

# Sun™ Storage FC Switch Model 5802 Fibre Channel stackable switch



The award-winning Sun™ Storage FC Switch Model 5802 unleashes powerful data access possibilities for small to large enterprise customers. This stackable switch offers SAN planners the best choice to cost-effectively handle current needs while preparing for known and unknown competitive business requirements tomorrow.

## Highlights

- 8 Gb/“8 Gb-ready” performance at affordable prices – Backward compatible with 4 Gb and 2 Gb devices and optics
- “Always on” 10 Gb stacking ports – No extra cost to activate your Storage Area Network (SAN) backbone
- 20 Gb ISL bandwidth on demand – Prepare for the future
- Virtual Fabric-ready – Dynamically provision infrastructure resources for greater scalability, security, reliability, and cost-savings
- Preferred Service included – 24 x 7 call support
- 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
- High-performance, cost-effective, SAN switch

## Next-generation SANs for today's infrastructure

- Affordable entry as low as eight 8 Gb device ports—plus four “always on” 10 Gb stacking ports included
- 20 Gb Inter-switch Link (ISL) bandwidth on demand—upgrade your stacking ports to increase Fibre Channel performance
- Full backward-compatibility with existing infrastructure
- Expandable to twenty 8 Gb device ports per switch (24 ports total)—or 120 device ports per multi-switch stack

## Migrate to 8 Gb at your own pace

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

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

Sun's modular backbone architecture, a key component of the 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

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

### Start with “always on” 10 Gb ISLs

Each Sun FC 5802 switch ships with all four 10 Gb 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 the section on “What is stacking?” for more information.)

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

### 20 Gb bandwidth on-demand

When enough device ports are connected to 8 Gb devices to require additional bandwidth, customers may non-disruptively upgrade the ISL ports on one or more switches to 20 Gb. 20 Gb, the only ISL technology that perfectly complements 8 Gb 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 20 Gb uses the same cables/connectors as 10 Gb, 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 Sun FC 5802 switch has automated routines to make deployment a snap. Installation is a 3-step point-and-click process. Self-configuring switch ports automatically adjust to 8 Gb, 4 Gb, or 2 Gb 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 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 Sun FC 5802 switch switches 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.

### What is stacking?

Stackable switches, long familiar to Ethernet users, were introduced for Fibre Channel industry 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 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 Sun FC 5802 switch provides superior performance at a price-per-port competitive with single-speed, non-stacking edge switches.
- **Reduced expansion costs** – Multi-switch networks require up to 50 percent fewer switches to achieve the same device port counts. And since each 10 Gb/20 Gb stacking port (12.75 or 25.5 Gb/sec actual line speed) can replace three device port ISLs—and six 8 Gb 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. Sun’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.

### Fast, reliable 8 Gb/20 Gb performance

The Sun FC 5802 switch provides uncontested, full-duplex bandwidth at every port—a total of 544 Gb/sec per switch. ISL capacity expands automatically as device port count grows, ensuring a consistent user experience over time.

- **Full bandwidth architecture** – Each switch features nonblocking performance. Plus, the dedicated 10 Gb/20 Gb ISL transport makes it easier to create non-blocking multi-switch configurations.
- **Adaptive trunking** – No extra cost or complicated license schemes. The built-in trunking feature optimizes ISL use and performance by pooling the capacity of multiple 20 Gb, 10 Gb, or 8 Gb 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.
- **QuickTools™** – Embedded Java® web applet for device discovery, device management, zoning, and fabric management. QuickTools includes a configuration wizard and 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 and avoid “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.

A variety of reliability features make the Sun FC 5802 switch capable of delivering overall system availability greater than 99.999 percent.

- 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

The Sun FC 5802 switch implements the same code base for many products offered by Sun such as QLogic 5000 series stackable FC switches and QLogic 9000 series FC director switches. Not only are these products backward and forward compatible, you’ll only need to learn one set of management tools.

- **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 Sun 8 Gb products support the 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 allows full integration and interoperability with applications such as VMware®.

### Investment protection

Sun FC 5802 switch 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 the next-generation SAN products.

### Interoperability

- **Fully compatible with other switches** – The Sun FC 5802 switch is compatible with FC-SW-2-compliant switches from other vendors including QLogic 5000 and 9000 Series switches. The Sun FC 5802 switch is also compatible with FC-SW-2-compliant switches from other vendors.

# Sun Storage FC Switch Model 5802 Specifications

## Scalability

### Ports per chassis

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

### Multi-switch fabric support

- All topologies including: stack, cascade, cascaded loop, and mesh
- Multiple 10/20 Gb or 8 Gb 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 Gb/sec, 10/20 Gb/sec full-duplex. All ports auto-negotiate with slower devices or ports
- Fabric latency less than 0.2 ms
- Cut-through routing

### Fabric point-to-point bandwidth

- 1700 MB/s full-duplex on 8 Gb/sec ports
- 5100 MB/s full-duplex on 20 Gb/sec ports

### Aggregate bandwidth

- 544 Gb/sec 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 13 km@2 Gb/sec and 2 km@10 Gb/sec
- Extended distance through credit donation

## Media

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

### Supported SFP types

- Shortwave/longwave (optical), active copper

### Maximum media transmission ranges

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

## Learn More

To learn more about the Sun Storage FC Switch Model 5802, visit [sun.com/storagetek/networking](http://sun.com/storagetek/networking)

### 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°C to +40°C (+41°F 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, 3 ms, half sine, 20 repetitions

### Non-operating

- Temperature: -20°C to +70°C (-4°F 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