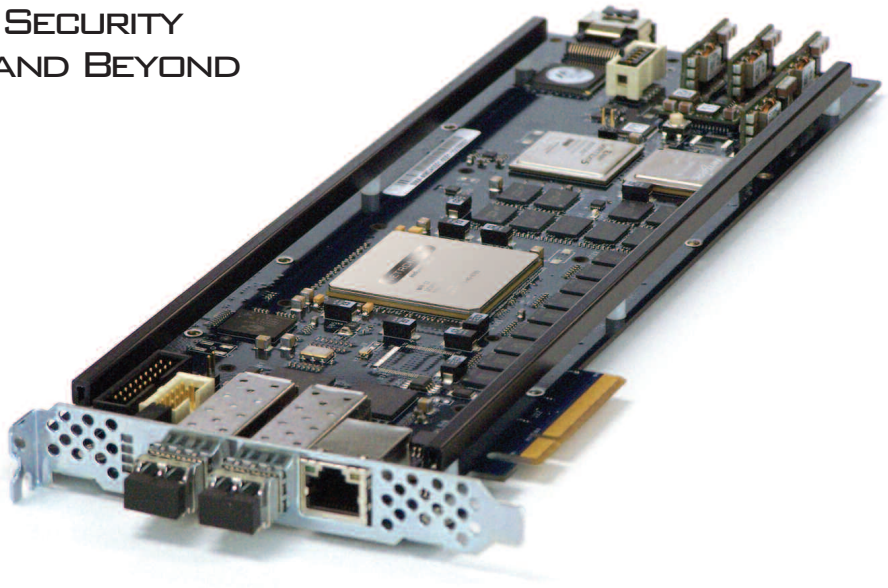
Netronome Network Flow Engine NFE-3240

Accelerate Network and Security Applications to 40 Gbps and Beyond



Netronome's Network Flow Engine (NFE-3240) is the industry's highest-performance PCIe acceleration card specifically designed to improve the network performance of Intel®-based appliances and servers. Available in 2-port 10 Gigabit Ethernet and 6-port Gigabit Ethernet options, the NFE-3240 provides up to 20 Gbps of line-rate programmable packet and flow processing per card, providing a 10x performance increase over standard NICs in real-world network and security applications running on IA/x86 systems. The NFE-3240 enables the acceleration of network and security applications by utilizing high-performance packet processing delivered from 40 networking-optimized microengine processor cores. The NFE-3240 utilizes several techniques to dramatically improve network I/O workloads, including packet classification, stateful flow analysis, deep packet inspection and dynamic load-balancing of flows across a high-performance virtualized PCIe datapath to multiple x86 CPU cores to parallelize application processing.

Benefits

- Powered by Netronome's Network Flow Processor (NFP), the NFE provides up to 20 Gbps of packet and flow processing per PCIe card
- The ability to perform over 1,800 instructions/packet at 30 million pps delivered from 40 microengine RISC cores operating at up to 1.3 GHz
- Line-rate flow processing, packet inspection and packet capture across all packet sizes
- Integrated security processing including 20 Gbps of line-rate cryptography and PKI operations
- Enhanced I/O virtualization (IOV) support offering bandwidth guarantees and isolation with extremely low latency to over 2,000 x86 destinations (endpoints)
- Exemplary development tools including a GUI-based software development kit, C-based APIs, extensive software libraries and sample applications
- Green computing through the industry's highest BIPs (billion instructions per second) per watt

Features

- High-performance network flow processing powered by the NFP-3240 (40 MEs @ up to 1.2 GHz)
- Packet classification for up to 128,000 rules
- Stateful flow analysis and action processing for up to 8 million flows in hardware
- Flexible interface options including 2x10GigE and 6x1GigE and a netmod interface
- High-speed PCIe Gen2 interface with 8 lanes offering up to 40 Gbps of bandwidth between the NFE and the host x86 system
- Hardware-based cryptography and PKI operations
- Low latency with less than 100µs for inline x86 applications and less than 40µs for full traffic offload onto NFE
- I/O virtualization through an enhanced version of the SR-IOV standard
- Packet timestamping with 11ns accuracy
- GPS time synchronization
- Dynamic load balancing to parallelize application performance
- Full programming flexibility to support network or protocol changes
- Fully supported C APIs
  - PCIe messaging datapath and tools for microengine (ME) programming
  - An abstraction layer that controls the packet processing occurring in the NFE MEs

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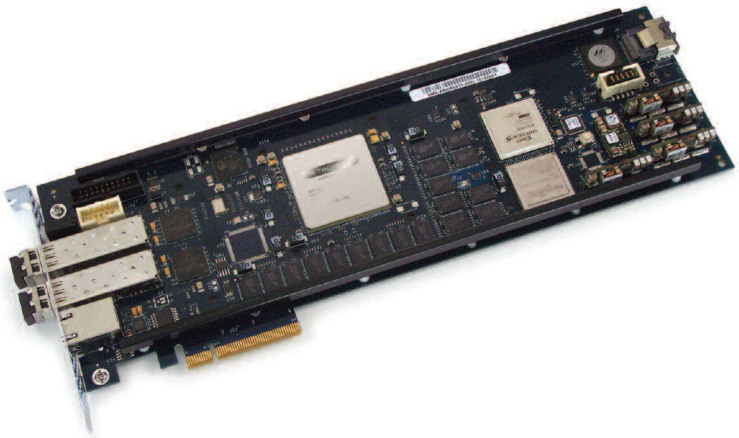
Netronome's Network Flow Engine PCIe cards offer a highly programmable heterogeneous multicore architecture that tightly couples the Netronome NFP microengine cores — for switching and routing, packet classification, stateful flow analysis, deep packet inspection, flow-based load balancing and security processing — with the performance and ubiquity of general-purpose multi-core x86 systems over a high-speed virtualized PCIe datapath.

THE Flow Processing COMPANY

For more information about other Netronome products, please visit www.netronome.com.



Specifications

Model Number NFE-3240
Network Ports ..... Two 10GigE, six 1GigE or netmod interface options
NPU Type NFP-3240
NPU Clock ..... up to 1.2Ghz
TCAM ..... up to 36MB
QDR SRAM ..... up to 32MB @ 300Mhz
DDR3 ..... up to 4GB @ 1066Mhz
Media Types ..... Twisted-pair copper or fiber
Port Speeds ..... 10 Gbps or 1000 Mbps
Connectors ..... RJ-45 or SFP+
Bus Type ..... PCI Express Gen 2 x8
Power ..... 75W (maximum)
Diagnostic LEDs ..... Link status, network activity, and status
Platforms 64-bit IA/x86-compliant

Environmental

Operating Temperature ..... 0-50°C
Storage Temperature ..... –10-70°C
Operating Humidity ..... 10-90% (non-condensing)

Dimensions

Dimensions (without extender bracket) .....
311.988mm (12.283") x 98.400mm (3.874") x 14.10mm (0.555")
Dimensions (with extender bracket) .....
337.988mm (13.307") x 98.400mm (3.874") x 14.10mm (0.555")
Weight (including two SFP+ Modules) ..... 400g (14.11 oz.)

Development Kit

Netronome offers a development kit for the NFE. Included in the kit are sample applications, reference SDKs, NFE cards, SFPs and a Development Port Interface Card (DPIC). The DPIC provides an additional serial port and physical reset switch.

NFE Development Kit

Netronome Network Flow Engine Family

	NFE-3240-20F-CB-10	NFE-3240-20F-CA-10	NFE-3240-6C-CA-10	NFE-3240-1N-CA-10	NFE-3240-1N-CC-10	NFE-3240-20F-DC-00	NFE-3240-6C-DC-00	NFE-i8000
NPU Type	NFP-3240	NFP-3240	NFP-3240	NFP-3240	NFP-3240	NFP-3240	NFP-3240	IXP-2855
NPU Clock	1.1Ghz	1.2Ghz	1.2Ghz	1.2Ghz	1.2Ghz	1.0Ghz	1.0Ghz	1.4Ghz
TCAM	36Mb	36Mb	36Mb	36Mb	Algorithmic (SW)	Algorithmic (SW)	Algorithmic (SW)	9Mb
QDR2 SRAM	32MB	32MB	32MB	32MB	--	--	--	40MB
DRAM	8GB DDR3	4GB DDR3	4GB DDR3	4GB DDR3	4GB DDR3	4GB DDR3	4GB DDR3	768MB (RDRAM)
Crypto and PKI Acceleration	Yes	Yes	Yes	Yes	Yes	No	No	Yes
Virtualized I/O	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Ports(s)	2x10GigE	2x10GigE	6x1 GigE	Netmod	Netmod	2x10GigE	6x1GigE	4x1 GigE
PCI-e Form Factor	Full length, full profile	Full length, full profile	Full length, full profile	Full length, full profile	Full length, full profile	Half length, full profile	Half length, full profile	Full length, full profile
PCIe	Gen2 x8	Gen2 x8	Gen2 x8	Gen2 x8	Gen2 x8	Gen2 x8	Gen2 x8	Gen1 x4

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Netronome has operations in:
USA (Pittsburgh [HQ], Santa Clara & Boston), UK (Cambridge), Malaysia (Penang), South Africa (Centurion) and China (Shenzhen, Hong Kong)

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