

## Security Processors

# NITROX<sup>®</sup> V Security Processor Family

### Product Brief



## OVERVIEW

The NITROX V Security Processor family delivers unprecedented performance for security in the enterprise and virtualized cloud data centers. The NITROX V security processor family integrates up to 288 purpose-built security cores with high performance compression engines and virtualization hardware with PCI-Express Gen 3 and Interlaken interfaces. The highest end member of NITROX V family provides 120K 2048b RSA Ops/s, 300K p256 ECC Ops/s, 100 Gbps bulk encryption performance for a variety of different protocols and 100 Gbps Compression along with virtualization and best power consumption per operation.

Target applications for NITROX V Security Processors include cloud data center servers and networking equipment, enterprise and service provider equipment including servers, Application Delivery Controllers, UTM Gateways WAN Optimization Appliances, routers, and switches and the borderless enterprise environments.

## FEATURES

Sixth Generation Security processor with proven feature set and quality software

- High performance security processing
- 15 Gbps – 100 Gbps Security Performance
  - 45K -300K ECC Ops/s (p256)
  - 20K – 120K RSA Ops/s (2048 bit keys)
  - 288 RISC engines with instruction space

- High-performance, industry standard compression
- 20 – 100 Gbps GZIP / LZS Compression

- Virtualization
- Single Root – IO Virtualization (SR-IOV) support in hardware
  - Up to 256 Virtual Functions

- High-performance, industry standard interfaces
- Dual PCI-Express Gen 3 x4, x8 (100+ Gbps)
  - Dual Interlaken x8 lanes (100+ Gbps)

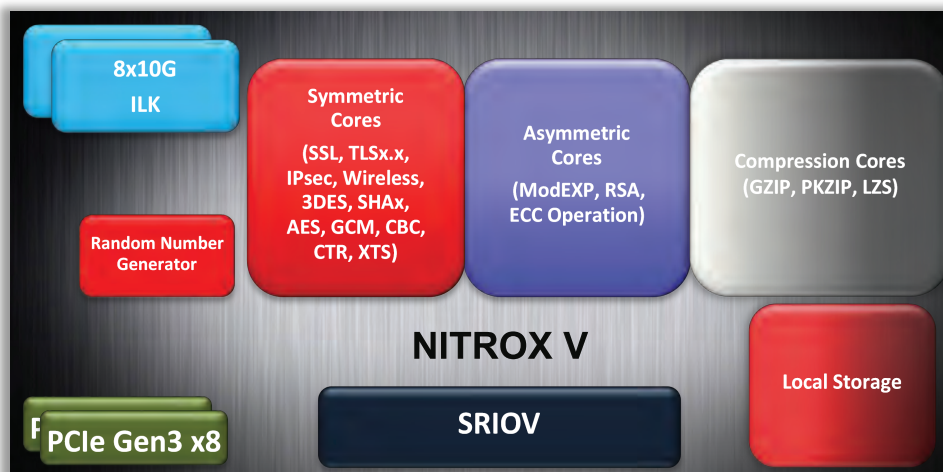
- Wide variety of algorithms supported
- IPSec, SSL, TLS 1.2, DTLS, ECC (p224, p256, p384, p521)
  - DES, 3DES, AES 256-bit (ECB, CBC, XCBC, CNTR, GCM)
  - MD5, SHA-1, SHA-2, SHA-3, MAC-MD5/SHA-1/SHA-2, SHA-3, HMAC-MD5/SHA-1/SHA-2 (including SHA-224, SHA-256, HA-384, SHA-512)
  - RSA 2048, RSA 4096, RSA 8192, Diffie-Hellman, KASUMI, Snow3G, Zuc

- Random Number Generator
- FIPS 140-3 compliant True RNG

- Package
- Package: 27 x 27 mm FCBGA
  - No external memory required

## BENEFITS

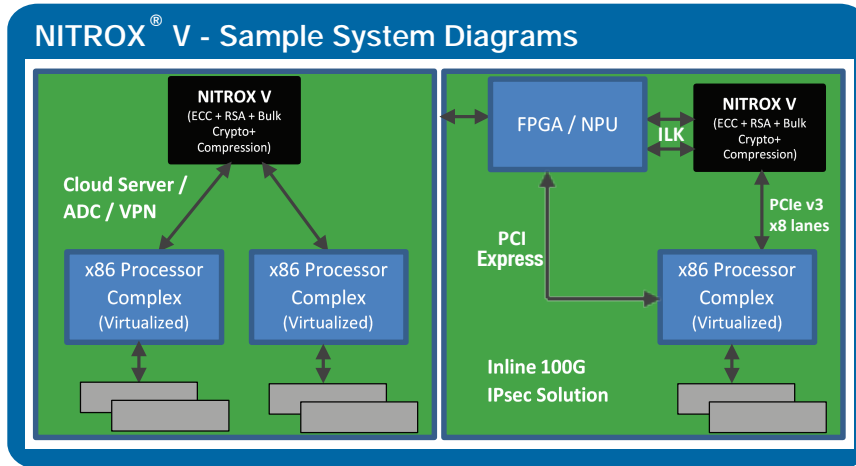
- Highly stable, secure and reliable hardware and software solution
- Delivers high throughput and broad scalability for next-generation Cloud Data Center, Enterprise & Service provider applications
- Ideal for Virtual environments
- Provides flexible options for popular current and next-generation system interconnects
- Meets security acceleration needs of next-generation applications with latest security algorithm support
- Combines key functionality into a single, high-performance, low-power chip – Security, Compression, Virtualization, & Random Number Generator
- Future proof implementation. Custom / new crypto protocols using instruction space



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### NITROX V Applications

#### Cloud Server Offload

- Web, Mail, Search
- VM to VM IPsec tunnels

#### Data Centers

- Application Delivery Controllers (ADC)
- WAN Optimization
- Storage Appliances

#### Enterprise

- UTM Gateway
- Routers
- WAN Optimization
- VPN/Firewall
- Intrusion Prevention Appliances

### NITROX V Software Support

#### Multi-Protocol Support

- SSL, TLS, IPsec, Wireless
- Full Protocol processing with specialized Macro API functions

#### Extensive Operating System and Crypto Stack Support

- Software drivers for popular operating systems and Hypervisors such as Linux, BSD, DPDK, Windows, XEN and KVM.
- OpenSSL, KAME IPsec, PKCS#11, JCA

### NITROX<sup>®</sup> V - Product Family

Device	Data Interface	p256 ECC Ops/sec	RSA 2048 Ops/sec	Full IPsec Processing	Full SSL Record Processing	Compression
CNN5530-550-C20	1x PCIe Gen3x8 1x ILK 8 x 10G	45,000	20,000	15Gbps	15Gbps	15Gbps
CNN5560-550-C30	1x PCIe Gen3x8 1x ILK 8 x 10G	90,000	35,000	30Gbps	30Gbps	30Gbps
CNN5560-750-C40	1x PCIe Gen3x8 1x ILK 8 x 10G	125,000	50,000	40Gbps	40Gbps	40Gbps
CNN5560-900-C50	1x PCIe Gen3x8 1x ILK 8 x 10G	150,000	60,000	50Gbps	50Gbps	50Gbps
CNN5580-900-C100	2x PCIe Gen3x8 2x ILK 8 x 10G	300,000	120,000	100Gbps	100Gbps	100Gbps