

XELERA

NET

Elevate Datacenter Efficiency



SOFTWARE-DEFINED DPU

The growth in network traffic is being driven by data-centric applications. The CPU-intensive network tasks that accompany rapidly increasing network throughput are placing a significant strain on traditional data centers, particularly in the context of large-scale AI clusters. Xelera Net is a Data Processing Unit (DPU) software that accelerates network tasks and eliminates the performance bottlenecks of servers performing PQC-hardened security tasks on 100GbE-400GbE networks. By offloading IPsec to SmartNICs, Xelera Net delivers a 2×100Gbps IPsec bandwidth. This turnkey solution provides the highest level of accessibility to SmartNIC technology.

Facts

- Software-defined DPU for 100GbE - 400GbE networks
- Turn a COTS server into a high-performance network security appliance
- 2×100 Gbps aggregate IPsec throughput on COTS servers
- Exchangeable accelerators on a single hardware platform
- NIST Level 5 PQC-ready

KEY BENEFITS



Line-Rate Performance

Simultaneous 100Gbps IPsec encryption and decryption



Full Offload

Full data plane offload from CPU cores to the SmartNIC hardware



High Integration

IPsec ESP API; High-performance driver; Interface to third-party IPsec key exchange tools (strongSwan)



High Efficiency

The total cost of ownership (TCO) savings will be realized by freeing up all CPU cores for other applications.

ACCELERATOR MODES

Inline Accelerator – Host Mode

IPsec encryption with host termination

100 Gbps Full-Duplex Bandwidth

Inline Accelerator – Gateway Mode

IPsec encryption between two adjacent SmartNIC ports

100 Gbps Full-Duplex Bandwidth

Software-Based Accelerator

Performance-optimized IPsec software on x86 CPUs

17 Gbps Bandwidth per core

FEATURES AND SPECIFICATIONS PER CARD

Extended traffic selection:

Route-based IPsec using XFRM (Linux)
VTI (FreeBSD)

Dynamic reconfiguration:

Hot-swappable region can be replaced
with network functions other than IPsec

NAT Traversal:

NAT-T support

Trusted Platform Support / Secure Boot:

Firmware encryption / Firmware
authentication

Network Interface:

2×100 Gbps
2×400 Gbps

PCIe Interface:

Dual PCIe Gen4 ×8
SR-IOV support

Software Integration:

DPDK, Linux and FreeBSD driver; API
for SA and policy management;
strongSwan Integration

PQC Support:

Hybrid key exchange with
ML-KEM-1024

Full IPsec ESP Offload:

100 Gbps / 4×25 Gbps IPsec encryption
100 Gbps / 4×25 Gbps IPsec decryption

IPsec Mode:

Tunnel Mode and Transport Mode

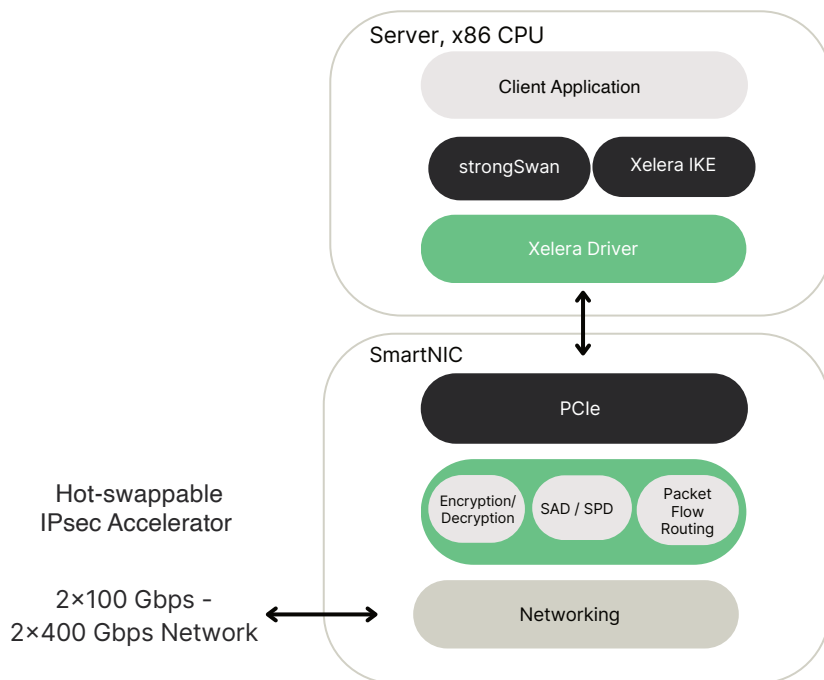
IPsec Sessions:

1-16384 sessions encryption +
1-16384 sessions decryption
AES-GCM 128/256, 12/16 Byte ICV
compliant with RFC 4303

SUPPORTED HARDWARE

Xelera Net is a Data Processing Unit (DPU) software that
supports multiple third-party SmartNIC hardware platforms.

ARCHITECTURE



**Do you want to get more
information about Xelera Net?**

Get started!



XELERA NET SUITE

The Xelera Net Suite provides
multiple high-speed network
infrastructure offloads.



IPsec

High-speed IPsec
offload from CPU
cores



DDoS Detection

Low-latency packet and
flow inspection



TLS Offload

High-bandwidth TLS
offload



RDMA & NVMe

Accelerating
storage networks