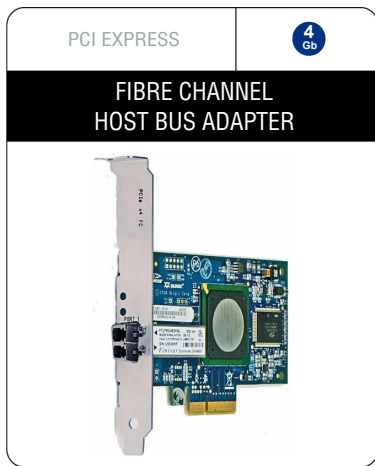




# SANblade<sup>®</sup> Express

4-Gbps Fibre Channel (FC) to PCI Express  
Host Bus Adapter (HBA)

QLE220



## Simplified Ease of Use

- Installation wizards for quick hardware setup and configuration
- Step-by-step quick start guide for easy installation
- Optimal factory settings eliminate advanced tuning requirements

## Enhanced Reliability

- Most reliable HBA proven with exhaustive mean time between failures (MTBF) testing
- Single-chip solution with fewer components minimizes device failures
- Interoperable with leading server systems and SAN devices

## Cost Effective

- Entry level HBA features at an affordable price
- Designed with specific components and features to address the small medium business (SMB) market
- Simple management tools and device utilities lower management costs

- Plug and Play
- 4/2 Gbps (auto-negotiation)

- PCI Express x4 support
- RoHS compliant

- LED beaconing
- Comprehensive operating system support

**Why a QLE220?** The QLE220 offers a reliable, high-performance, dependable storage area network (SAN) to the small and medium business (SMB) market. The QLE220 is easy to use, with proven quality, and demonstrated robustness (highest mean-time between failures (MTBF)).

**Ease of Use.** Designing a successful user experience requires understanding their needs, expectations, experience, and usage patterns. By applying this knowledge to HBAs and software, QLogic has created a design that requires minimum user effort while providing maximum user satisfaction. The wide adoption of installation/configuration wizards eliminates the complexity and intricacies of Fibre Channel SANs. Emphasis on ease-of-use at every step assures a successful, enhanced experience. Default factory settings and auto-detect configuration (similar to Windows<sup>®</sup> XP) eliminates the need to know about each and every knob and button on the dashboard.

**Plug and play.** The QLE220's technology takes a huge leap in out-of-the-box plug and play SAN setup. An illustrative Quick Start Guide and extended customer support (including online, via email, and by phone) makes installation, configuration, maintenance, and upgrades easy for even a novice user. In addition, the QLE220 package is available in 12 languages, making it even easier for geographically diverse customers to adopt the SAN infrastructure.

**True Value.** Rather than a philosophy of one size fits all, the QLE220 technology addresses the needs of the SMB market segment. QLogic

brings optimal performance (800 MBps throughput) for the best possible price to SMB customers. QLogic has worked with its customers to determine the ideal feature set and with suppliers to adopt highly reliable, low-cost components.

**Why QLogic?** The QLE220 is the defacto standard for small-medium business (SMB) HBAs because of:

- QLogic's ground-up approach to developing an SMB HBA (not just a *make-from*)
- QLogic's SANsurfer Express (based on Microsoft<sup>®</sup>'s virtual disk services (VDS) services):
  - Creates a unified and powerful SAN management experience.
  - Provides a single application to install, manage, and use with the entire SAN including the storage system, HBAs and switches.
  - Provides the ability to manage heterogeneous operating systems (OS) environments.



Host Bus Interface Specifications	
<b>Speed</b>	PCI Express x4
<b>Voltage</b>	3.3V and 12VDC supported
<b>HW platforms*</b>	IA32 (x86), IEM64T, AMD Opteron64
<b>Compliance</b>	PCI Express Base Specification, rev. 1.0a; PCI Express Card Electromechanical Specification, rev. 1.0a; PCI Bus Power Management Interface Specification rev. 1.1; PCI Hot Plug Specification rev. 1.0; ACPI (Advanced Configuration and Power Interface) rev. 1.0 compliance
Fibre Channel Specifications	
<b>Speed</b>	400 MBps maximum at half-duplex, 800 MBps maximum at full-duplex (4-Gbps/2-Gbps autonegotiation only)
<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 (FCAL-2), Fibre Channel-Private Loop Direct Attach Technical Report (FC-PLDA), Fibre Channel Framing and Signaling (FC-FS)
<b>Topology</b>	FCAL, FCAL-2, switched fabric (F-Port)
<b>Class of service</b>	Class 3 Fibre Channel
<b>Protocols</b>	SCSI (FCP), tape (FCP-2)
<b>Logins/exchanges</b>	Up to 16 total logins in private loop (FCAL/FCAL-2) topology, 8 (target) logins in fabric (F-Port connect) topology, and up to 64 FCP/FCP-2 exchanges
<b>FC frame/Buffer</b>	2K fixed size; 2 credits issued
Physical Specifications	
<b>Ports/LEDs</b>	One port; two LEDs (with beacon support)
<b>Media/Optics</b>	Multimode optic; Short wave laser
<b>Form factor</b>	Low-profile PCI Express card: 11.99 cm×6.44 cm (4.721"×2.536")
<b>Bracket size</b>	Standard size, with optional low profile size
<b>Connectors</b>	LC-style connector that supports non-OFC, multimode fibre optic cabling using a small form factor optical transceiver module
<b>Power</b>	5 watts
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 l/f/m
<b>Humidity</b>	Relative (noncondensing): 10% to 90%, Storage: 5% to 95%
<b>Distance</b>	2 Gbps: 300 meters 50/125 µm fiber, 150 meters 62.5/125 µm fiber. 4 Gbps: 150 meters 50/125 µm fiber, 70 meters 62.5/125 µm fiber.
<b>Cable</b>	50/125µm multimode fiber, 62.5/125 µm multimode fiber.
Agency Approvals—Product Safety (Preliminary)	
<b>US/Canada</b>	UL, cUL UL60950-1 CSA C22.2 No.60950 Class 1 Laser Product per DHHS 21CFR J
<b>Europe</b>	73/23/ECC Low Voltage Directive: TUV: EN60950-1: 2001 EN60825-1: 1994+A1+A2 EN60825-2: 1994 +A1
Agency Approvals—EMI and EMC (Preliminary)	
<b>US</b>	FCC Part 15, Class A
<b>Canada</b>	Industry Canada ICES-003, Class A
<b>Europe</b>	89/336/EEC EMC Directive CE Mark: EN55022: 1998 /CISPR22:1997 Class A EN55024: 1998 EN61000-3-2:2000 EN61000-3-3:2001;A1:2001
<b>Japan</b>	VCCI, Class A
<b>Taiwan</b>	CNS 13438 Class A
<b>New Zealand/Australia</b>	AS/NZS 3548 Class A
<b>Korea</b>	MIC Class A
Tools and Utilities	
<b>Management tools</b>	SANsurfer®FC HBA Manager; SANsurfer Express (available only with the SAN Express Kit), a wizard-based SAN management application with preconfigured settings.
<b>Operating systems</b>	Windows® Server™ 2003; Windows 2000; Windows XP Pro; Mac OS X; Linux® (Red Hat 8, 9, Advanced Server 2.1 and 3.0; SuSE® SLES 8 and 9); Solaris™ x86. A single common driver supports all QLogic FC HBAs.
<b>Device utilities</b>	Configuration utilities resident with boot code
<b>Boot support</b>	BIOS
<b>Localization</b>	Available in German, French, Italian, Spanish, Hebrew, Russian, Polish, simplified Chinese, traditional Chinese, Korean, Japanese, and Portuguese (Brazilian)
Storage/Fabric	
<b>Storage</b>	Supported only with predefined SMB storage subsystems including Adaptec SANBloc 2Gb RAID & FS4500 RAID; Apple Xserv RAID; DotHill SANnet II (SATA & FC); EMC CLARiiON AX100, AX150; Engenio 2822 SATA, 2882 FC, 2882 SATA; Fujitsu/Siemens FibreCAT S80; Hitachi Thunder 9520V, WMS100, AMS300; HP MSA 1000, MSA1500; IBM DS4100, DS4300; Infotrend EON2510FS, F12F-G2A2, F16F-S2J2 (JBOD), FF-R/S 2021-4/6, A12F-G1A2 (SATA), A12F-G2221; Network Appliance FAS250; SUN StorEdge 3510, StorEdge 3511; Xiotech Magnitude 3D 1000e
<b>Multi-switch</b>	Supports up to two switches
Ordering Information	
<b>QLE220-BK</b>	Ships in a bulk box in quantities of 20 or 50 with standard size brackets
<b>QLE220-CK</b>	Ships in an individually packed box with a standard size bracket and a spare low-profile bracket, SANsurfer CD, and Quick Start Guide



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