

# Agilio™ LX 2x40 GbE Intelligent Server Adapter

## INTELLIGENT SERVER ADAPTER FOR HIGH-PERFORMANCE CLOUD, SDN AND NFV NETWORKING

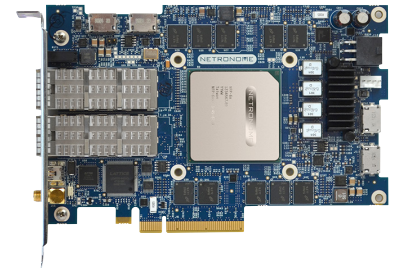
Commercial off-the-shelf (COTS) servers are increasingly used as service nodes for networking and security processing, but often need acceleration to support intelligent applications at high data rates across millions of flows. Netronome's Agilio LX intelligent server adapters (ISAs) deliver high performance server-based networking functions such as load balancing and virtual switching and can be deployed in standard x86 servers for service node applications in the data center.

Netronome Agilio family is specifically designed for virtualized and non-virtualized x86 based service nodes. With a unique architectural approach tightly coupling Netronome flow processing cores with general-purpose multicore x86 processors over a high-speed virtualized PCIe datapath, the solution delivers significant scale and efficiencies for compute-intensive network functions. Netronome ISAs are ideal for hosting high-touch, high-throughput virtualized networking functions (VNFs), such as virtualized evolved packet core (vEPC), intrusion detection and prevention systems (IDS/IPS), next-generation firewall (NGFW), distributed denial of service (DDoS) and load balancing applications.

Netronome ISAs provide a platform to accelerate virtual switching tasks by offloading the entire Open vSwitch (OVS) datapath, eliminating CPU resource constraints, increasing throughput (Mpps) and bandwidth (Gbps) allowing highly virtualized servers to scale within the data center. Other valuable offloads include L2/L3 switching and routing, packet classification and filtering, NAT, tunnel handling, intelligent load balancing and cryptography. By offloading these compute-intensive networking functions, performance can be significantly improved.

Based on Netronome's NFP-6000 flow processor, the dual port 40GbE intelligent server adapter incorporates two PCIe Gen3x8 interfaces, 8GB of DDR3 memory, and 96 highly threaded flow processing cores. Along with Netronome Agilio software, ISAs enable application acceleration with standards-based APIs and SDN configuration protocols delivering unmatched host bandwidth to standard single-, dual- and quad-socket servers optimizing NUMA architectures. The solution enables x86-based COTS servers to deliver application performance and scale at levels previously possible only with custom, proprietary and expensive designs.

Netronome ISAs provide a 10X performance increase over traditional NICs for server-based networking applications running on x86-based service nodes. Addi-



### HIGHLIGHTS

- vSwitch data path offload on popular OS platforms
- SR-IOV, DPDK, zero-copy, packet-direct and stateless offloads
- Server-based SDN with stateless and stateful flow processing
- Comprehensive network acceleration technologies
- Industry-leading architecture of intelligent data plane
- Fully programmable control for new network feature rollouts
- Flexible and scalable tunneling and match-action policies

tional hardware accelerators are provided for cryptography, time stamping and SR-IOV. Large on-chip and on-board memories deliver 8M flow table entries and 128k wildcard rules to satisfy the requirements of the most demanding SDN and NFV applications. The ISA family provides line-rate programmable packet and flow processing to keep pace with the rapid change in SDN protocols and standards..

## FEATURES

### Virtual Switch Data Plane Offload

- VXLAN, NVGRE, MPLS, tunnel encapsulation and de-encapsulation
- Programmable support for custom tunnel types
- Flexible packet parsing
- Flexible exact match-action policy offloads
- Flexible wild card match policy offloads
- Hardware-based flow cache for cut-through acceleration
- Stateless and stateful load balancing
- Per-flow metering and QoS

### Network Acceleration and Offloads

- TCP/UDP/IP stateless offload
- Receive-side scaling (RSS)
- Single-Root IOV (SR-IOV)
- Multiple queues per virtual machine
- DPDK, zero-copy, kernel bypass, packet direct

### Acceleration of Compute-intensive Functions

- Bulk cryptography & sophisticated hashing
- Deep packet inspection (DPI)
- Atomic operations
- Per-flow real-time statistics

### Other Features

- Up to 8M flows on card
- Up to 500k tunnels
- P4 and C-programmable for fast feature rollouts

## NETRONOME

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## SPECIFICATIONS

Interfaces	2-port 40GbE, QSFP
Memory	8GB of DDR3 DRAM @1866 Mhz w/ ECC
Processor	NFP-6480 Processor Operating at 1.2GHz
PCIe Interfaces	(2) Gen 3x8
Operating Systems*	Red Hat Enterprise Linux (RHEL), CentOS, Ubuntu
Hypervisors*	Linux KVM
Ethernet	IEEE Std 802.3ba 40 Gigabit Ethernet IEEE Std 802.3ad Link Aggregation and Failover IEEE Std 802.1Q.1p VLAN tags and priority Jumbo frame support (9.6KB) Configuration and diagnostic tools
PCI Express Interface	PCIe Base 3.0-compliant 1.1- and 2.0-compatible 2.5, 5.0 or 8.0GT/s link rate x8 MSI-X vector per Rx/Tx queue pair Interrupt coalescing PCIe mapped LAN, UART
Connectivity	Interoperable with 10GbE switches QSFP to SFP+ connectivity through breakout cable

\*Please ask your Netronome representative for the latest supported O/S and Hypervisors.

## ENVIRONMENTAL REQUIREMENTS

Operating Temp.	5 to 50°C
Storage Temp.	-10 to 60°C
Relative Humidity	5% to 95%, non-condensing
Air Flow	400 lfm (only required with passive heat sink option)

## AGENCY APPROVALS

Certification	NRTL, FCC, EU, RoHS, CE
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## Agilio LX 2x40 GbE Intelligent Server Adapter Block Diagram

