

XtremeScale™ 8042

40GbE Dual Port NIC for PCIe 3.1 x8 Slots



For IT architects building highly efficient software defined data centers, the XtremeScale 8042 is a full-featured enterprise-class NIC supporting a long list of advanced network protocols and operating platforms. The 8042 is also a platform for data center-wide NIC Fabrics delivering advanced acceleration, telemetry and security services which scale with each server, VM or container. For data center traffic engineers, the fabric services running on XtremeScale adapters are software defined through specific firmware products.

Features and Benefits

FOR PCIE 3.1 X8 SLOTS

The XtremeScale 8042 is available for servers with PCIe 3.1 x8 slots. The XtremeScale 8042 is designed specifically for situations where you need 40GbE performance but you have only PCIe 3.1 x8 slots available.

A POWERFUL 40GBE NIC

With two 40Gbps ports, the XtremeScale 8042 provides ultra high throughput. In addition, the ScaleOut Onload application is included and uses kernel bypass technology for latency as low as 2 μs.

A SMART NIC

Inside the ASIC of every XtremeScale 8042 Ethernet NIC is an XtremePacket™ Engine which allows this general purpose NIC to inspect every packet at line-speed.

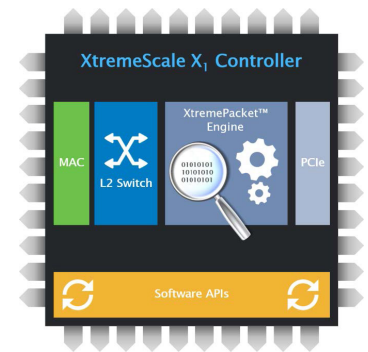
A PLATFORM FOR A SMART NIC FABRIC

Hyperscale cloud service providers are micro segmenting their network services by deploying them in proprietary Smart NIC fabrics which scale with each server. Solarflare's 8000 Series support the industry's first Smart NIC fabric for the enterprise, including shrink-wrapped applications for micro segmented acceleration, packet monitoring and security.

A full-featured 10GbE NIC



A new class of Smart NIC with the FPGA-like ability to inspect packets and shape traffic at line speed



A software defined platform for micro segmented acceleration, security and visibility fabric services which scale with every server, VM or container



Specifications

Optional Fabric Services

- Universal Kernel Bypass (UKB) applications (Onload™, TCP Direct)
- SolarCapture™ application (Packet monitoring and capture)
- SolarSecure™ application (Micro segmented hardware-based packet surveillance, fingerprinting, filtering and firewalls)
- Precision Time Protocol (PTP) application

Stable Precision Oscillator

- Stratum 3 compliant

I/O Virtualization

- 2048 guest OS protected vNICs; SR-IOV; 240 virtual functions; 16 physical functions; 16 NIC partitions

PCI Express

- PCIe 3.1 x8 @ 8.0 GT/s

SFC9240 10G/40G Ethernet Controller

- Supports high-performance 10GbE/40GbE

SFP+ Support

- Supports optical QSFP+ modules including Solarflare SFM40G-SR, Direct-Attach Copper, Active Optical Cables, QSFP+ to SFP+ copper DAC cables

Low Latency

- Cut-through architecture/intelligent interrupt coalescing

Packet Rate

- 60Mpps sustained line rate with all packet sizes

Receive Side Scaling (RSS)

- Distributes IPv4, IPv6 loads across all CPU cores; MSI-X minimizes interrupt overhead

Hardware Offloads

- TSO, LRO, GSO, IPv4/IPv6 and TCP/UDP checksums

IP Flow Steering

- Hardware directs packets based on IP, TCP, UDP headers

Advanced Packet Filtering

- 4096 multicast filters; 4096 VLANs/port; adaptive TCP/UDP/IP, MAC, VLAN, RSS, RFS filtering; Accelerated RFS

Remote Boot

- PXE; unattended installation; UEFI; Solarflare Secure Boot

Management

- SNMP, ACPI v3.0
- MCTP over SMBus

Overlay Network Acceleration

- VXLAN, NVGRE, GENEVE, adaptable to custom overlays

Switching Support

- Integrated Layer 2 Ethernet switch, VEB/ Virtual switch

Virtualization Support

- VMware ESXi 5.x, 6.0, 6.5, 6.7; Microsoft Hyper-V; Linux KVM

Operating Systems

- RHEL 6.7 and higher, RHEL 7.3 and higher, SLES 11 SP4, SLERT 11 SP4, SLES 12 SP3, Ubuntu LTS 14.04.5, 16.04.x, Debian 8.10, 9.4; Windows Server 2008 R2, 2012/2012 R2, and 2016

Regulatory Product Code

- SR213

Standards & Compliance

- IEEE802.3-2012 Ethernet Base Standard, including 802.3bx, 802.3bd, 802.3x
- 802.3ba (40G/s), 802.3ae (10 Gigabit Ethernet over fiber)
- 802.3z (1000BASE-X Gbit/s Ethernet over Fiber-Optic at 1 Gbit/s (125 MB/s))
- 1000BASE-X
- 10GBASE-CR -SR -LR
- 40GBASE-CR4 -SR4 -LR4
- Dual QSFP+ (SFF-8683) Connectors
- RoHS Compliant

Power

- 10W (typical)

Operating Range

- Operating Temp: 0° to 55° C
- Airflow: Min. 250 LFM at 55° C

Physical Dimensions

- L: 16.75 cm (6.6 in)
 - W: 6.9 cm (2.7 in)
- End bracket height:
- PCI Express standard, 12.0 cm (4.725 in)
 - PCI Express low-profile: 7.92 cm (3.12 in)

Ordering Information

- SFN8042

For more information please visit: solarflare.com

Contact Us: US +1 949 581 6830 | UK +44 (0) 1223 477171
HK +852 2624 8868 | Email: sales@solarflare.com

SF-118584-CD Issue 4
SFN8042 XtremeScale 8042 PB 072819