SOLARFLARE®

SFN7142Q

Flareon Ultra SFN7142Q Dual-Port 40GbE QSFP+ PCIe 3.0 Server I/O Adapter

Flareon™ Ultra SFN7142Q dual-port 40G Ethernet QSFP+ server adapter delivers unmatched message rates with low latency and jitter over standard Ethernet along with low CPU utilization, enabling the industry's best performance and scalability for enterprise networks and data centers.

Flareon Ultra SFN7142Q 40GbE server adapter delivers the industry's lowest latency and highest message rates accelerating applications, such as high performance computing, cloud, grid, big data, storage, Web 2.0, and financial services in enterprise networks and data centers. Featuring a full set of stateless offloads, SFN7142Q reduces CPU processing loads for the most demanding network tasks. With OpenOnload®, SFN7142Q bypasses kernel and networking overheads, providing unprecedented performance with seamless application compatibility and protocol compliance. OpenOnload features binary compatibility with all standard APIs and applications.

Accelerated Applications and Optimized Server I/O

Flareon Ultra SFN7142Q 40GbE server adapter accelerates HPC and Hadoop by providing high message rate, low latency interconnects for compute clusters. The SFN7142Q's CPU offload along with high performance enables servers to provide more services to more users in cloud and grid environments. SFN7142Q also accelerates database, social networking, email, and other storage-intensive applications with high bandwidth and low latency for SAN and NAS environments. SFN7142Q enables the lowest latency networking solutions for electronic/high frequency trading and other latency-sensitive applications.

Ultra-Low Latency

Flareon Ultra SFN7142Q supports PCIe 3.0 with ultra-low latency features such as direct packet transfer (Tx PIO) mode, which includes the templated send API. SFN7142Q reduces CPU load with hardware acceleration features that optimize packet delivery, such as UDP multicast replication, integrated layer 2 switching capability and VLAN insertion / removal, along with TCP segmentation offload (TSO).

Scalable, Hardware-Assisted Virtualization

With 10x the number of vNICs and virtual PCIe functions than the competition, SFN7142Q 40GbE server adapter's performance scales as the number of CPU cores and VMs increase, supporting more applications per physical server. SFN7142Q also supports NetQueue, VMQ, and SR-IOV used to accelerate guest applications in leading hypervisors, such as ESXi, Hyper-V, KVM, and Xen. This relieves network I/O bottlenecks dedicating full network bandwidth directly to VMs while maintaining full hypervisor management services. 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 Ultra SFN7142Q 40GbE server adapter enables deploying servers for a wide range of applications with a single server adapter. SFN7142Q with AppFlex™ technology provides the flexibility to selectively add and control services such as network monitoring, precision time, security, and application acceleration to servers.
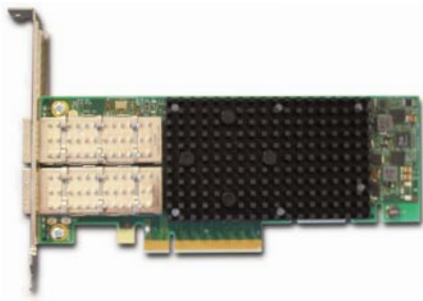
FlareonUltraSFN7142Q

Specifications

Product Number
SFN7142Q

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: 13.4 cm (5.3 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 SFN7142Q
Dual-Port 40GbE QSFP+
PCIe 3.0
Server I/O Adapter

Options Order Information
SFS-PTP
Flareon SFN7000 Series
Precision Time Synchronization
with Hardware Time Stamping
License

SFS-SCL
SolarCapture Live License

SFS-SCP-40G
SolarCapture Pro License for
SFN7142Q

SOLR-PPS-DP40G
Dual-port 40GbE bracket kit
with PPS cable assemblies

Regulatory product code: S7120

Advanced Features & Benefits

I/O Virtualization
2048 guest OS protected vNICs; 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; XenServer; Linux KVM;
SR-IOV

Operating Systems
RHEL 5, 6, 7, MRG; SLES 10, 11, SLERT; other Linux;
Windows Server

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