

# NETRONOME NETWORK FLOW ENGINE NFE-3240

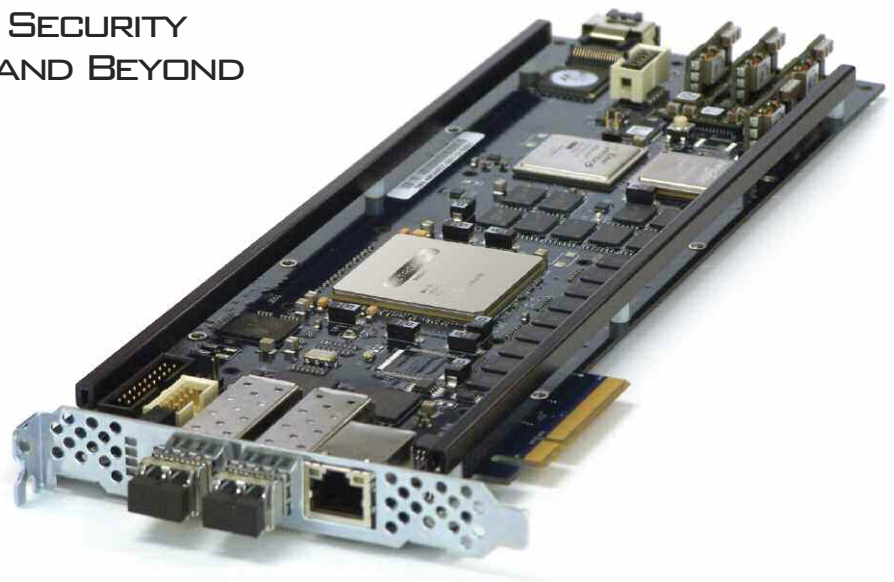
NETRONOME®

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 1.4 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 @1.4 GHz)
- TCAM-based 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 11 ns 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.*

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### 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*

### Specifications

Model Number .....	NFE-3240
Network Ports .....	Two 10GbE or six 1GbE ports
NPU Type.....	NFP-3240
NPU Crypto .....	Yes
NPU Clock.....	1.4Ghz
TCAM .....	36MB
QDR SRAM .....	32MB @233Mhz
DDR3.....	4GB @1333Mhz
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 .....	10°-45°C
Storage Temperature .....	0-50°C
Operating Humidity .....	5-95% (non-condensing)

### Dimensions

The NFE conforms to the PCIe standards for a standard-height, full-length card PCIe card.



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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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