

## Flareon Ultra SFN8522 Server Adapter PLUS

### *Dual-Port 10GbE SFP+*

The PLUS variant of the Flareon Ultra SFN8522 Dual-Port 10GbE SFP+ Server I/O Adapter adds a suite of enabled software capabilities that provide out-of-the box support for ultra-low-latency Onload-accelerated sockets as well as PPS and PTP time synchronization support.

The SFN8522-PLUS is capable of associating a hardware time-stamp with every incoming and outgoing Ethernet frame for application troubleshooting or performance monitoring. These features make the SFN8522-PLUS the ultra-low-latency Ethernet adapter of choice to deploy as a key component throughout Financial Trading infrastructures where two ports of 10GbE are required.

### **CPU-Efficient Networking**

The Flareon Ultra SFN8522-PLUS dual-port 10GbE Ethernet SFP+ server adapter delivers faster, more efficient processing of network traffic to accelerate a wide range of applications. The SFN8522-PLUS has 8 lanes of PCIe 3.1 minimizing latency and maximizing bus throughput between the adapter and the host.

### **Flexibility in Operation**

In a virtualized environment the adapter supports hypervisor bypass via SR-IOV providing virtualized guests with near bare-metal network performance. Multiple physical functions are also available enabling the ports to be partitioned when connected to 802.1Q trunked switch ports with a logical interface per VLAN being presented to the operating system.

Ports on the same adapter or across multiple adapters may be bonded for redundant operation. This redundancy support also extends to Onload™ with accelerated sockets capable of running across both Active-Passive and Active-Active LACP-enabled links.

The SFN8522-PLUS enables the following licensed features enabled:

### **Ultra-Low Latency**

The Flareon Ultra SFN8522-PLUS offers fast and efficient hardware that optimizes packet flow to and from the user application. The SFN8522-PLUS unlocks unrivaled sub-microsecond latency both at Layer 2 and TCP and UDP via Onload.

### **Onload**

Onload is Solarflare's industry's leading fully RFC-compliant kernel-bypass user-space TCP/IP stack. Unrivaled application-to-application TCP and UDP latency is available with no modification to the applications being accelerated. Applications may communicate via Onload to any other RFC-compliant TCP/IP stack with seamless interoperability.

### **Precision Time**

The SFN8522 is equipped with a Stratum 3 oscillator providing class-leading clock stability. The SFN8522-PLUS enables the use of sfptpd, Solarflare's time synchronization daemon, which leverages the adapter's ability to apply hardware time-stamps to incoming and outgoing Ethernet frames to synchronize its oscillator either via the PTPv2 protocol or a combination of PPS and NTP. Sfptpd also enables the Linux real-time clock to be synchronized to the external timing reference via the adapter clock. Any time-stamps obtained from either packet events or via the Linux time API may now be correlated directly with the external timing source. These features allow users to implement event traceability that exceeds the MIFID II requirements.



## 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; 16 NIC partitions

### PCI Express

- PCIe 3.1 x8 @ 8.0 GT/s

### SFC9240 10G Ethernet Controller

- Supports high-performance 10GbE

### SFP+ Support

- Supports optical SFP+ modules including Solarflare SFM10G-SR, Direct-Attach Copper, Active Optical Cables

### 1000BASE-T SFP Support

- Supports 1G 1000BASE-T SFP modules

### Low Latency

- Cut-through architecture/intelligent interrupt coalescing

### Packet Rate

- 30Mpps TX & RX sustained line rate with all packet sizes (15Mpps per port)

### Receive Side Scaling (RSS)

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

### Hardware Offloads

- TSO, LRO, GSO, IPv4/IPv6 and TCP/UDP checksums

### 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

### Remote Boot

- PXE; unattended installation; UEFI; Solarflare Secure Boot

### Management

- SNMP, ACPI v3.0

### Overlay Network Acceleration

- VXLAN, NVGRE, GENEVE

### Switching Support

- Integrated Layer 2 Ethernet switch, VEB/Virtual switch

### Virtualization Support

- VMware ESXi 5.x,6.0; Microsoft Hyper-V; Linux KVM

### Operating Systems

- RHEL 6, 7, MRG; SLES 11, 12, SLERT; Debian 7.x, 8.x; Ubuntu 14.04 LTS, 14.10, 15.04; other Linux; Windows Server 2008 R2, 2012, 2012 R2

## Specifications

### Standards & Compliance

- IEEE802.3-2012 Ethernet Base Standard, including 802.3bx, 802.3bd, 802.3x
- 802.3ae (10 Gigabit Ethernet over fiber)
- 802.3z (1000BASE-X Gbit/s Ethernet over Fiber-Optic at 1Gbit/s (125 MB/s))
- 1000BASE-X
- 10GBASE-CR -SR -LR
- Dual SFP+ (SFF-8431 Rev 4.1) Connectors
- RoHS Compliant

### Power

- 7.3W (typical)

### Operating Range

- 0° to 55° C
- 200 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)

### Ordering Information

- SFN8522-PLUS