



SANbox 5802V

Fibre Channel Stackable Switch



What's New?

- **8Gb / “8Gb-ready” performance at affordable prices** – Backwards compatible with 4Gb and 2Gb devices and optics!
- **“Always on” 10Gb stacking ports** – no extra cost to activate your Storage Area Network (SAN) backbone!
- **20Gb ISL bandwidth on demand** – Prepare for the future without paying more today!
- **Virtual Fabric-ready** – Dynamically provision infrastructure resources for greater scalability, security, reliability, and cost-savings*
- **Four more device ports per 1U footprint**
- **Preferred Service included** – 24 x 7 call support plus next-business-day hardware exchange

Same Great SANbox 5000 Series Value

- **Cost-saving modular backbone architecture**
 - Stability
 - Adaptability
 - Scalability
 - Extended solution lifespan
- **4-port expansion granularity**
- **Easy to install and manage**
- **Powerful, intuitive software**
 - QuickTools™
 - Enterprise Fabric Suite™ 2007
 - SANdoctor™
 - Fabric Security
- **Still the most cost-effective, best-performing SAN switch available!**

Next-Generation SANs for Today's Infrastructure

The newest addition to QLogic's award-winning SANbox® 5000 Series unleashes powerful data access possibilities for small to large enterprise customers. SANbox 5802V stackable switches offer SAN planners the best choice to cost-effectively handle current needs while preparing for known and unknown competitive business requirements tomorrow.

- Affordable entry as low as eight 8Gb device ports – plus four “always on” 10Gb stacking ports included
- 20Gb Inter-switch Link (ISL) bandwidth on demand – upgrade your stacking ports to the *World's Fastest Fibre Channel!*
- Full backwards-compatibility with existing infrastructure
- Expandable to twenty 8Gb device ports per switch (*24 ports total*) – or 120 device ports per multi-switch stack.

Migrate to 8Gb at Your Own Pace

Thanks to widespread corporate plans for server virtualization/consolidation, along with the rapid adoption of multi-core processors, many SAN users are already feeling the need for 8Gb network speeds. At a minimum, savvy IT managers know they must take the 8Gb transition into account when making their next equipment purchases.

However, these same customers—and others who are not yet ready for 8Gb – also demand a solution that can be installed alongside *existing* infrastructure without requiring large “up front” payments for capabilities that may be needed later.

QLogic's field-proven modular backbone architecture, a key component of the QLogic SAN lifecycle management framework, offers a powerful answer to this dual request, allowing customers to build SANs that will last far into the future – while simultaneously lowering both capital expense (CAPEX) and operating expense (OPEX) through all phases of technology roll-out.

Next-Generation Stacking: A Good Idea Gets Better!

SANbox 5802V lets you connect 8Gb, 4Gb or 2Gb devices to a SAN for about the same cost as competing 4Gb-only solutions – but the investment protection advantages go much deeper than that! Unlike other solutions, the 5802V offers the ability to *phase* bandwidth provisioning incrementally within your ISL fabric, the most performance-critical area of the SAN.

1. Start with “Always On” 10Gb ISLs

Each SANbox 5802V ships with all four 10Gb stacking ports active by default. This unique cost-saving feature means basic inter-switch connectivity is now included with the product! Customers no longer need to take ISL port costs into account when planning and purchasing their SANs – every port they purchase may now be connected directly to a server or storage device! (See sidebar for more on stacking.)

10Gb ISL speed provides more than enough bandwidth for customers in the early stages of their 8Gb migration, when the majority of switch ports will still be attached to 4Gb storage and other legacy devices.

2. 20Gb Bandwidth On-Demand

When enough device ports are connected to 8Gb devices to require additional bandwidth, customers may non-disruptively upgrade the ISL ports on one or more switches to 20Gb – the *World’s Fastest Fibre Channel*. 20Gb, the only ISL technology that perfectly complements 8Gb device speeds, extends the stability, cost-savings, and performance benefits of a true backbone architecture to next-generation SANs.

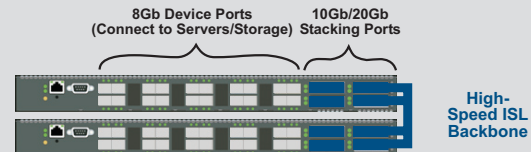
IT managers now have all the network headroom they need to deploy new applications and technologies with confidence. Since 20Gb uses the same cables/connectors as 10Gb, customers can upgrade their entire SAN at the click of a mouse – *without unplugging a single cable or purchasing any new hardware*.

Easy to Install and Manage

- **Installation and configuration wizards** – From basic switch setup to advanced zoning and extended distance configuration, the SANbox 5802V has automated routines to make deployment a snap. Installation is a 3-step point-and-click process. Self-configuring switch ports automatically adjust to 8Gb, 4Gb, or 2Gb device speeds.
- **On-board Graphical User Interface (GUI)** – There is no software to load. Just point a web browser at any switch and manage the entire fabric from that location. No matter what your level of expertise, the web-based QuickTools interface has everything you need for basic fabric management. And for

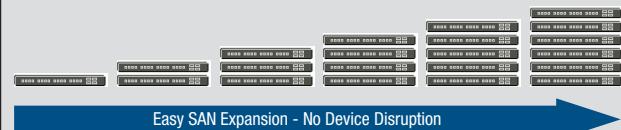
What Is Stacking?

Stackable switches, long familiar to Ethernet users, were introduced for Fibre Channel by QLogic in 2003. Stacking *reduces complexity and cuts costs* by providing a stable, highly-expandable transport for aggregate ISL traffic – eliminating the disruption, port waste and management hassles associated with using device ports as ISLs.



True Backbone Value

In a stackable architecture, each switch features dedicated ports for inter-switch links (ISLs) – that is, for connecting to other switches. These ports run at a much higher bandwidth than the regular data/device ports, and therefore require far fewer connections to achieve specific bandwidth goals.



Need more server or storage ports? Simply add another switch to the stack – no need to move existing cables or to disrupt devices. It's like having the performance and hands-off convenience of an expensive chassis switch, without the cost overhead of a chassis!

Affordable Now – Big Savings Later

- **Low initial cost** – Out of the box, dual-speed SANbox 5000 products provide superior performance at a price-per-port competitive with single-speed, non-stacking edge switches.
- **Reduced expansion costs** – Multi-switch SANbox networks require *up to 50% fewer switches* to achieve the same device port counts. And since each 10Gb/20Gb stacking port (12.75 or 25.5-Gbps actual line speed) can replace three device port ISLs – and *six* 8Gb SFPs – the connections are far less expensive per unit of bandwidth. Stacking has never made more sense from a budget versus performance perspective!
- **Longer product and topology lifespan** – Other vendors force customers to take a non-linear “rip and replace” approach to SAN growth, offering a limited solution at the low end, followed by a radically different (and much more expensive) architecture as the installation matures. QLogic’s modular ISL backbone helps customers pace investments and deployment activities *predictably* over time, with fewer wrong turns and reversals – even when corporate strategies and directions change.

SANbox 5802V Fibre Channel Stackable Switch

advanced administration of larger SANs, the optional Enterprise Fabric Suite application provides an unprecedented level of intuitive granular control.

- **Stack management** – With Enterprise Fabric Suite, users can manage stacks of 5000 series products as a single device, loading firmware, applying security configuration changes, or handling user and Simple Network Management Protocol (SNMP) administration for up to six switches simultaneously.

Fast, Reliable 8Gb/20Gb Performance

The QLogic SANbox 5802V provides uncontested, full-duplex bandwidth at every port – a total of 544 Gbps per switch! ISL capacity expands automatically as device port count grows, ensuring a consistent user experience over time.

- **Full bandwidth architecture** – Each switch features non-blocking performance. Plus, the dedicated 10Gb/20Gb ISL transport makes it easier to create non-blocking *multi-switch* configurations.
- **Adaptive trunking** – No extra cost or complicated license schemes. The built-in QLogic-exclusive trunking feature optimizes ISL use and performance by pooling the capacity of multiple 20Gb, 10Gb, or 8Gb links in a single high-speed pipeline. Trunks are automatically invoked as needed, eliminating the need for manual configuration. Unlike other trunking implementations, trunked ports do not need to be sequential, and may even be spread across multiple switches. Switch-on-exchange design supports Intelligent Path Selection, Fabric-Shortest-Path-First, and Virtual Trunking.

A variety of reliability features make the SANbox 5802V capable of delivering overall system availability greater than 99.999%.

- **I/O StreamGuard™ RSCN suppression** – guaranteed bandwidth for time-sensitive applications such as video streaming.
- **Hardware-enforced zoning by Worldwide Name**
- **Hot-swappable dual power supply options**
- **Non-Disruptive Code Load and Activation (NDCLA)**

Powerful, Intuitive Software

QLogic implements the same code base for the entire SANbox product line, including the popular SANbox 9000 director switch. Not only are SANbox products backward and forward-compatible, you'll only need to learn one set of management tools.

- **QuickTools™** – Embedded Java® web applet for device discovery, device management, zoning, and fabric management. QuickTools includes a configuration wizard and QLogic's exclusive Drag-and-Drop zoning, the industry's most intuitive zoning method.

- **Enterprise Fabric Suite** – Control software costs while managing the SAN *your way* with unprecedented levels of granularity. Enterprise Fabric Suite bundles high-value enterprise features such as Fabric Tracker, Performance View, Port Threshold Alarms, Stack Management, and mPort™ movable port activation into a single site-licensed package. You'll spend less time and money licensing individual features or worrying about "balloon payment" per-switch fees as your SAN grows.
- **SANdoctor** – Comprehensive set of diagnostic tools for troubleshooting problems in your fabric. SANdoctor includes media digital diagnostics, fabric trace-route, and fabric ping.
- **Fabric Security** – Provides the right mix of protection features for user, connection, and device security. This includes support for RADIUS authentication, Secure Shell (SSH), and Secure Socket Layer (SSL) encryption. Device connection security uses Fibre Channel Security Protocol (FC-SP), DH-CHAP, and FC-GS-4 CT.

Interoperability

- **Fully compatible with other SANbox switches** – mix and match in stacks with all 5000 Series products (2Gb, 4Gb or 8Gb). The SANbox 5802V is also compatible with FC-SW-2-compliant switches from other vendors.
- **Interoperable with all major storage, server, application and infrastructure vendors.** SNMP support, available API and SMI-S agent for integration into popular third-party management applications.

Virtualization Support

- **All QLogic 8Gb products support the QLogic vFabric™ virtualization platform.*** With vFabric, customers can dynamically provision infrastructure resources to scale their SANs beyond 239 switches per fabric, provide greater data security, and achieve enhanced reliability and cost-savings goals.
- **N_Port ID Virtualization (NPIV) support** comes standard across the entire QLogic switch portfolio, allowing full integration and interoperability with applications such as VMware®, and hardware including leading transparent blade solutions from IBM®, HP®, and others. Only QLogic delivers end-to-end NPIV support on Host Bus Adapters (HBAs) and switches.

Investment Protection

SANbox 5802V provides low TCO, extended product life-span, and a phased "pay-as-you-grow" approach that will enhance any company's long-term financial strategy. Make business-critical applications and personnel more productive with a next-generation QLogic SAN – the best choice for *today's* infrastructure.

SANbox 5802V Fibre Channel Stackable Switch

Scalability

Ports per chassis

- Eight to twenty 8-Gbps ports (upgradable in 4-port increments)
- Four 10/20-Gbps XPAK MSA-compliant ports (10-Gbps default; upgradable to 20-Gbps)

Multi-switch fabric support

- All topologies including: stack, cascade, cascaded loop, and mesh
- Multiple 10/20Gb or 8Gb links between switches
- Adaptive trunking, intelligent path selection

Port types

- All ports are universal, auto-discovering, self-configuring, and assume the following states:
 - F_Port, FL_port, E_port, G_Port, GL_Port

Performance Features

Fabric port speeds

- 2/4/8-Gbps, 10/20-Gbps full-duplex. All ports auto-negotiate with slower devices or ports.
- Fabric latency less than 0.2 μ s
- Cut-through routing

Fabric point-to-point bandwidth

- 1700 MBps full-duplex on 8-Gbps ports
- 5100 MBps full-duplex on 20-Gbps ports

Aggregate bandwidth

- 544-Gbps per chassis, end-to-end
- Non-blocking architecture

Maximum frame sizes

- 2148 bytes (2112 byte payload)

Per-port buffering

- ASIC-embedded memory (non-shared)
- Guaranteed 16 credit multi-read port buffer for full performance up to 13km @ 2-Gbps and 2 km @ 10-Gbps
- Extended distance through credit donation

Media

- Hot-pluggable, industry-standard 3.3 volt SFP+ transceivers for 8-Gbps ports
- Hot-pluggable, industry-standard XPAK optics or copper stacking cables for 10/20-Gbps ports
- Compatible with 4-Gbps and 2-Gbps SFPs

Supported SFP types

- Shortwave/longwave (optical), active copper

Maximum Media transmission ranges

- Device ports (@ 2-Gbps)
 - Shortwave optical: 500 m (1,640 ft.)
 - Longwave optical: 10 km (6.2 mi.)
- Stacking ports (@ 10-Gbps)
 - Shortwave optical: 300 m (984 ft.)
 - Longwave optical: 2 km (1.2 mi.)

Cable types

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

Interoperability

- Compatible with FC-SW-2 compliant switches including Brocade®, Cisco®, and McDATA®
- Management interoperability with leading SAN management applications

Fabric Management

Management methods

- QuickTools web applet
- Enterprise Fabric Suite 2007
- Command Line Interface
- API, GS-4 Management Server (including FDMI), SNMP, RADIUS, FTP, TFTP, SMI-S.

Access methods

- 10/100 Ethernet BaseT (RJ45), serial port (RS-232 with DB9), in-band (Fibre Channel)

Diagnostics

- Power-On Self Test (POST)
- Optional SANdoctor fabric diagnostics software

Fabric services

- Simple name server, hardware based zoning, Registered State Change Notification (RSCN), I/O StreamGuard, multi-chassis in-order delivery, automatic path selection, FDMI, IPv6 support

User interface

- LEDs, command-line console, and web utilities

Mechanical/Power/Cooling

- Dual, hot-swap power supplies, integrated fans
- Optional rail mount kit
- Front-to-back air pattern
- RoHS compliant

Dimensions

- H x W x D: 43.2 x 432 x 500 mm (1.7 x 17 x 20 in) – dual power supply

Weight

- 8.16 kg (18 lbs) – dual power supply

Environmental and Equipment Specifications

Operating

- Temperature: 5° to 40°C (41° to 104°F)
- Humidity: 10% to 90% non-condensing
- Altitude: 0 to 10,000 feet
- Vibration: 5-500 Hz, 0.27g, 5 sweeps
- Shock: 3.5g, 3ms, half sine, 20 repetitions

Non-operating

- Temperature: -20° to 70°C (-4 to 158 °F)
- Humidity: 10% to 95% non-condensing
- Altitude: 0 to 50,000 feet
- Vibration: 2 to 200 Hz, 0.5g, 5 sweeps
- Shock: 50g, 4216 mm/s, 13msec, 3 axis

Electrical

- Voltage: 100 to 240 VAC; 50 to 60Hz
- Power load: 1 A at 120 VAC; 0.5 A at 240 VAC
- Heat output: 120W maximum

Agency Approvals—Product Safety

- US/Canada: UL/cUL, 60950-1
- Europe: EN60950, CB Scheme-IEC 60950-1, CE, TUV, Low Voltage Directive
- Russia: GOST R

Agency Approvals—EMI/EMC

- Meets Class A emissions and immunity requirements for USA, Canada, Europe, Australia, New Zealand, Korea, Japan

* The 5802V supports virtual fabric capabilities available with future vFabric software release.



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