



# SANbox2™-64

## switch

Scalable – Highly-Available,  
Modular Fabric Switch with  
built-in investment protection  
for your SAN backbone



The QLogic SANbox2-64 modular fabric switch is a 1Gb and 2Gb switch designed to meet the needs of your growing enterprise. As the industry's only 4U modular fabric switch, the SANbox2-64 delivers industry-leading port density: 64 Ports in 4U and 640 ports in a 42U rack. The SANbox2-64 is designed to meet the needs of the most demanding enterprise, with built-in availability, scalability and manageability.

A modular architecture makes the SANbox2-64 easy to deploy and scale from 16 to 64 ports. The highly-optimized design, based on the Qlogic sixth-generation fabric-on-a-chip technology, allows for cost-effective deployment in the industry-preferred redundant switch configurations. SANmark™ certification validates full conformity with industry standards and compatibility with other standards-compliant devices. Simply hook up storage and servers to the SANbox2-64 and enjoy the benefits and reliability of a true SAN fabric - without the complexity and troubles of ISLs and multiple switches. SANbox2-64: the open, economical and fastest way to keep up with your growing enterprise.

- Supports 1Gb and 2Gb on every port
- Full FC-SW-2 E\_Port switch support for heterogeneous SANs
- Dual redundant power supplies and fans for high availability

- Free SANsurfer® Management Suite™
- SANGuard™ Zoning to safeguard critical data via world-wide name, broadcast and hard zoning
- Auto-sensing and self-configuring ports for easy installation

- Includes I/O Stream Guard™, non-blocking full-bandwidth architecture
- Supports SANbox2-64 FLS™ (full loop support) for full-fabric, public-loop and switch-to-switch connectivity at every port

- Supports cascade, mesh and MultiStage™ architecture for scalable SAN fabrics
- FCIA SANmark certified
- 8-port I/O FRU for easy expansion
- Scales from 16 to 64 ports

### Applications | SAN Core / Backbone | SAN Consolidation | Expandable SAN Island

**HIGH AVAILABILITY AND FAULT TOLERANCE.** The SANbox2-64 is designed for the most demanding environments that require 99.999% availability. Redundant hardware components – power supply modules, fans, I/O modules, switch fabric – ensure your SAN is always available. Non-disruptive code load and activation (NDCLA) and redundant-fabric configurations allow continual availability during software upgrades and planned maintenance.

**FLEXIBILITY AND FUTURE PROOF.** A modular 8-slot chassis provides the core for your growing SAN. You have flexibility to deploy Fibre Channel today, with built-in support for future emerging storage technologies. The SANbox2-64 is designed to be cost effective for workgroup environments with scalability for the largest enterprises. It is easy to scale and deploy 8-port Fibre Channel I/O modules from 16 to 64 ports.

**EASE OF USE.** The SANbox2-64 is designed to simplify the entire SAN experience. QLogic SANbox Manager™ provides the tools to easily manage your SAN, including advanced diagnostics to keep it fully optimized. Expanding your SAN is as simple as adding an 8 port I/O card with expansion up to 64 ports.

**STELLAR PERFORMANCE.** Based on QLogic's innovative, highly-integrated, sixth-generation ASIC technology, the QLogic modular fabric switch delivers the industry's lowest and best port-to-port latency. The modular architecture is designed for today's 1Gb or 2Gb SANs with built-in bandwidth to scale to 10Gb technology.

# SANbox2-64 Switch

2  
Gb

## TECHNICAL SPECIFICATIONS

### SANbox2-64 Fibre Channel Switch

#### Systems Architecture

##### Fibre Channel Ports

- 64 universal ports (E, F, FL, TL)
- Up to 8 I/O modules
- 8 ports per I/O module

##### Scalability

- Full-fabric architecture: 239 switches maximum

##### Multi-switch Fabrics

- Supports all topologies, including: cascade, cascaded loop, mesh and Multistage
- Supports multiple links between switches
- 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)
- Ports are auto-discovery, self-configuring

##### Media Type

- Hot-pluggable, industry-standard SFPs (small form factor pluggable)

#### Availability

##### Chassis Power

- Hot-pluggable, 1+1 Redundant power
- 800W Power Module: AC to -48V DC
- Dual AC Input lines (front mount)

##### Cooling

- Hot-pluggable, 2+1 Redundant fan modules

##### IO Module

- 8-Port I/O field replaceable unit (FRU)
- Hot-pluggable, I/O Module

##### Management Module

- Management module FRU
- Non-disruptive software updates

##### Cross Connect

- 1+1 Redundant cross-connect modules

#### Performance

##### Fabric Port Speed

- 2 Gb/s, full-duplex, auto-negotiating for compatibility with existing 1Gb devices

##### Fabric Latency

- Less than 0.4  $\mu$ s (on I/O Module)
- Less than 1.2  $\mu$ s any port to any port
- Cut-through routing

##### Fabric Point-to-Point Bandwidth

- 412 MB/s Full Duplex

##### Fabric Aggregate Bandwidth

- Up to 256 Gb/s (full duplex) end to end

##### Maximum Frame Sizes

- 2148 bytes (2112 byte payload)

#### Per-port Buffering

- ASIC-embedded memory
- Each port has a guaranteed 12-credit zero wait state buffer for full performance up to 10km
- Each I/O Module may borrow additional credits for distance up to 100km

#### Interoperability

- Fully interoperable with all SANbox2 products and 1Gb SANbox products with SW/FW Rev 4.0 and greater
- Compatible with all FC-SW-2-compliant devices
- Certified with leading SAN hardware and software vendors. Visit <http://www.qlogic.com/interopguide> for interoperability information

#### Fabric Management

##### Management Processor

- 850Mhz Pentium3

##### Management Methods

- SANbox Manager management application tools (standard and private brand versions)
- SNMP, Telnet, GS3 Management Server
- Command line interface (CLI)

##### Access Methods

- In-band
- Ethernet 10/100 with RJ45
- Serial port (DB9)

##### Diagnostics

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

##### Fabric Services

- Simple name server
- Scalable SANguard zoning
- Hardware-enforced hard zoning
- Soft zoning (WWN)
  - Orphan zoning
  - All zoning assigned on per node basis, even across Multi-stage fabrics
- I/O StreamGuard (RSCN suppression)
- Multi-chassis in-order delivery
- Automatic Path Selection (APS) in Multistage configurations
- Broadcast

##### User Interface

- LED indicators, command console, telnet, SNMP, SSH command line, SSL API interface, and SANbox Manager application

#### Mechanical

##### Enclosure Types and Options

- Optional front or rear rack mounting

##### Dimensions

- Width: 432 mm (17.00") (19" rack mountable)
- Height: 178 mm (7.00") (4U)
- Depth: 660 mm (26.00")

##### Weight

- 64 Port: 65 lbs. fully configured

##### Ports per rack

- Up to 640 ports per 42U rack

#### Supported SFP Types

- Optical shortwave or longwave
- Any SFP type can be used in any fabric port

#### 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

#### Standards

##### Fibre Channel Protocols

- FC-PH Rev 4.3
- FC-FG
- FC-PH-2
- FC-PLDA
- FC-PH-3
- FC-Tape
- FC-AL Rev 4.6
- FC-VI
- FC-AL-2 Rev. 7.0
- FC-SW-2
- FC-FLA
- FibreAlliance MIB
- FC-GS-2
- Fabric Element MIB
- FC-GS-3

##### Fibre Channel Classes of Service

- Classes 2, 3 connectionless

##### Modes of Operation

- Fabric
- Broadcast

#### Environmental

##### Operating

- Temperature: +5°C to +40°C
- Humidity: 15% to 80% non-condensing
- Altitude: 0 to +10,000 feet
- Vibration: IEC 68-2
- Shock: IEC 68-2
- 4 g, 11ms, 20 repetitions

##### Non-Operating

- Temperature: -40°C to +70°C
- Humidity: 5% to 90% non-condensing
- Altitude: 0 to +50,000 feet
- Vibration: IEC 68-2
- 5 to 500 Hz, random, 2.09 G rms, 10 minutes
- Shock: IEC 68-2
- 30g, 292 ips, 3 repetitions, 3 axis

#### Electrical

##### Operating Voltage

- 90-265 Vac, 47-63 Hz

##### Power Source Loading

- 11.5 Amps maximum at 90-137 Vac
- 7.5 Amps maximum at 138-265 Vac

##### Heat Output

- 500 watts fully populated

#### Regulatory

Country	Safety	EMC
Canada	ULC 1950	ICES-003 Issue 3
United States	UL 1950n	FCC Part 15 Class A
Japan		VCCI Class A
European Community	EN60950 A4 CB-Scheme	EN55022 Level A EN55024:1998

For a list of authorized resellers, visit [www.qlogic.com/buyqlogic/home\\_buy.asp](http://www.qlogic.com/buyqlogic/home_buy.asp)



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