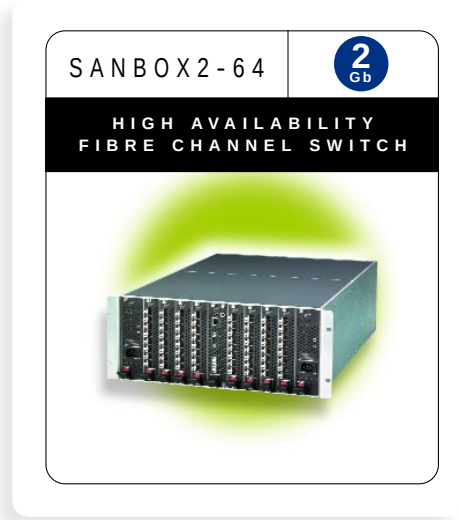
SANbox2-64™ switch

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 ISL's and multiple switches. The 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/private loop and switch-to-switch connectivity at every port**
- **Supports Cascade, Mesh and MultiStage™ architecture for scalable SAN fabrics**
- **FCIA SANmark certified**
- **8 port IO 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% level of availability. Redundant hardware components – power supply modules, fans, IO 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 IO 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 the next generation 10Gb technology.

powered by qlogic™

2Gb Fibre Channel Switches

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 IO modules
- 8 Ports per IO module

Scalability
- Full fabric architecture: 239 switches maximum

Multi-switch Fabrics
- Supports all topologies, including: cascade, cascaded loop, mesh and MultistageTM
- 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)
  - E_port: Switch-to-switch
  - TL_port: Translative mode – private-to-public / public-to-private bridging
- F, FL and E ports are auto-discovering, 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 IO field replaceable unit (FRU)
- Hot-pluggable, IO 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 1Gbit devices

Fabric Latency
- Less than 0.4 µs (on IO Module)
- Less than 1.2 µs 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 IO Module may borrow additional credits for distance up to 100km

Interoperability

- Fully interoperable with all SANbox-2 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

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, API and SANbox Manager based utilities

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

Fibre Channel Classes of Service
- Classes 2, 3 connectionless

Modes of Operation
- Fabric
- Broadcast

Environmental

Operating

• Temperature:	+5°C to +40C
• Humidity:	15% to 80% non-condensing
• Altitude:	0 to +10,000 feet
• Vibration:	IEC 68-2 5-500 Hz, random, 0.21 G rms, 10 minutes
• 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 A_4 CB-Scheme	EN55022 Level A EN55024:1998

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

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SN0058008-00 Rev B 6/03