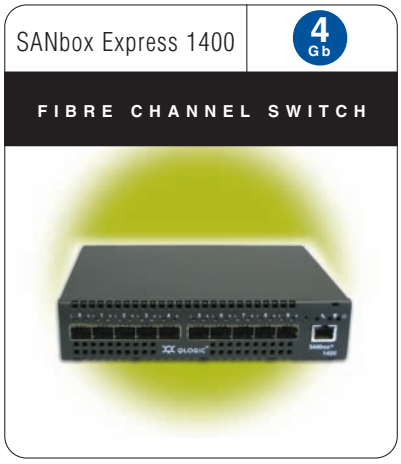
SANbox® Express

10 Ports, 4Gbps Fibre Channel Switch

SANbox® 1400 Series



Features

- 10 4Gb device ports
- Auto-sensing, self-configuring ports
- SANsurfer® Express support
- Configuration Wizard software tool to simplify switch installation and fabric scaling
- In-band, out-of-band, Telnet and SNMP management access
- 1U half-width rack form-factor
- Non-Disruptive Code Load and Activation (NDCLA)
- Interoperable with all FC-SW-2 compliant Fibre Channel switches
- I/O StreamGuard for RSCN Suppression
- "No-Wait" routing – guaranteed maximum performance independent of data traffic

Plug and Play Installation

Simple wizard tools lead you through the installation and configuration of the SAN. Seamless integration with the optional SANsurfer Express tool provides management of your SAN plus Microsoft VDS compliant storage from a single tool!

Incredibly Low Cost

As an entry-level switch, its low cost means the smallest business can now afford and enjoy the benefits of networked storage without having to become a storage expert.

Small, Powerful Package

At only 2lbs and 6" deep, the SANbox 1400 requires only half a slot to maximize your rack usage. Now, two units can be placed in a single slot for a total of 20 ports in 1U - maximum port density and power with minimum investment!

Pervasive Interoperability

Interoperable with popular servers, storage and networking products from major manufacturers, including: ADIC, Brocade, Cisco, Computer Associates, Dell, EMC, Emulex, HDS, HP, IBM, LSI, McData, Microsoft, Quantum, StorageTek, Sun, VERITAS, and many others.

SANbox Express™

4 Gb

TECHNICAL SPECIFICATIONS : SANbox® Express 1400 Series

Standards

Fibre Channel Ports
- Physical & Signaling Interface Rev. 4.3 (FC-PH)
- Physical & Signaling Interface-2 (FC-PH-2)
- Physical & Signaling Interface-3 (FC-PH-3)
- Fabric Generic Requirements (FC-FG)
- Generic Services (FC-GS)
- Generic Services-2 (FC-GS-2)
- Generic Services-3 (FC-GS-3)
- Switch Fabric (FC-SW-2)
- Arbitrated Loop Rev. 4.6 (FC-AL)
- Arbitrated Loop-2 Rev. 7(FC-AL-2)
- Fibre Loop Attachment (FC-FLA)
- Tape Technical Report (FC-Tape)
- Virtual Interface Architecture Mapping (FC-VI)
- Element MIB Specification
- Fibre Alliance MIB Specification

Fibre Channel Classes of Service
- Classes 2, 3 connectionless

Modes of Operation
- Fabric
- Public Loop

Performance Features

Fabric Port Speed
- 4Gb/s, full-duplex, auto-negotiating for compatibility with existing 1Gb and 2Gb devices

Fabric Latency
- Less than 0.4 µs (best case, no contention)
- Cut-through routing

Fabric Point-to-Point Bandwidth
- 848 MB/s Full Duplex per port

Fabric Aggregate Bandwidth
- Single chassis: Over 80 Gb/s (full duplex) end-to-end
- Non-blocking architecture

Maximum Frame Sizes
- 2148 bytes (2112 byte payload)

Per-port Buffering
- ASIC-embedded memory (non-shared)
- Each port has a guaranteed 8-credit zero wait state buffer for full performance up to 10km

Scalability

Ports Per Chassis
- (10) 4Gb / 2Gb / 1Gb ports

Multi Switch Fabrics
- Supports E-port link to another switch
- In-order delivery of frames in all multi-switch and multi-link configurations

Fabric Port Types
- All ports can assume the following states:
  - F_port: Fabric
  - FL_port: Fabric loop (public loop)
  - E_port: Switch-to-switch (single connection)
- Ports are auto-discovering, self-configuring

Media Type
- Hot-pluggable, industry-standard SFPs (Small Form Pluggable)

Supported SFP Types
- Shortwave: 500 m (1,640 ft.)
- Longwave: 10 km (6.2 mi.)

Media Transmission Ranges
- Optical
- Shortwave: 500 m (1,640 ft.)
- Longwave: 10 km (6.2 mi.)

Cable Types
- 50/62.5 micron multimode fiber optic
- 9 micron single-mode fiber optic

Interoperability

- Compatible with FC-SW-2 compliant switches
- Management interoperability with leading SAN management applications

Fabric Management

Management Processor
- Pentium class Processor

Management Methods
- SNMP, Telnet, GS-3

Access Methods
- In-band
- Ethernet 10/100 BaseT with RJ45

Diagnostics
- Power-up self-test of all functionality except media modules
- Field-selectable full self-test including media modules

Fabric Services
- Simple Name Server
- Fabric Zoning
- Registered State Change Notification (RSCN)
- I/O StreamGuard™

User Interface
- LED indicators, command-line console, and web-based utilities

Mechanical

Enclosure Types and Options
- Desktop/shelf top with included rubber feet
- Optional rack mounting kit for mounting up to two SANbox 1400 units

Dimensions
- Width: 190.5 mm (7.5")
- Height: 41.9 mm (1.65") (1U)
- Depth: 155.6 mm (6.125")

Weight
1.1 kg (2 lbs 8 oz)

Power Supply/Cooling
- External laptop-style power supply
- Front to back airflow with integrated cooling fan

Environmental

Operating

• Temperature:	5 to 40 °C (41 to 104°F)
• Humidity:	15% to 90% noncondensing
• Altitude:	0 to +15,000 feet
• Vibration:	IEC 68-2 5-500 Hz, random, 0.21 G rms
• Shock:	IEC 68-2 4 g, 11ms, 20repetitions

Non-Operating

• Temperature:	-40°C to 70°C (-40 to 158 °F)
• Humidity:	25% to 93% noncondensing
• Altitude:	0 to +50,000 feet
• Vibration:	IEC 68-2 5 to 500 Hz, random, 2.09 G rms,
• Shock:	IEC 68-2 30g, 292 ips, 3 repetitions, 3 axis

Electrical

Operating Voltage
- 90-265 Vac, 47-63 Hz

Power Source Loading
- 20VA

Heat Output
- 25W maximum (with full optics configuration)

Regulatory

Safety Standards:
- UL 60950 (USA)
- CSA 22.2 No.60950 (Canada)
- EN60950 (EC)
- CB Scheme-IEC 60950

Emissions Standards
- FCC Part 15B Class A (USA)
- VCCI Class A ITE (Japan)
- ICES-03 Issue 3 (Canada)
- EN55022 Level A (EC)
- CISR 22, Class A

Voltage Fluctuations
- EN 61000-3-3

Harmonics
- EN 61000-3-2

Immunity
- EN 55024:1998

Marking
- FCC Part 15
- UL (USA)
- TUV (USA)
- cUL (Canada)
- cTUV (Canada)
- TUV (Europe)
- VCCI
- CE

Ordering Information

SB1404-10AJ-E	Switch unit with (10) 4Gb small form-factor pluggable optics (SFP)
SB1400-RACKKIT	Optional rack mounting kit (supports up to two SANbox 1400 units)
SB1400-PS	External power supply replacement kit

For a list of authorized resellers, visit **www.qlogic.com/buyqlogic/home_buy.asp**

Corporate Headquarters
QLogic Corporation
26650 Aliso Viejo Parkway
Aliso Viejo, CA 92656
949.389.6000

Europe Headquarters
QLogic (UK) LTD.
Surrey Technology Centre
40 Occam Road Guildford
Surrey GU2 7YG UK
+440(0)1483 295825

WWW.QLOGIC.COM

SN0058041-00 Rev C 6/06