Flareon Ultra SFN7022F Dual-Port 10GbE PCIe 3.0 Server I/O Adapter

Flareon™ Ultra SFN7022F dual-port 10G Ethernet SFP+ server adapter delivers excellent performance and scalability over standard Ethernet along with low CPU utilization for enterprise data center environments.

Flareon Ultra SFN7022F delivers industry-leading technology ideal for environments such as high performance computing, cloud, grid, big data, storage, Web 2.0, and financial services in enterprise data center environments. Featuring a full set of stateless offloads, SFN7022F reduces CPU processing loads for the most demanding network tasks.

**Accelerated Applications and Optimized Server I/O**

Flareon Ultra SFN7022F accelerates HPC and Hadoop by providing high message rate interconnects for compute clusters. The SFN7022F’s CPU offload – along with high performance – enables servers to provide more services to more users in cloud and grid environments. The SFN7022F also accelerates database, social networking, email, and other storage-intensive applications with high bandwidth and low latency for SAN and NAS environments.

**Ultra-Low Latency**

Flareon Ultra SFN7022F supports PCIe 3.0 and can be enabled with OpenOnload® software to provide ultra-low latency features such as direct packet transfer (Tx PIO) mode and the templated send API. SFN7022F also features hardware acceleration to optimize packet delivery, such as UDP multicast replication, 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, SFN7022F performance scales as the number of CPU cores and VMs increase, supporting more applications per physical server. SFN7022F 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. Sixteen physical PCIe functions enable finer granularity and greater scalability when allocating Quality of Service for optimized bandwidth utilization as I/O dynamically fluctuates.

**Platform for Delivering Network Services**

Flareon Ultra SFN7022F enables deploying servers for a wide range of applications with a single server adapter. SFN7022F with AppFlex™ technology provides the flexibility to selectively add and control services. With an OpenOnload® upgrade, SFN7022F can bypass kernel and networking overheads to deliver unmatched message rates with ultra low latency and low jitter. Upgrades for SolarCapture™ software and precision time synchronization (PTP) with hardware time stamping are also available.
Specifications

**Product Number**
SFN7022F

**Standards & Compliance**
IEEE 802.3ae  
IEEE 802.3ad  
IEEE 802.1Q  
IEEE 802.1p  
IEEE 802.3x  
RoHS Compliant

**Power**
7.3W (typical)

**Operating Range**
0º to 55º C
100 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 SFN7022F  
Dual-Port 10GbE PCIe 3.0  
Server I/O Adapter

**Options Order Information**
SFS-OOL  
Flareon SFN7000 Series  
OpenOnload License  
SFS-PTP  
Precision Time License  
SFS-SSFE  
SolarSecure™ Filter Engine License  
SFS-SCL  
SolarCapture™ Live License  
SFS-SCP-10G  
SolarCapture Pro License for 10GbE Flareon™ Adapters  
SFS-PM  
Performance Monitor License  
SOLR-PPS-DP10G  
10GbE 1PPS Bracket Kit

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

**SFC9120 10G Ethernet Controller**
Supports high-performance 10GbE

**SFP+ Support**
Supports optical & copper SFP/SFP+ modules; Direct-Attach, Fiber (10G or 1G), 1G/10G combo

**1000BASE-T SFP Support**
Supports 1G 1000BASE-T SFP modules

**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 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 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; FreeBSD 10.0, 10.1; XenServer 6.2, 6.5

---

Copyright © 2015 Solarflare Communications, Inc.  
All rights reserved.