XtremeScale™ SFN8522

Dual-Port 10GbE SFP+ Network Adapter

Solarflare's XtremeScale™ SFN8500 adapter family provides the best performance yet, with higher bandwidth, lower latency and higher packet rates. SFN8500 family adapters are based on a common hardware platform, enabling customers to configure the features and performance they want, to meet the particular needs of each application. Capabilities such as ultra-low latency, Onload® kernel bypass, class-leading clock synchronization accuracy providing MIFID II readiness, ServerLock® NIC-based firewall, SolarCapture® and more, can be enabled to run on any SFN8500 adapter on the network, making this the one Ethernet adapter to deploy across your data center or cloud infrastructure.

CPU-EFFICIENT NETWORKING
The XtremeScale SFN8522 dual-port 10G Ethernet SFP+ server adapter delivers faster, more efficient processing of network traffic to accelerate a wide range of applications. The SFN8522 has 8 lanes of PCIe 3.1 making it an ideal workhorse for 10GbE data center and cloud workloads, providing high bandwidth, high packet-rate and CPU efficient processing of network traffic.

CONFIGURABLE SOFTWARE
When configured with Solarflare software licenses, the SFN8522 can address ultra-low latency applications, highly accurate clock synchronization and hardware time stamping, packet filtering, packet capture, and more. Adapters can be purchased pre-configured with popular software bundles, or configured on-site with software options.

ULTRA-LOW LATENCY
The platform's hardware optimizes packet flow to and from the user application. When licensed for ultra-low latency, it delivers unrivaled sub-microsecond TCP and UDP latency. With Onload, the industry's best application-to-application performance is enabled via Solarflare's unique and patented kernel bypass techniques.

ACCELERATING APPLICATIONS
The SFN8522 is ideal for scale-out cloud, web and CDN application environments. Solarflare adapters are used in a wide range of use cases, including software defined networking (SDN), network functions virtualization (NFV), web content optimization, DNS acceleration, web firewalls, load balancing, NoSQL databases, caching tiers (Memcached), web proxies, video streaming and storage networks. The SFN8522 also provides the ideal link between fast NVMe storage and the network. In addition, when used with Onload, the SFN8522 further reduces host processing overhead and accelerates web and cloud traffic.

SECURING THE SERVER
The SFN8522 adapter includes Solarflare's ServerLock firmware which is digitally signed with an ECC384 signature to ensure tamper resistance while including a hardware based filter engine that can be leveraged to secure all the traffic entering and leaving the server. This can be enabled by installing ServerLock Local or binding the NIC to a ServerLock Manager in an enterprise configuration.

SCALABLE, HIGH-PERFORMANCE VIRTUALIZATION
Solarflare is the proven leader in VM density and performance, and the SFN8522 sets the bar with 2048 vNICs, SR-IOV, overlay network acceleration e.g. VXLAN, NVGRE. In addition, the SFN8522 supports kernel bypass running in a guest VM, so users can run ultra-low latency Onload or SolarCapture in a virtualized or cloud environment. The SFN8522 is also fully flow-aware, providing flexible layer 2-4 flow processing and flow steering natively. The benefits are efficient flow acceleration in almost every environment from the data center to the stock exchange.

Advanced Features and Benefits

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 Ethernet Controller
• Supports high-performance 10GbE

SFP+ Support
• Supports optical SFP+ modules including Solarflare SFM10G-SR, Direct-Attach Copper, Active Optical Cables

1000BASE-T SFP Support
• Supports 1G 1000BASE-T SFP modules

Low Latency
• Cut-through architecture/intelligent interrupt coalescing

Packet Rate
• Dual port 10G line rate, 15Mpps in both directions, across both ports, for a total of 60Mpps

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 Filtering
• 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

Switching Support
• Integrated Layer 2 Ethernet switch, VEB/virtual switch

Virtualization
• VMware ESXi 5.x, 6.x; Linux KVM

Operating Systems
• RHEL 6.7 - 7.5; SLES 11, 12, SLERT 11; Ubuntu 14.04.5, 16.04.x LTS; Debian 8.10, 9.4; Windows Server 2008 R2, 2012, 2012 R2

Specifications

Standards & Compliance
• IEEE802.3-2012 Ethernet base standard, including 802.3bx, 802.3bd, 802.3x
• 802.3ae (10 Gigabit Ethernet over fiber)
• 802.3z (1000BASE-X Gbit/s Ethernet over fiberoptic at 1Gbit/s (125 MB/s)
• 1000BASE-X
• 10GBASE-CR -SR -LR
• Dual SFP+ (SFF-8431 Rev 4.1) connectors
• RoHS compliant

Power
• 8522 - 7.3W (typical), 8522M - 10W (typical)

Operating Range
• 8522 Airflow: Min. 200 LFM at 55º C
• 8522M Airflow: Min. 250 LFM at 55º C

Physical Dimensions
PCB dimensions (PCIe half-length low profile)
• L: 16.76 cm (6.6 in)
• W: 6.89 cm (2.7 in)
Overall dimensions with full height bracket
• L: 18.1 cm (7.13 in)
• W: 12.1 cm (4.76 in)
Overall dimensions with low profile bracket
• L: 18.1 cm (7.13 in)
• W: 8.0 cm (3.15 in)

Ordering Information
• SFN8522M
• SFN8522-G (TAA-Compliant)

*This capability is only available with the 8522M

Note: Feature availability is dependent on software release support. Please contact Solarflare support for details.

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