Solarflare Solarstorm SFN4112F Single Port 10GbE SFP+ Server Adapter

The Solarflare® Solarstorm® SFN4112F single port 10GbE SFP+ server adapter delivers the best performance as well as the lowest power in the industry. Designed as a very high-performance server adapter, the SFN4112F supports both direct attach copper twin axial patch cords for connections between servers and top-of-rack switches and optical fiber for switch to server connections or longer reach via a patch panel.

Low-Latency Application Acceleration

The SFN4112F delivers the industry's lowest latency performance and full line-rate throughput on a single 10G port. Using a kernel-based network stack, the SFN4112F provides substantial acceleration to high-message rate and low latency applications. When combined with Solarflare's OpenOnload stack, the SFN4112F achieves TCP/UDP application latency of less than 5 microseconds (see OpenOnload for more information).

High-performance Architecture

Several key architectural features included in the Solarstorm 10GbE server adapter distinguish it from other solutions: stateless off loads, virtualization support, very-low power consumption, and very low application latency including support for Solarflare's OpenOnload™ technology. The SFN4112F supports stateless off-loads and performance enhancing features that provide efficient processing of network and storage traffic such as: iSCSI acceleration, IPv4 offload, RSS, MSI and MSI-X.

Scalable, Hardware Assisted Virtualization

The SFN4112F is built from the ground up to support high-performance in virtualized server environments. The adapter's architecture provides up to 4096 protected interfaces to the host system, enabling virtual machine scaling and/or CPU core scaling. The SFN4112F supports both para-virtualized and direct path acceleration for VMware ESX, Citrix XenServer, and Microsoft Hyper-V. The SFN4112F is VMware IOVP certified and VMware Ready™.

Lowest Power

At less than 4.5 watts power consumption, the SFN4112F is the most energy efficient 10GbE server adapter on the market.

Specifications

Product Number

SFN4112F

Single port SFP+

Standards and Compliance

PCIe 1.1

IEEE 802.3ae

IEEE 802.3x

RoHS Compliant

Power (typical)

SFN4112F: 5.3W

Operating Range

0° to 70° C

Physical Dimensions

L: 16.74 cm (6.59 in)

W: 6.89 cm (2.71 in)

End bracket height:

PCI Express standard 12 cm (4.725 in)

PCI Express low-profile 7.92 cm (3.12 in)

Advanced Features and Benefits

Virtual NIC support	3X increase in performance and server efficiency. 4096 protected vNICs for each guest OS
PCI Express	PCIe 1.0 for full bi-directional bandwidth
10 Gigabit Ethernet	High-performance 10Gb networks, IEEE 802.3ae, 802.3ax
SFP+ support	Direct attach copper cables compliant with SFP+ MSA SFF-8431 and optical SFP+ modules
Low latency	Cut through architecture and aggressive interrupt coalescing
Receive side scaling (RSS)	Receive side scaling with Toeplitz hashing spreads load of handling interrupts distributing I/O across all CPUs and cores
IP/UDP/TCP checksum offload	Calculation and validation for the checksums in IP, TCP, and UDP headers; Saves CPU cycles
Transmit rate pacing	Per queue pacing provides mechanism for enforcing bandwidth quotas across guest OSes; Adjusts as congestion increases
Converged networking	Compatible with OS-based iSCSI initiators and OpenSource FCoE initiators; Supports concurrent Ethernet, TCP/IP, UDP, iSCSI, and FCoE traffic
iSCSI acceleration	Achieves wire-speed performance with iSCSI header and data digest CRC enabled
Adapter teaming	Redundancy and scalability with no performance penalty
Jumbo frames	9000 byte MTUs for better throughput; Less CPU overhead
MSI and MSI-X	Minimizes server overhead of interrupts. Allows interrupts to be balanced across multiple server host CPUs and cores
IP flow filtering	Enables the hardware to steer packets based on IP, TCP and UDP headers. Can be used to improve system cache behavior over regular RSS
Intel QuickData™	Uses host DMA engines to accelerate I/O for higher throughput and lower CPU utilization
Remote boot	Supports PXE boot, iSCSI boot. and Linux® BIOS proving flexibility in cluster design and diskless servers
Management	ACPI v3.0, RMII, SNMP, SMBus, IPMI, UEFI
OS and OS-V Support	Microsoft Windows Server 2003, Windows Server 2008 R2 including Hyper-V; Linux RHEL4, RHEL5; SLES9, SLES10; VMware ESX 3.5, vSphere 4, NetQueue; Citrix XenServer 5.x