QLOGIC®
The Ultimate in Performance

DATA SHEET

QLogic 5800V/5802V

Fibre Channel Stackable Switch

Overview

Rapidly increasing requirements for storage in mission-critical environments is driving virtualization across all aspects of infrastructure. Data center managers face the fundamental task of integrating SAN environments over multi-vendor and multi-protocol infrastructures. QLogic's® award-winning 5800V Series Switches unleash powerful, flexible, and cost-effective stacking architecture for small to medium enterprise customers.

- Affordable entry as low as eight 8Gb device ports—plus four "always on" 10Gb stacking ports included *(12 ports total)*
- 20Gb ISL bandwidth on demand—as needs change, upgrade your stacking ports
- Full backwards-compatibility with existing 4Gb and 2Gb infrastructure
- Expandable to twenty 8Gb device ports per switch *(24 ports total)*—or 120 device ports per multi-switch stack
- Choice of cost-optimized single power supply (SB5800V) or high-availability dual power supply (SB5802V) models

Highlights

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 networking backbone.
- **20Gb ISL bandwidth on demand**—Prepare for the future without paying more today.
- **Preferred service included**—24×7 call support plus next-business-day hardware exchange.
- **Fabric Security and SANdoctor® is now included**
- **NPIV support for virtualized environments**
- **Pay-as-you-grow scalability**—Maximize the value of SAN technology investments.
- **Flexible transparent router feature**—Connect easily to any vendor's SAN.

Same Great QLogic 5000 Series Value

- **Cost-saving modular backbone architecture**
  - Stability
  - Scalability and adaptability
  - Extended solution lifespan
- **4-port expansion increments**
- **Easy to install and manage**
  - QuickTools® on-board GUI and CLI included
  - Adaptive trunking included
- **Still the most cost-effective, high-performance SAN switch available!**

Migrate to 8Gb at Your Own Pace

Thanks to widespread corporate plans for server virtualization or consolidation, along with the rapid adoption of multicore processors, many SAN users are already recognizing 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 life cycle management framework, offers a powerful answer to this dual request, allowing customers to build SANs that will last far into the future while simultaneously providing the lowest cost of entry.

Next-Generation Stacking: A Good Idea Gets Better!

QLogic 5800V 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! Unlike other solutions, the 5800V can *phase* bandwidth provisioning incrementally within your ISL fabric—the most performance-critical area of the SAN.

Start with "Always On" 10Gb ISLs

Each QLogic 5800V ships with all four 10Gb stacking ports active by default. Basic inter-switch connectivity is now included with the product. Customers no longer need to take ISL port costs into account when planning their SANs—every port they purchase may now be connected directly to a server or storage device! *(See sidebar for more on stacking.)*

At their default 10Gb setting, the four stacking ports provide over 50Gb of additional bandwidth per switch—the equivalent of six extra 8Gb ports!

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

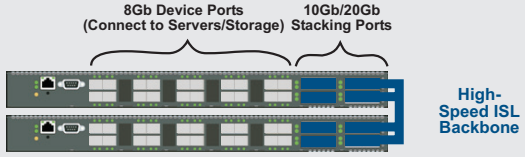
20Gb Bandwidth On Demand

When a majority of QLogic device ports are eventually connected to 8Gb devices, additional inter-switch bandwidth may be desired. At that point, customers can nondisruptively upgrade the ISL ports on one or more switches to 20Gb. At 20Gb, this is the only ISL technology that perfectly complements 8Gb device speeds and 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. Best of all, because 20Gb uses the same cables/connectors as 10Gb, customers can upgrade their entire SAN at the click of a mouse—*without touching a cable or purchasing any new hardware*. Only QLogic offers such a cost-deferred "pay-as-you-grow" plan for the 8Gb transition.

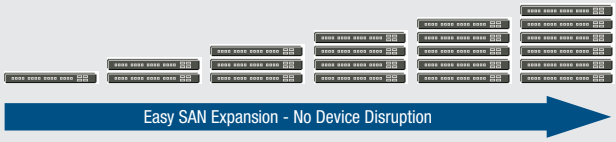
What Is Stacking?

Stackable switches, long familiar to Ethernet users, were introduced for Fibre Channel by QLogic in 2003. Stacking *cuts complexity and 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 ISL; that is, for connecting to other switches. These ports offer much greater 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 disrupt devices.

Affordable Now—Big Savings Later

- **Low initial cost**—Out-of-the-box, dual-speed QLogic 5800V products provide superior performance at a price-per-port that is competitive with single-speed, nonstacking edge switches.
- **Reduced expansion costs**—Compared to nonstackable switches, multiswitch QLogic networks require *up to 50 percent fewer switches* to achieve the same device port counts. Because each stacking port matches the throughput of three device ports, QLogic ISL connections are far less expensive per unit of bandwidth. For instance, a single 20Gb connection (25.5Gbps line rate, 51Gbps full-duplex) saves *six* 8Gb device ports for devices and eliminates the need for *six* expensive 8Gb SFPs. Stacking has never made more sense from a budget versus performance perspective!
- **Longer product and topology lifespan**—Other vendors force customers to take a nonlinear "rip and replace" approach to SAN growth, offering a limited solution at the low end, followed by a radically different 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.

Easy to Install and Manage

- **Installation and configuration wizards**—From basic switch setup to advanced zoning and extended distance configuration, the QLogic 5800V automates routines to make deployment a snap. Installation is a three-step, point-and-click process. Self-configuring switch ports automatically adjust to 8Gb, 4Gb, or 2Gb device speeds.
- **On-board GUI**—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 all you need for basic fabric management.

Fast, Reliable Performance

- **Full bandwidth architecture**—The QLogic 5800V provides uncontested "wire speed" bandwidth at every port—a total of 544Gbps per switch! Plus, the dedicated 10Gb/20Gb ISL transport makes it easy to create nonblocking *multiswitch* configurations. ISL capacity expands automatically as device port count grows, ensuring a consistent user experience.
- **Adaptive Trunking**—There are no extra costs or complicated license schemes. QLogic Adaptive Trunking optimizes ISL use and performance by pooling the capacity of multiple 20Gb, 10Gb, or 8Gb links into a single high-speed pipeline. Trunks are employed automatically, eliminating the need for manual configuration. Unlike other trunking implementations, trunked ports need not be sequential, and can 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 enable the QLogic 5800V to deliver overall system availability greater than 99.999 percent.

- **I/O StreamGuard™ registered state change notification (RSCN)**—Guaranteed bandwidth for time-sensitive applications such as video streaming
- **Hardware-enforced zoning by WWN**
- **Hot-swappable dual power supply options**
- **Nondisruptive code load and activation (NDCLA)**

Powerful, Intuitive Software

QLogic Fibre Channel switches use the same code base, which means that QLogic switches are backward and forward compatible—you will need to learn only 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 drag-and-drop zoning, the industry's most intuitive zoning method.
- **Fabric Security (now included)**—Provides the right mix of advanced protection features for user, connection, and device security. This includes support for remote authentication dial-in user service (RADIUS) authentication, and SSH and SSL encryption. Device connection security uses Fibre Channel Security Protocol (FC-SP), DH-CHAP, and FC-GS-4 CT.
- **SANdoctor (now included)**—An extensive set of diagnostic tools for trouble-shooting problems in your fabric. SANdoctor includes media digital diagnostics, fabric trace route, and fabric ping.

Multi-vendor SAN Interoperability

- **Fully compatible with other QLogic switches**—Mix and match in stacks with all 5000 Series products (2Gb, 4Gb, or 8Gb). The QLogic 5800V is also compatible with FC-SW-2-compliant switches made by other vendors.
- **Connect easily to any vendor's switch**—Transparent routing provides selective and secure sharing of devices without disrupting existing core SANs and management practices.
- **Interoperable with all major storage, server, application, and infrastructure vendors—**SNMP support, an API, and an SMI-S agent are available for integration into popular third-party management applications.

End-to-End Virtualization Support

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.

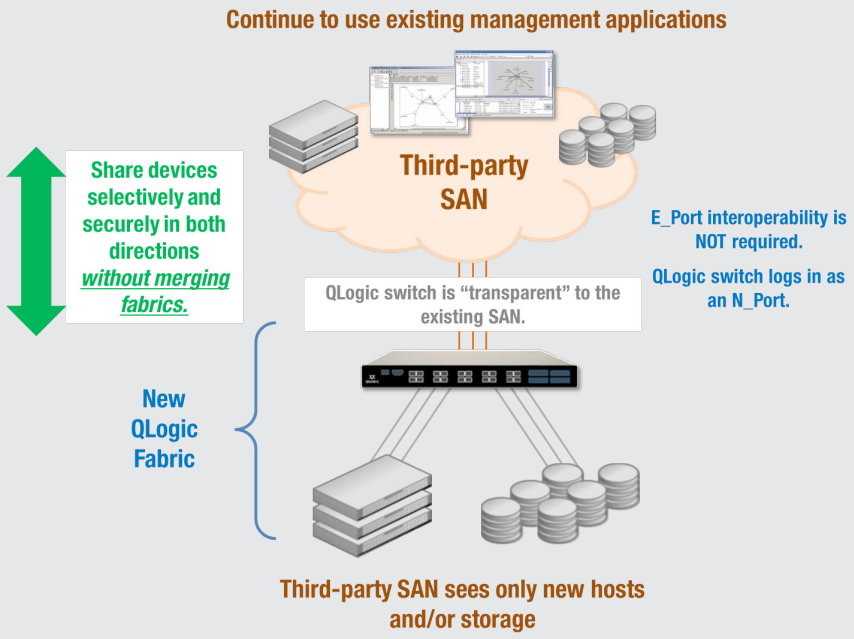
Investment Protection

The QLogic 5800V Series Switch provides low total cost of ownership (TCO), extended product life, 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 and tomorrow's.

What is Transparent Routing

Transparent routing (TR) is a standard feature of QLogic 5800 Series Switches that provides seamless, cost effective expansion of SANs from any vendor. TR extends industry-standard N_Port ID virtualization (NPIV) technology, enabling customer-designated ports on a QLogic 5800 Switch to log into an existing third-party SAN as N_Ports—just like host or storage. In this way, E_Port complexity is eliminated, and the QLogic switch becomes "transparent" to the original SAN infrastructure. Storage resources can be shared selectively in either direction, while existing services and management practices are preserved.

- **Cost effective expansion**—bring QLogic switch stacking benefits to legacy SANs
- **Easy setup with QuickTools**—Continue to use existing tools to manage the third party SAN
- **Administrator-defined mappings**—Share only what you want to share
- **Configuration Wizard** makes inter-fabric zoning easy.



QLogic switch becomes the simplest way to add resources to any third-party SAN

Fibre Channel Specifications

Fibre Channel Protocols

- Physical Interface (FC-PI-3)
- Line Services (FC-LS)
- Framing and Signaling (FC-FS-2)
- Generic Services (FC-GS/FC-GS-2/FC-GS-3/FCGS-4/FC-GS-5) except for enhanced zoning
- Switch Fabric (FC-SW-2/FC-SW-3/FC-SW-4)
- Arbitrated Loop Rev. 4.6 (FC-AL)
- Arbitrated Loop-2 Rev. 7.0 (FC-AL-2)
- Fibre Loop Attachment (FC-FLA)
- Tape Technical Report (FC-Tape)
- Virtual Interface Architecture Mapping (FC-VI)
- Fabric Element MIB Specification (RFC 2837)
- Fibre Alliance MIB Specification (Version 4.0)
- Methodologies for Interconnects (FC-MI-2)
- Device Attach (FC-DA; Security Protocols (FC-SP)

Fibre Channel Classes of Service

- Class 2, Class 3, and Class F (inter-switch frames) connectionless

Modes of Operation

- Fabric, public loop, broadcast

Scalability

Ports Per Chassis

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

Multiswitch Fabric Support

- All topologies including stack, cascade, cascaded loop, and mesh
- Multiple 10/20Gbps or 8Gbps links
- Adaptive trunking and 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, TR_Port

Performance Features

Fabric Port Speeds

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

Fabric Point-to-Point Bandwidth

- 1,700MBps full duplex on 8Gbps ports
- 5,100MBps full duplex on 20Gbps ports

Aggregate Bandwidth

- 544Gbps per chassis; nonblocking architecture

Maximum Frame Sizes

- 2,148 bytes (2,112 byte payload)

Per-port Buffering

- ASIC-embedded memory (nonshared)
- Guaranteed 16-credit, multiread port buffer, up to 13km at 2Gbps, and 2km at 10Gbps
- Extended distance through credit donation

Media

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

Supported SFP Types

- Shortwave/longwave (optical) and active copper

Maximum Media Transmission Ranges

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

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®
- Interoperable with leading SAN management applications

Fabric Management

Management Methods

- QuickTools Web applet
- CLI
- API, GS-4 Management Server (including FDMI), SNMP, RADIUS, FTP, TFTP, and SMI-S

Access Methods

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

Diagnostics

- Power-on self test (POST)
- Optional SANdoctor fabric diagnostics software

Fabric Services

- Simple name server, hardware-based zoning, RSCN, I/O StreamGuard, multichassis in-order delivery, automatic path selection, FDMI, NPIV support, and IPv6 support

User interface

- LEDs, command line console, and Web utilities

Mechanical/Power/Cooling

- 5802V: Dual, hot-swap power supplies/fans
  5800V: Single integrated power supply
- Optional rail mount kit
- Front-to-back air flow
- RoHS compliant

Dimensions

- H×W×D: 43.2×432×500mm (1.7×17×20in)

Weight

- 5802V: 8.16kg (18lbs)
- 5800V: 6.8kg (15lbs)

Environmental and Equipment Specifications

Operating

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

Nonoperating

- Temperature: –20°–70°C (-4–158 °F)
- Humidity: 10–95% noncondensing
- Altitude: 0–50,000 feet
- Vibration: 2–200Hz, 0.5g, 5 sweeps
- Shock: 50g, 4,216 mmps, 13msec, 3 axis

Electrical

- Voltage: 100–240VAC; 50–60Hz
- Power load: 1A at 120VAC; 0.5A at 240VAC
- Power consumption:
  - 5802V: 80W nominal; 90W typical maximum
  - 5800V: 73W nominal; 83W typical 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, and Japan

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