



SFC9000

10GbE LOM/Controller Family

Ideal for High-Density, Virtualized Server Environments

The Solarflare® SFC9000 LOM/Controller family includes the world's first integrated 10GBASE-T LOM, and features the industry's lowest power consumption and a fully-virtualized architecture, enabling unparalleled performance and scalability for next-generation, virtualized data centers.

The SFC9000 LOM/Controller family is Solarflare's second generation 10G Ethernet controller, and is designed to address the most pressing issues facing data center managers. This family of controllers is equipped to handle the application loads of a next generation of multi-core processors, while at the same time providing unmatched power efficiency, which is a critical need when consolidating servers or deploying high-density servers.

The SFC9000 family supports data networking with concurrent iSCSI and FCoE traffic – while remaining true to the need for cost-effective, power-efficient and high-performance network I/O.

The SFC9000 LOM/Controllers can be used in most 10G Ethernet applications, including LAN-on-motherboard, embedded adapters, blade mezzanine cards and PCIe adapters.

The Low Power Leader

The SFC9000 LOM/Controller family consumes less than half the power of the leading competitors' products and delivers 5-10x the bandwidth efficiency of 1G Ethernet (BW/Watt). This not only makes an integrated server solution viable, it can save thousands of dollars of operating costs in a typical data center environment.

Adapters based on the SFC9000 family do not require active heat sinks and meet the Energy Star® requirement of less than 8 Watt/port power consumption.

Fully Virtualized Architecture

The SFC9000 family is designed from the ground up to optimize the performance of virtualized applications and maximize the utilization of network resources. With 10x the number of vNICs and virtual PCIe functions as the competition, the SFC9000 family can easily scale as the number of CPU cores and virtual machines continue to increase, enabling higher performance and greater manageability.

Performance Leadership

The SFC9000 family delivers the industry's lowest-latency, full line-rate performance (37 Gbps full duplex, both ports active). Plus, the SFC9000 family features a rich set of stateless offloads, which provide efficient acceleration of the most demanding network protocol tasks.

The SFC9000 family also features hypervisor cut-through and SR-IOV, which relieve network I/O bottlenecks hidden in virtualized environments – allowing IT managers to allocate server and network resources directly to applications. This accelerated performance of applications running on guest machines provides the highest possible performance and lowest CPU utilization in virtualized servers. The family is fully compatible with OpenOnload® high-performance, user-level application acceleration middleware for Linux. OpenOnload bypasses much of the kernel networking overheads and is binary compatible with industry standard APIs and applications.

SolarflareSFC9000

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Specifications

Product Number

SFC9020: 2-port 10 Gbps Ethernet Controller
SFL9021: 2-port Controller with 1-port integrated 10GBASE-T PHY

Package

29 mm x 29 mm, 784-ball FC-BGA
RoHS 6/6 Compliant

Power (typical)

SFC9020: 2.4 W
SFL9021: 6.6 W

Operating Range

0° to 70° C

Standards & Compatibility

PCIe 1.1 & 2.0
IEEE 802.3ae, 802.3an, 802.3ad, 802.1Q, 802.1p, 802.3x
10 Gbps/1 Gbps/100 Mbps speeds
256 multicast filters
4096 VLANs/port

Software Driver Support

Windows® Server 2003, 2008, 2008 R2
Redhat 5/6
SLES 10/11
Solaris 10 (x86)
ESX 3.5, ESX /ESXi 4.0, 4.1
Microsoft® Hyper-V™ Server 2008 R2
Linux KVM
Citrix® XenServer™ 5.6, 6.0
VMware NetQueue
Hyper-V VMQ
SR-IOV
Compatible with iSCSI software
PCIe 1.1 & 2.0 initiators

Advanced Features

Network Interface

- Integrated dual-port 10GbE (XAUI, KX4, CX4)
- Integrated 10GBASE-T PHY
- Triple Speed with Autonegotiation
- Jumbo Frame Support
- Adapter Teaming, MLAG, IEEE802.3ad Link Aggregation
- SFP+ MSA

PCIe Host Interface

- x8 PCI Express 2.0 Compliant (5 GT/s)
- Virtual NIC Support
- MSI and MSI-X
- SR-IOV
- VPD

Performance

- Receive Side Scaling (RSS)
- LSO/LRO Offloads
- TCP/UDP Checksum Offloads
- IPv4/IPv6 Offloads
- UDP Multicast Offload
- IP Flow Filtering
- Intelligent Interrupt Coalescing
- Cut-through Architecture

Hardware-Assisted, Scalable Virtualization

- 2048 guest OS protected vNICs
- Hypervisor, NetQueue, VMQ support
- Low Latency Hypervisor Cut-Through

Flexible Network

- Fully compatible with O/S-based iSCSI initiators
- Supports concurrent TCP/IP, UDP Multicast, and iSCSI traffic

Power Management

- Dynamic Power Scaling™
- Link detect power mode
- Passive heat sink
- ACPI v3.0

Management

- NC-SI, SMBus, IPMI
- PXE, iSCSI, UEFI Boot
- Wake-on-LAN (WoL)
- SNMP
- RMII

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