

Solarflare is the leading provider of application-intelligent networking I/O software and hardware that accelerate, monitor and secure network data, and is the pioneer in high-performance, low-latency 10/40GbE server networking solutions. With over 1,000 customers worldwide, the company's products are widely used in scale-out server environments such as electronic trading, high performance computing, cloud, virtualization and big data. Solarflare's software and hardware are available from leading distributors and value-added resellers, as well as from Dell, HP and IBM.

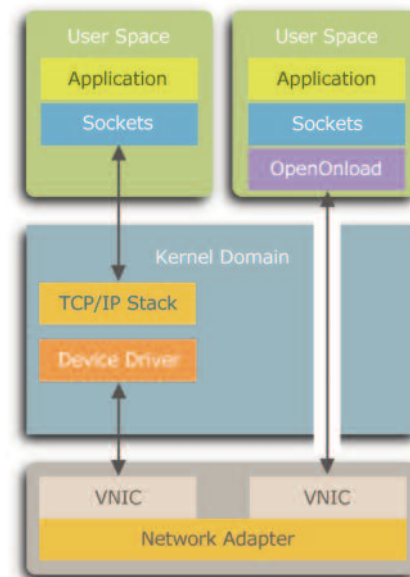


OpenOnload® Application Accelerator

Solarflare's OpenOnload is a Linux-based, Open Source, high-performance application accelerator that delivers lower and more predictable latency and higher message rates for TCP and UDP-based applications. OpenOnload is ideal for applications that benefit from lower latency (with decreasing jitter) and higher throughput, including financial services, geosciences, biosciences, weather and other HPC applications.

With OpenOnload® enabled, Flareon server I/O adapters bypass kernel and networking overheads, providing unprecedented performance with seamless application compatibility and protocol compliance. OpenOnload features binary compatibility with all standard APIs and applications.

Solarflare also offers EnterpriseOnload®, which bundles support and service level agreements with an Open Source software subscription.

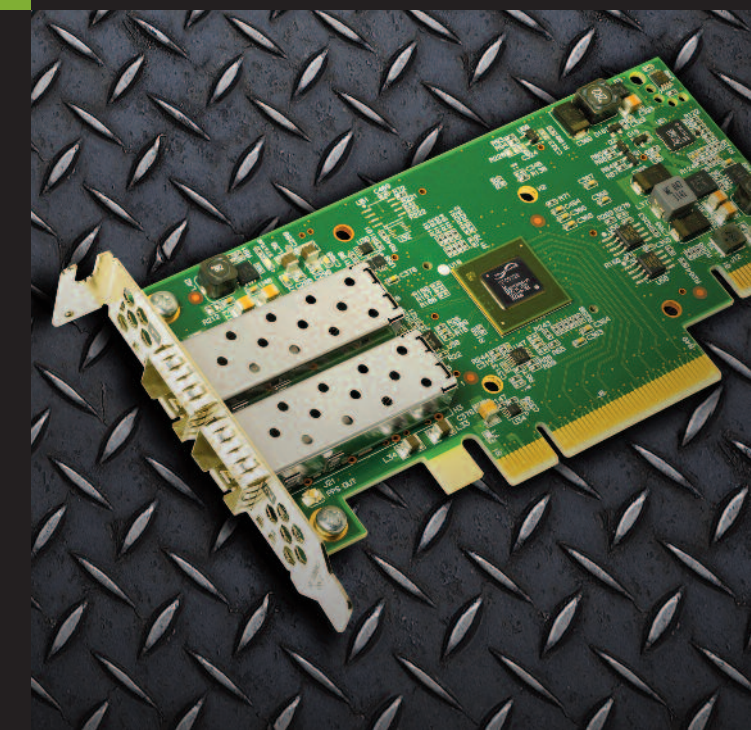


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Flareon™ | Server I/O Adapters | Product Guide



Overview

Solarflare Flareon Server I/O Adapters – the SFN7000 series of 10/40GbE PCIe 3.0 server adapters – with AppFlex™ technology provides a flexible platform for delivering multiple network services with a single server adapter that accelerate, monitor and secure network data. Flareon server I/O adapters use a cut-through architecture with intelligent interrupt coalescing, support high-performance 10/40GbE and PCIe 3, and reduce CPU load. They also provide hardware acceleration features that optimize packet delivery, such as UDP multicast replication and integrated layer 2 switching. Flareon server I/O adapters are comprised of Flareon Ultra and Flareon adapters.

Flareon Ultra Server I/O Adapters

Flareon Ultra server I/O adapters deliver unmatched message rates with lowest latency and jitter over standard Ethernet along with low CPU utilization, enabling the industry's best performance and scalability for enterprise data center environments, the lowest latency networking solutions for electronic/high frequency trading and other latency-sensitive applications, and acceleration of HPC and Hadoop compute clusters by providing high message rate, low latency interconnects for compute clusters.

Flareon Ultra server adapters also implement a precision oscillator to enable highly accurate time synchronization and hardware time stamping. A pulse-per-second (PPS) bracket kit with PPS cable assemblies is optional for Flareon Ultra server adapters.

Flareon Server I/O Adapters

Flareon server I/O adapters combine outstanding performance and exceptional flexibility for data center, cloud, Big Data, grid, virtualization and general networking environments. Flareon server adapters deliver the industry's best performance for NFS traffic, lowest latency for inter-node (east-west) traffic, most scalable and high-performance cloud and server virtualization deployments, and the best overall performance for general networking.

Multi-Core CPU Performance (Core Scaling)

Solarflare's unique hardware-accelerated virtualized NIC (vNIC) architecture provides important benefits to multi-core computing. In many cases network traffic that is directed to a single CPU core can overload the core and create a performance bottleneck. Solarflare server adapters use vNICs to provide 2048 event queues and MSI-X interrupt vectors. At an order of magnitude greater than the nearest competitor, these technologies enable the industry's most scalable implementation of Receive Side Scaling (RSS) and accelerated Receive Flow Steering (RFS) and enable network I/O processing to be spread across the largest of multi-core CPU servers.

This unique capability eliminates potential processing bottlenecks and dramatically improves performance on a busy network by maximizing utilization of under-utilized CPU cores. The benefit is significant for bare metal servers, from single- and dual-processor volume servers to multi-processor enterprise servers with over 100 cores. The performance advantage is magnified for cloud and virtualization deployments as guest operating systems within virtual machines are provided their own set of event queues and MSI-X interrupt vectors.

Advanced Virtualization

Flareon server I/O adapters feature a virtualized architecture that delivers the industry's best performance in virtualized servers and the most scalable virtualized server solution. With 1024 vNICs/port to provide 1024 event queues/port and MSI-X interrupt vectors/port, the Flareon adapters have the resources for nearly unlimited virtual machine (VM) scalability with NetQueue, VMQ, and SR-IOV support for improved networking performance. Extensive SR-IOV support is enabled with 16 physical PCIe functions (PFs) and 240 virtual functions (VFs).

Power Efficiency

At less than 6 Watts, Flareon 10GbE server I/O adapters consume one third less power than the leading competitors' products, and deliver 5 -10x the efficiency of 1G Ethernet (Gbps/Watt). This not only makes a power efficient 10G network possible, it dramatically reduces the operating costs for a typical data center.

AppFlex Technology

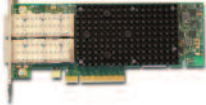



Employing Solarflare's advanced AppFlex technology, Flareon server I/O adapters enable the selective addition and control of a wide range of services – such as network monitoring, precision time, security, and application acceleration – when deploying servers. This provides the ability to turn on applications on a server-by-server basis to break bottlenecks, significantly improve scalability, and ultimately to configure networks with a single server adapter platform.

With OpenOnload® enabled, Flareon server I/O adapters can bypass kernel and networking overheads to deliver unmatched message rates with low latency and low jitter. AppFlex enables all Flareon server I/O adapters to be upgraded – in system – to include; packet capture, precision time synchronization (PTP) with hardware time stamping and filter engines for DDoS mitigation.

Flareon server I/O adapters support a full range of operating systems and hypervisor environments, including Red Hat Enterprise Linux and Red Hat Enterprise Linux Open Stack Platform, SUSE Linux Enterprise Server, VMware ESXi, as well as Microsoft Windows and Hyper-V Server.

Flareon Server I/O Adapter Features

- TSO, LRO, GSO, IPv4/IPv6 hardware offloads
- TCP/UDP checksums hardware offloads
- Line rate packet sniffing/filtering
- Receive Side Scaling (RSS)
- Accelerated Receive Flow Steering (RFS)
- Solarflare Accelerated Receive Flow Steering (SARFS)
- Programmed I/O (PIO) mode
- 1024 MSI-X vector interrupts/port and event queues/port
- NetQueue, VMQ, SR-IOV
- Jumbo Frames
- 4096 multicast filters and VLANs/port
- PXE boot, iSCSI boot
- IEEE 802.3ae, 802.3ad, 802.1Q, 802.1p, 802.3x
- RoHS Compliant

	Model Number	40GbE	10GbE	Number of Ports	PCIe x Performance	Connector	Power (Typ.)	Highest Clock Speed	Onload Support	IEEE 1588 Support (PTP)	Oscillator	PPS Bracket
Flareon Server I/O Adapters	Flareon Ultra SFN7142Q 	✓	✓*	2	8.0GT/s (Gen 3)	QSFP+	13W	✓	✓	Optional AppFlex™ License	TCXO	Optional Kit
	Flareon Ultra SFN7122F 		✓	2	8.0GT/s (Gen 3)	SFP+	5.9W	✓	✓	Optional AppFlex™ License	TCXO	Optional Kit
	Flareon Ultra SFN7322F 		✓	2	8.0GT/s (Gen 3)	SFP+	5.9W	✓	✓	✓	TCXO	Optional Kit
	Flareon SFN7002F 		✓	2	8.0GT/s (Gen 3)	SFP+	5.9W		Optional AppFlex™ License	Optional AppFlex™ License	Crystal	

* The SFN7142Q supports four 10GbE SFP+ ports using the Solarflare QSFP+ to SFP+ copper breakout cable.