

# NETRONOME FLOW ENGINE ACCELERATION CARD

NETRONOME™

As networking requirements continue to evolve, application performance and appliance scalability have become critical to helping IT organizations increase network bandwidth, deploy new applications, manage security threats and reduce operational costs. The Netronome Flow Engine (NFE) acceleration card that enables application acceleration, deep packet inspection and flow analysis in a highly scalable manner—addressing the needs of both developers and users of network appliances for significantly increased application performance and greater control over network traffic.

## Simplified Acceleration for Network and Security Applications

The NFE provides an open application programming interface for network and security appliances that require acceleration. The NFE allows appliance manufacturers to quickly improve the performance of existing products, accelerate the development of their next-generation applications and reduce overall development costs. The NFE enables network and security appliance vendors to focus development on their software applications, while simultaneously benefiting from hardware acceleration that significantly increases performance. In conjunction with the Netronome Flow Manager (NFM), the NFE allows network appliance vendors to increase their application performance and I/O throughput without requiring modification to existing applications or complicated programming of underlying acceleration hardware.

The NFE provides line-rate performance for flow processing and deep packet inspection, creating unmatched visibility and control of traffic at Layers 2-7 for 1,000,000 simultaneous flows. The NFE enables network and security application vendors to quickly take advantage of these capabilities with their current Linux®-based applications on any standard Intel® Architecture (IA)/x86 design.

This unique combination of accelerated network performance, granular flow visibility and reduced time-to-market makes the NFE an ideal solution for network appliances used for:

- Security policy enforcement and compliance monitoring;
- Intrusion detection and prevention;
- Unified threat management;

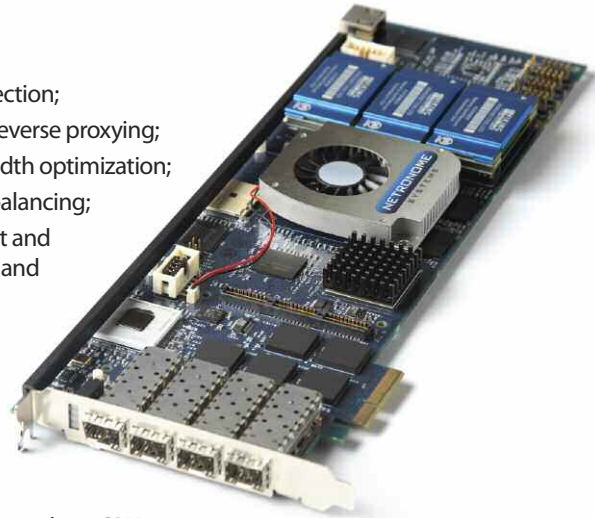
- Deep packet inspection;
- URL filtering and reverse proxying;
- LAN/WAN bandwidth optimization;
- Application load balancing;
- Test, measurement and service assurance; and
- Lawful intercept (CALEA).

## Benefits

- Improved Server/Appliance Performance:
  - Significantly improve host CPU utilization by offloading flow analysis and deep packet inspection to the NFE accelerator coprocessor and by cutting through specific flows in hardware.
  - Load balance flows across IA/x86 multi-core CPU architectures.
- Line-rate Throughput: 4x1 gigabit Ethernet line-rate flow processing and deep packet inspection.
- Standards-based: Integrates with most Linux-based, IA/x86 systems via PCI Express bus.
- Application Preservation: Simple integration enhances performance and extends the usability of existing Linux-based applications.
- Future-proof: Mezzanine expansion connector to support future enhancements.

## Features

- Intel IXP2855 NPU (16 microengines, plus crypto hardware)
- PCI Express high-performance card
  - x4 card with four active lanes
  - Custom FPGA optimizes NPU to CPU interface
  - Support for multi-processor motherboards and multi-core processors
  - Four SFP ports for flexible connectivity
- Hardware cryptography support
  - Integrated symmetric crypto unit
  - Integrated asymmetric public key co-processor
  - True random number generator
- Powered by the Netronome Flow Driver (NFD) that provides an interface between the NFE and the host CPU, enabling developers to optionally write their own software to the NPU.



*The NFE family of acceleration cards is an ideal platform for security and network appliance vendors looking to accelerate network and application performance while reducing time-to-market.*

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to the Core™

*For more information about other Netronome products, please visit [netronome.com](http://netronome.com).*

## Development Kit

Netronome offers a development kit for the NFE. Included in the kit are sample applications, reference SDKs, NFE-i8000 cards, SFPs and a Development Port Interface Card (DPIC). The DPIC provides an additional 10/100 Ethernet port, serial port and physical reset switch.

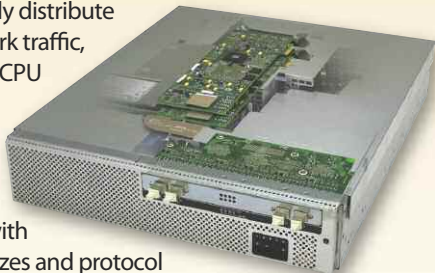


NFE Development Kit

## Netronome 10Gbps Network Flow Processing Solution

Netronome's network flow processing solutions deliver high-performance packet processing with intelligence, security and virtualization for millions of simultaneous flows through several unique features, including:

- Hardware-based flow processing with line-rate packet capture of network traffic, enabling lossless deep packet inspection applications with granular application- and content-specific policy control.
- Flow-aware adaptive load balancing to exploit multicore CPU parallelism and an efficient zero-copy driver, combine to quickly and evenly distribute 10Gbps of network traffic, maximizing host CPU performance.
- Up to 40Gbps of total throughput for real-world traffic patterns, with variable packet sizes and protocol mixes, to support the increasing bandwidth requirements of enterprise and service provider networks.
- Less than 80 microseconds of delay, far exceeding industry-standard requirements for latency in 1Gbps and 10Gbps in-line network and security appliances.
- High-availability network interfaces, including integrated bypass, necessary for resilient deployment in in-line network topologies.



## Specifications

Model Number.....	NFE-i8000
Network Ports.....	Four Gigabit Ethernet ports
NPU Type.....	IXP2855
NPU Crypto.....	Yes
NPU Clock.....	1.4Ghz
TCAM.....	9Mb
QDR2 SRAM.....	40Mb
RDRAM.....	768Mb
Media Types.....	Twisted-pair copper or fiber
Port Speeds.....	1000Mbps
Connectors.....	SFPs—RJ-45 or Duplex LC
Media.....	1000 BaseT, CAT 5 or better; 1000 Base-SX
Bus Type.....	x4 PCI Express 1.1
Power.....	65W (maximum)
Standards Compliance.....	ANSI/IEEE Std. 802.3, 2000 (1000 Base-T), FCC, CE, CSA
Diagnostic LEDs.....	Link status and network activity
Platforms.....	32-bit or 64-bit IA/x86-compliant
Package Contents.....	NFE-i8000, Manual, CD (documentation, drivers, sample applications)

### Environmental

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

### Weight and Dimensions

Full-length card (includes extender bracket)	
(with extender) 4.553" [115.6 mm] X 13.213" [335.6 mm]	
(without extender) 4.553" [115.6 mm] X 12.223" [310.5 mm]	

### Weight

(with four SPFs and w/bracket).....	16.00 oz. (453g)
(with four SPFs and w/o bracket).....	15.80 oz. (448g)



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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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