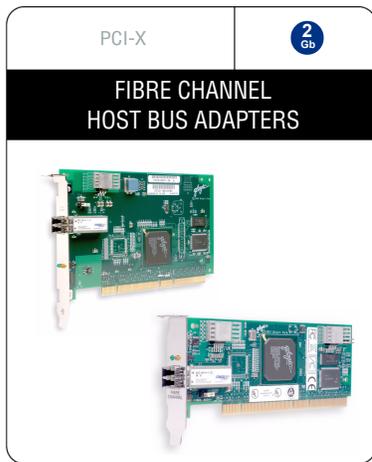




# SANblade®

2-Gbps Fibre Channel (FC) to  
PCI-X Host Bus Adapters (HBA)

••• QLA® 2310F/  
••• QLA2310FL



## Ease of Use

- Autonegotiation of Fibre Channel speed bit rate (1 Gbps or 2 Gbps)
- Easy detection of activities through an LED panel:
  - Power
  - Online
  - Signal acquired
  - Loss of synchronization
  - Firmware error
- Automatic topology detection
- Quick start guide
- Persistent binding

## Superior Scalability

- Concurrent support for SCSI and IP protocols
- Load balancing for optimized performance
- Simultaneous initiator and target mode support
- Local and remote management

## Enhanced Reliability

- Unique, single-integrated Fibre Channel controller for added reliability and optimum performance

• HBA and LUN level failover

• LUN masking

• Loopback and read/write buffer tests

**Why QLOGIC?** Designed and deployed by major server and storage OEMs, the QLogic SANblade QLA2310F and QLA2310FL host bus adapters (HBAs) offer the high performance of 2-Gbps Fibre Channel combined with 64-bit, 66-MHz PCI-X. These multimode optic HBAs are targeted for servers in direct attach storage (DAS) as well as storage area network (SAN) environments.

**Cost Effective.** For a cost-effective, optic solution for your SAN with the added performance of 2 Gbps, the QLA2310F is the right solution. If you are looking for low-profile boards for 1U and 2U servers, the QLA2310FL, a low-profile MD2 compliant version of the QLA2310F, is the perfect fit.

**Leading Single Chip Integration.** The QLA2310F/2310FL uniquely integrates a RISC processor, a Fibre protocol engine, and transceivers into a single, efficient FC controller chip that increases reliability and performance by lowering CPU utilization.

**Broad Oem Acceptance.** The QLA2310F/2310FL HBA is validated by every major OEM including Dell, EMC, HDS, HP, IBM, and Sun. The QLA2310's extensive certification from major server and storage manufacturers makes it the perfect choice for multiplatform requirements.

**Simplified Setup.** Point-and-click installation and configuration wizards simplify the HBA setup process. Storage administrators can quickly deploy HBAs across a SAN using standard HBA management tools and device utilities. The QLA2310F/2310FL is also fully compatible with industry standard application programming interfaces (APIs), including SNIA HBA API and SMI-S, thereby allowing administrators to manage QLogic HBAs using third-party software applications.

**Proven Architecture.** The QLA2310F/2310FL architecture is the result of more than 15 years of progressive development and testing. Proven architecture from QLogic delivers higher overall reliability and enables advanced functionality with its single-chip integration, placing QLogic years ahead of its competitors. The QLA2310F/2310FL also has proven interoperability with all major software applications, hardware platforms, and operating systems.

**The Bottom Line.** Driving the standard for interoperability with extensive FC testing in SAN environments, you can feel confident in choosing the QLogic solution.



## Host Bus Interface Specifications

<b>Speed</b>	64-bit, 66-MHz PCI-X
<b>Signal voltage</b>	3.3 V and 5.0 V buses supported
<b>Compliance</b>	PCI Local Bus Specification rev. 2.2, PCI-X Addendum rev. 1.0a, PCI Hot Plug Specification rev. 1.0, PCI Bus Power Management Interface Specification rev. 1.1

## Fibre Channel Specifications

<b>Speed</b>	200 MBps maximum at half-duplex, 400 MBps maximum at full-duplex
<b>Topology</b>	FC-AL, FC-AL-2, point to point, switched fabric (FL_Port and F_Port)
<b>Buffer credits</b>	For 512-byte frame size, 9 credits issued. For 2K-byte frame size, 3 credits issued.
<b>Class of service</b>	Class 3 Fibre Channel service
<b>Protocols</b>	SCSI-FCP, IP, FC-TAPE
<b>Compliance</b>	Second Generation FC Generic Services Definition (FC-GS-2), Third Generation FC Generic Services Definition (FC-GS-3), Fibre Channel-Physical and Signaling Interface (FC-PH), SCSI-3 Fibre Channel Protocol (SCSI-FCP), Fibre Channel-Arbitrated Loop-2 (FC-AL-2), Fibre Channel-Private Loop Direct Attach Technical Report (FC-PLDA), RFC 2625 IP and APR Over Fibre Channel, Fibre Channel Framing and Signaling (FC-FS)

## Physical Specifications

<b>Ports</b>	One
<b>Media</b>	Multimode optic
<b>Optics</b>	Short wave laser
<b>Connectors</b>	LC-style connector that supports non-OFC, multimode fibre optic cabling using a small form factor optical transceiver module
<b>Form factor</b>	Half size: 17.78 cm x 10.67 cm (7.0" x 4.2") (QLA2310F); Low-profile MD2: 16.93 cm x 5.15 cm (6.7" x 2.5") (QLA2310FL)
<b>Bracket size</b>	QLA2310F: standard size; QLA2310FL: low-profile size

## Environment and Equipment Specifications

<b>Temperature</b>	Operating: 0°C/32°F to 55°C/131°F. Storage: -20°C/-4°F to 70°C/158°F	
<b>Airflow</b>	0 lf/m	
<b>Humidity</b>	Relative (noncondensing): 10% to 90%, Storage: 5% to 95%	
<b>Power dissipation</b>	~ 4.75 watts	
<b>Cable</b>	50/125µm multimode fiber, 62.5/125 µm multimode fiber	
<b>Cable distances</b>	1 Gbps: 500 meters 50/125 µm fiber, 300 meters 62.5/125 µm fiber	2 Gbps: 300 meters 50/125 µm fiber, 150 meters 62.5/125 µm fiber

## Agency Approvals—Product Safety

<b>US/Canada</b>	UL, cUL UL1950 (QLA2310FL) UL60950 (QLA2310F) cUL C22.2 No. 950 (QLA2310FL) CSA C22.2 No. 60950 (QLA2310F) Class 1 Laser Product per DHHS 21CFR J
<b>Europe</b>	73/23/EEC Low Voltage Directive: TUV: EN60950: 1992+A1,2,3,4,11 EN60825-1: 1994+A11 EN60825-2: 1994

## Agency Approvals—EMI and EMC

<b>US</b>	FCC Part 15, Class B
<b>Canada</b>	Industry Canada ICES-003, Class B (QLA2310FL only)
<b>Europe</b>	89/336/EEC EMC Directive CE Mark: EN55022: 1995 Class B EN55024: 1998 EN61000-3-2: 1995 EN61000-3-3: 1994
<b>Japan</b>	VCCI, Class B
<b>Taiwan</b>	CNS 13438 Class B BSMI
<b>New Zealand/Australia</b>	AS/NZS 3548 Class B
<b>Korea</b>	MIC

## Tools and Utilities

<b>Management tools</b>	FC HBA Manager
<b>Device utilities</b>	Command line interface; configuration utilities resident with BIOS and FCode
<b>Boot support</b>	Intel x86: BIOS (32-bit), EFI (64-bit); Solaris SPARC: FCode
<b>APIs</b>	SNIA HBA API V2, SMI-S, and FDMI
<b>Operating systems</b>	Windows Server 2003 (32-bit and 64-bit), Windows NT, Windows 2000, Windows XP, Solaris SPARC, Linux (32-bit and 64-bit), Novell NetWare, Mac OS X

## Ordering Information

<b>QLA2310F</b>	Ships to OEMs in an individually packed box with a standard size bracket
<b>QLA2310F-BK</b>	Ships to OEMs in a bulk pack box in quantities of 20, 50, or 100 with standard size brackets
<b>QLA2310F-CK</b>	Ships in an individually packed box with a standard size bracket, FC HBA Manager, and Quick Start Guide
<b>QLA2310FL</b>	Ships to OEMs in an individually packed box with a low-profile size bracket
<b>QLA2310FL-BK</b>	Ships to OEMs in a bulk pack box in quantities of 20, 50, or 100 with low-profile size brackets
<b>QLA2310FL-CK</b>	Ships in an individually packed box with a low-profile bracket, FC HBA Manager, and Quick Start Guide



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