

Security Processors

NITROX® PX Family of Security Processors

Product Brief



OVERVIEW

The NITROX PX Security Processor family is the latest addition to Cavium Networks' market-leading NITROX Security Processor family. It provides the highest performance for cryptographic acceleration of next-generation IP Security (IPsec), Secure Sockets Layer (SSL) and Wireless LAN/WAN security applications with the latest security algorithms. The NITROX PX family includes the CN16XX family with PCI-Express interface and CN15XX family with PCI-X interface. Both product families will be fully software compatible with Cavium Networks' NITROX family of security processors. Additionally, the CN15XX family is pin and hardware compatible with the NITROX Lite CN10XX Product family.

Target applications for the NITROX PX processors include integrated Firewall/VPN appliances, L4+ switches, Wireless LAN switches, 3G infrastructure equipment, and SAN appliances.

FEATURES

High performance security processing for look-aside architecture

- Scalable from 100 Mbps – 2.5 Gbps
- 2.5 Gbps IPsec, SSL Record Processing & WLAN Security
- 17K RSA Ops; 2.5 Gbps KASUMI

High-performance, industry standard interfaces

- PCI-Express x4 (CN16XX family)
- PCI-X 64-bit, 133 MHz (CN15XX family)

Software and footprint compatible with existing NITROX Security Processors

- Fully software compatible with NITROX family
- CN15XX family footprint compatible with NITROX Lite CN10XX family and NITROX CN1120

Wide variety of algorithms supported including AES-GCM, SHA-2, RSA 4096 and KASUMI

- DES, 3DES, ARC4, AES 256-bit (ECB, CBC, XCBC, CNTR, GCM)
- MD5, SHA-1, SHA-2, MAC-MD5/SHA-1/SHA-2, HMAC-MD5/SHA-1/SHA-2 (including SHA-224, SHA-256, SHA-384, SHA-512)
- RSA (4096 w/o CRT), Diffie-Hellman
- KASUMI

256 and 233 BGA packages; 2-4 W power dissipation

Complete solution including SDK, evaluation and production boards

BENEFITS

Delivers high throughput and broad scalability for next-generation wired and wireless - Enterprise, Data Center and Telco appliances

Provides flexible options for popular current and next-generation system interconnects

Enables easy migration, and protects customer investment in existing NITROX Security Processor based designs

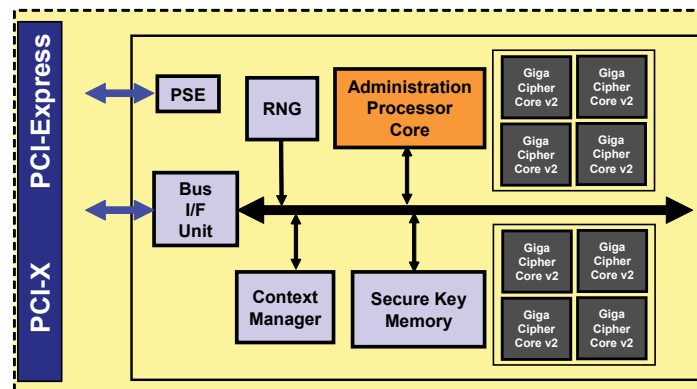
Meets security acceleration needs of several next-generation applications with latest security algorithm support

- Integrated VPN/Firewall appliances
- Load Balancers/L4+ Switches
- Wireless LAN and WAN equipment
- Security Telco gateways
- SAN appliances

Allows small form factor designs with low-power, simple thermal characteristics

Accelerates time-to-market with complete solution availability

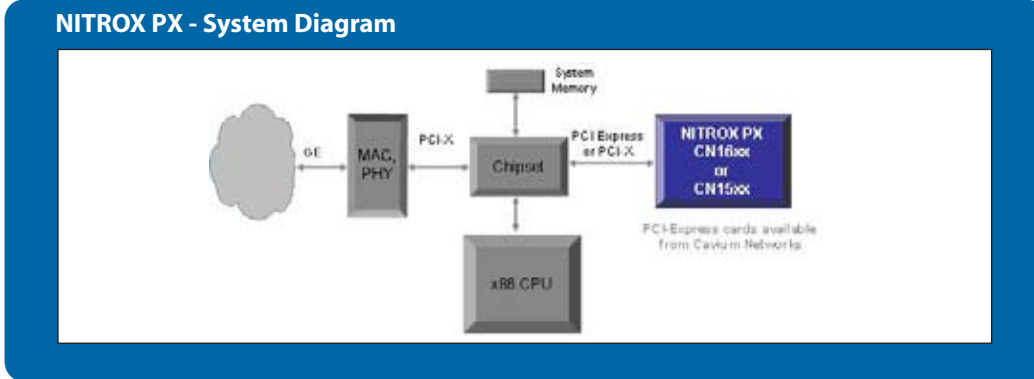
NITROX PX CN15XX/CN16XX - Block Diagram



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NITROX PX Applications

Integrated Security Appliances

- IPsec acceleration
- SSL acceleration for SSL VPN functionality

Web Switches and Appliances

- SSL/TLS Termination and Content Switching
- Content Aware Server SSL Proxy

Web and Mail Servers

- SSL acceleration for Web Servers - Microsoft IIS and Linux Apache
- Signature verification for B2B exchanges

Remote Access Servers using SSL

- Servers with SSL secure email and other web-enabled applications like CRM and ERP suites

WLAN Switches

- 802.11i and IPsec termination

3G Wireless Infrastructure

- KASUMI processing

Storage Appliances

- Data-at-rest and data-on-the-fly encryption

NITROX PX Software Support

Multi Protocol Support

- IPsec, WPAv2 (802.11i), SSL, TLS and WTLS

Full Protocol Processing with specialized Macro API functions

- Macro API functions result in dramatic reduction of required I/O bus bandwidth
- WLAN API

Adapts to handle various bandwidth requirements of different cryptographic operations

- NITROX can adapt to various asymmetric (tunnel setup/handshake) and symmetric (encryption) processing loads based on application demand

Software drivers for popular operating systems such as Linux, BSD and Windows

NITROX PX CN15XX and CN16XX - Product Family

Device	IPsec (i), SSL (s) or Multi-Service (p) Support	Data/Control Interface or Alternate Data Path	Local DDR2 required for SA or Context	Performance	
				MAX RSA 1024-bit Exponent	Full IPsec or SSL Processing Throughput Mbps (w/AES + SHA)
NITROX PX CN15XX - PCI-X Look-aside Processors					
CN1505-350BGA256	i, s, w or p	PCI-X 64bit / 133 MHz	No	4K	500 Mbps
CN1510-350BGA256	i, s, w or p		No	8K	1.0 Gbps
CN1515-350BGA256	i, s, w or p		No	13K	1.5 Gbps
CN1520-400BGA256	i, s, w or p		No	17K	2.5 Gbps
NITROX PX CN16XX - PCI-Express Look-aside Processors					
CN1605-350BGA223	i, s, w or p	PCI Express x4	No	4K	500 Mbps
CN1610-350BGA223	i, s, w or p		No	8K	1.0 Gbps
CN1615-350BGA223	i, s, w or p		No	13K	1.5 Gbps
CN1620-400BGA233	i, s, w or p		No	17K	2.5 Gbps



805 East Middlefield Road
Mountain View, CA 94043
T 650.623.7000
F 650.625.9751
E sales@caviumnetworks.com
www.caviumnetworks.com