



Flareon SFN7042Q Dual-Port 40GbE QSFP+ PCIe 3.0 Server I/O Adapter

Flareon™ SFN7042Q dual-port 40G Ethernet QSFP+ server adapter combines excellent performance and scalability with exceptional 40GbE and 10GbE value for data center and enterprise networks.

Flareon Ultra SFN7042Q provides the best overall performance with low CPU utilization for 40GbE or 10GbE networking. SFN7042Q can be configured as a dual-port 40GbE or quad-port 10GbE adapter as each 40GbE QSFP+ port can also operate as dual 10GbE SFP+ ports by using breakout cables including the Solarflare SOLR-QSFP2SFP-1M & -3M QSFP+ to 2 SFP+ copper DAC cables.

With a PCIe 3.0 host interface, an all new internal data-path microarchitecture, the addition of a hardware switch fabric, and featuring a full set of stateless offloads, SFN7042Q reduces CPU processing overhead for the most demanding network tasks in data center, enterprise, cloud, and network-attached storage networks. SFN7042Q also accelerates database, social networking, email and other storage-intensive applications with high bandwidth and low latency network access to SAN and NAS environments.

Unique Accelerated Performance

SFN7042Q's unique hardware-accelerated virtualized NIC (vNIC) architecture provides concrete 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. SFN7042Q can use up to 2048 vNICs to implement Receive Side Scaling and Solarflare Accelerated Receive Side Scaling (SARFS) and accelerate Receive Flow Steering (RFS) to distribute network traffic across multiple cores. These technologies allow the networking I/O processing to be spread across the available CPU cores, eliminating processing bottlenecks and dramatically improving application performance and scalability. SFN7042Q also improves data intensive key value storage

applications such as NoSQL, memcached, Couchbase and other big data applications by accelerating throughput and reducing latency for compute and Ethernet storage. SFN7042Q also features hardware acceleration to optimize packet delivery, such as integrated layer 2 switching capability and VLAN insertion/removal, along with TCP segmentation offload (TSO) to reduce CPU load.

Scalable, Hardware-Assisted Virtualization

With 10x the number of vNICs and virtual PCIe functions than the competition, SFN7042Q 40GbE server adapter's performance scales as the number of CPU cores and VMs increase, supporting more applications per physical server. SFN7042Q also supports NetQueue, VMQ and SR-IOV used to accelerate guest applications in leading hypervisors, such as ESXi, KVM and Hyper-V. This relieves network I/O bottlenecks dedicating full network bandwidth directly to VMs. 16 physical PCIe functions enable finer granularity and greater scalability when allocating Quality of Service (QoS) for optimized bandwidth utilization as I/O dynamically fluctuates.

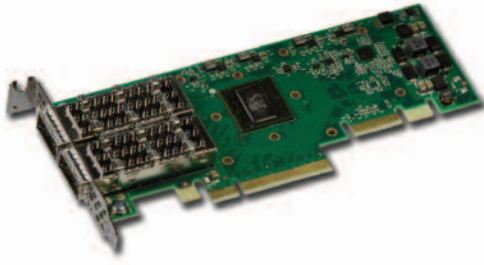
Platform for Delivering Network Services

Flareon SFN7042Q enables deploying servers for a wide range of applications with a single server adapter. SFN7042Q with AppFlex™ technology provides the flexibility to selectively add and control services. With an OpenOnload® upgrade, SFN7042Q can bypass kernel and networking overheads to deliver unmatched message rates with ultra low latency and low jitter. Upgrades for packet capture, security, networking monitoring, and precision time synchronization (PTP) with hardware time stamping are also available.



Flareon SFN7042Q

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Specifications

Product Number
SFN7042Q

Standards & Compliance

IEEE 802.3ba
IEEE 802.3ae
IEEE 802.3ad
IEEE 802.1Q
IEEE 802.1p
IEEE 802.3x
RoHS Compliant

Power

13W (typical)

Operating Range

0° to 50° C
300 LFM, Min.

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)

Order Information

Flareon Ultra SFN7042Q
Dual-Port 40GbE QSFP+
PCIe 3.0
Server I/O Adapter

Options Order Information

SFS-OOL
OpenOnload License
SFS-PTP
Precision Time License
SFS-SSFE
SolarSecure™ Filter Engine
License
SFS-SCL
SolarCapture™ Live License
SFS-SCP-2x10G
SolarCapture Pro License for
SFN7x42Q
SOLR-PPS-DP40G
40GbE 1PPS Cable Kit

Regulatory product code: SR200

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Advanced Features & Benefits

Stable Precision Oscillator

Stratum 3 compliant

I/O Virtualization

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

PCI Express

PCIe 3.0 x8 @ 8.0 GT/s

SFC9140 10/40G Ethernet Controller

Supports high-performance 40GbE and 10GbE

QSFP+ Support

Supports optical QSFP+ modules including Solarflare
SFM40G-SR4, Direct-Attach Copper, Solarflare QSFP+ to
SFP+ copper DAC cables (SOLR-QSFP2SFP-1M & -3M)

Low Latency

Cut-through architecture/intelligent interrupt coalescing

Receive Side Scaling (RSS)

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

Hardware Offloads

TSO, LRO, GSO; IPv4/IPv6; TCP, UDP checksums

Adapter Teaming/Link Aggregation

LACP for redundant 10GbE links (compatible with MLAG)

Jumbo Frames

9216 byte MTU for performance

Enhanced Tuning

Adaptive interrupt moderation

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 Receive Flow
Steering (RFS)

Intel QuickData™

Uses host DMA engines to accelerate I/O

Remote Boot

PXE, iSCSI boot; unattended installation

Management

SNMP, ACPI v3.0

Virtualization Support

VMware ESXi; Microsoft Hyper-V; Linux KVM and Xen

Operating Systems

RHEL 5, 6, 7, MRG; SLES 10, 11, 12, SLERT; Debian 6.0, 7.0;
Ubuntu 12.04 LTS, 14.04 LTS, 14.10; other Linux; Windows
Server 2008 R2, 2012, 2012 R2; XenServer 6.2, 6.5

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