SANbox® 5200/5202

The Industry's First Fibre Channel Stackable Switch

Stackable Switch

The benefits of stackable IP switches are now available for SANs. The SANbox 5200/5202 stackable switch delivers the seamless scalability and performance of a chassis switch, in an easy-to-manage, pay-as-you-grow solution. With sixteen 2Gb ports plus a four-pack of high-speed 10Gb ISL ports, and entry as low as 8 ports with 4-port software-keyed increments and included graphical user interface (GUI) wizards, each SANbox 5200/5202 stackable switch provides maximum flexibility for configuring and scaling SANs. Available in two power supply configurations: single integrated (SB5200) and dual hot-swappable (SB5202).

- **8, 12 or 16 auto detecting 2Gb /1Gb device ports**
- **4 10Gb ports for high speed stacking links**
- **4-port 2Gb/1Gb and/or 10Gb field upgrade licenses available**
- **Stacking of up to 4 units for 64 available user ports**
- **Non-Disruptive Code Load and Activation (NDCLA)**
- **Single and dual hot-swap power supply configurations available**
- **Configuration, Zoning and Extended Distance wizards to simplify switch installation and fabric scaling**
- **Interoperable with all FC-SW-2 compliant Fibre Channel switches**
- **Full-fabric, public-loop or switch-to-switch connectivity on 2Gb/1Gb ports**
- **Full-fabric or switch-to-switch connectivity on 10Gb ports**
- **Auto-sensing, self-configuring ports**
- **Fabric Tracker tool for fabric-wide snapshots and detection of configuration changes**
- **Non-blocking full-bandwidth architecture**
- **I/O StreamGuard for RSCN suppression**
- **"No-Wait" routing – guaranteed maximum performance independent of data traffic**
- **Industry's lowest latency for maximum performance**
- **SFP (small form-factor pluggable) connectivity – 16 front ports in a 1U full-width rack form-factor**
- **Designed for seamless operation with higher-level third-party management applications**
- **In-band, out-of-band, Telnet and SNMP management access**
- **ASIC-embedded memory – faster, more scalable and more reliable than shared memory architecture**

BREAKTHROUGH EASE OF USE. The first Fibre Channel stackable switches to be configured and zoned with simple wizards. Point-and-click installation and configuration wizards get your QLogic HBAs and switches up and running quickly.

INCREDIBLY LOW COST. Starting at 8 ports, SANbox 5200/5202 stackable switches offer an entry point affordable to the smallest business. And with an easy-to-use graphical user interface (GUI), you won't have to hire a SAN expert to manage your stack.

MODULAR SCALABILITY. Start with 8 ports and then grow your SAN in 4 port increments up to 64 ports in a single stack. A key benefit is the ability to add, change or delete switches without disrupting your storage network.

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.

BLAZING 10Gb PERFORMANCE. The first SAN product to support traffic between switches, servers and storage at up to 10Gb per second — six times faster than 2Gb networks being deployed today. A single, 10Gb inter-switch link (ISL) ensures low latency between switches and eliminates the cost and complexity of trunking up to six 2Gb ports.

SANbox 5200/5202

TECHNICAL SPECIFICATIONS : Stackable Switch

SANbox 5200/5202
Fibre Channel Stackable Switches

- 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
- 2 Gb/s, Full-Duplex, auto-negotiating for compatibility with existing 1Gb devices
- 10 Gb/s, Full-Duplex

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

Fabric Point-to-Point Bandwidth
- 412 MB/s Full-Duplex on 2 Gb ports
- 2400+ MB/s Full-Duplex on 10Gb ports

Fabric Aggregate Bandwidth
- Single chassis: Up to 144 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 16-credit zero wait state buffer for full performance up to 10km @ 2Gb and 2.5Km @ 10Gb

Scalability

Ports Per Chassis
- (8 to 16) 2Gb/1Gb ports upgradeable in 4-port increments
- (4) 10Gb XPAK MSA-compliant ports

Multi-switch Fabrics
- Supports all topologies, including: stack, cascade, cascaded loop, mesh and Multi-stage™ with E_Port
- 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
- Ports are auto-discovering, self-configuring

Media Type
- Hot-pluggable, industry-standard SFPs (Small Form Pluggable) for 2Gb and 1Gb ports
- Hot-pluggable, industry-standard XPAK cables for 10Gb ports

Supported SFP Types
- Shortwave (optical)
- Longwave (optical)

Media Transmission Ranges (2Gb Ports)
- Optical
  - Shortwave: 500 m (1,640 ft.)
  - Longwave: 10 km (6.2 mi.)

Cable Types (2Gb Ports)
- 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
- RS-232 serial port with 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
- Fabric Zoning
  - Hardware-based
  - Access Control List (port)
  - Name Server (WWN)
  - Orphan Zoning
  - All zoning assigned on per-node basis, even across Multi-stage fabrics
- Registered State Change Notification (RSCN)
- I/O StreamGuard
- Multi-chassis in-order delivery
- Automatic path selection in Multi-stage configurations
- FDMI device support

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

Mechanical

Enclosure Types and Options
- Secure stacking with rubber feet or rack mounting brackets (both included)
- Optional rail mounting kit.

Dimensions
- Width: 432 mm (17") 19" rack mountable
- Height: 43.2 mm (1.70")(1U)
- Depth: 305 mm (12") - single power supply model
  508 mm (20") - dual power supply model

Weight
- 4.08 kg (9 lbs) - single power supply model
- 6.80 kg (15 lbs)- dual power supply model

Power Supply/Cooling
- Available models:
  - Integral Power Supply with IEC connector
  - Dual Hot-Swappable Power Supplies with IEC connector and integrated cooling fans
- Front-to-back air pattern

Environmental

Operating

• Temperature:	+5C to +40°C (41 to 104°F)
• Humidity:	5% to 90% 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 4g, 11ms, 20 repetitions

Non-Operating

• Temperature:	-40°C to +70°C (-40 to 158 °F)
• Humidity:	5% to 93% 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
- 100 to 240 VAC; 50 to 60Hz

Power Source Loading
- 1.0A at 100-120 VAC; 0.5A at 200-240 VAC

Heat Output
- 100W 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)
- CISPR 22, Class A

Voltage Fluctuations
- EN 61000-3-3

Harmonics
- EN 61000-3-2

Immunity
- EN 55024:1998

Marking
- FCC Part 15
- UL (United States)
- TUV (United States)
- cUL (Canada)
- cTUV (Canada)
- TUV Europe (Germany)
- VCCI
- CE

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

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