamper detection and key erasure
- > Tamper-evident markings
- > Anti-probing barriers

Regulatory Safety (in process)

- > EN 60950-1 (CE)
- > IEC 60950-1 Second Edition
- > AS/NZS 60950.1
- > UL Listed
- > EMC (Emission and Immunity)
- > ICES-003 (Canada)
- > EN 55022 (CE)
- > AS/NZS CISPR 22 (C-Tick)
- > EN 61000-3-2 (CE)
- > EN 61000-3-3 (CE)
- > EN 55024 (CE)
- > EN 61000-3-3 (CE)
- > EN 55024 (CE)
- > Environmental (in process)
- > RoHS compliant
- > Max operating temperature: 40°C /104°F
- > 0 to 80% RH at 40°C/104°F operating

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