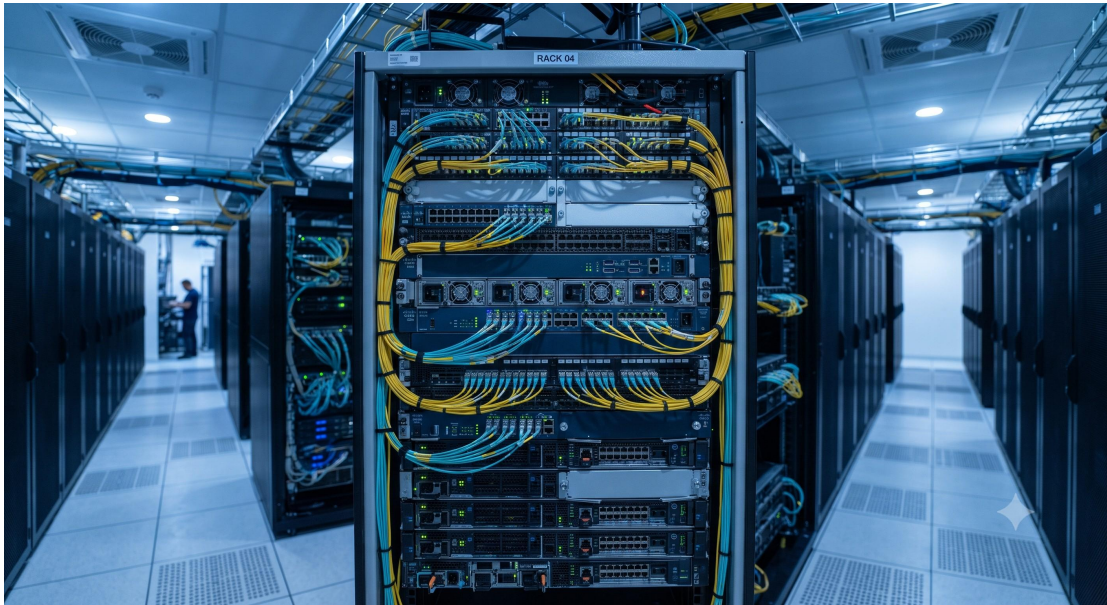


Fibre Channel Switch Configuration Manual - Official Technical Overview & Hardware Datasheet

EXECUTIVE SUMMARY

This document serves as the definitive technical reference and hardware datasheet for the Fibre Channel Switch Configuration Manual product line. Engineered to meet the rigorous demands of modern Storage Area Networks (SANs), this next-generation Fibre Channel switch delivers unprecedented performance, carrier-grade reliability, and simplified management for enterprise and cloud-scale data centers. The platform is designed to provide a high-throughput, low-latency switching fabric that enables seamless connectivity for mission-critical block storage workloads, supporting both current and emerging flash-based storage infrastructures.

Leveraging a purpose-built, non-blocking architecture, the switch ensures deterministic performance even during peak traffic loads. Its comprehensive configuration capabilities, accessible through industry-standard interfaces and a robust command-line interface (CLI), allow for granular control over fabric services, zoning, and quality of service (QoS), making it the ideal foundation for resilient, high-performance storage networks.



ARCHITECTURE & CHASSIS DESIGN

At the heart of the Fibre Channel Switch Configuration Manual is a state-of-the-art chassis design that prioritizes high availability and serviceability. The modular architecture is built around a high-speed, low-latency backplane that provides a dedicated, non-blocking data path for every installed port. The system's design isolates the data plane from the control plane, ensuring that management functions, such as SNMP polling and CLI sessions, do not interfere with critical data forwarding.

The main components of the system architecture include:

- **Management Module:** The central processing unit responsible for fabric management, routing protocols, and the user interface. It runs a hardened,

real-time operating system optimized for storage networking.

- **Switching Fabric:** A set of high-performance ASICs that form the core of the data plane. They provide line-rate, wire-speed switching with microsecond-scale latency and support advanced features like cut-through forwarding and Virtual Channel (VC) arbitration.
- **Port Cards / Line Cards:** Hot-swappable I/O modules that house the physical Fibre Channel ports. They are available in various densities (e.g., 32, 48, 64 ports per card) and support a mix of transceiver types (SFP, SFP+, SFP28).
- **Power Supply Units (PSUs):** Redundant, hot-swappable power supplies with N+1 or N+N redundancy to ensure continuous operation in case of a power module failure. Both AC and DC power input options are available.
- **Fan Trays:** A modular cooling system with multiple, hot-swappable fan trays. The system uses a front-to-back airflow pattern to efficiently remove heat, supporting high port densities in limited rack space.

The chassis also features clear, front-panel LED indicators for port status, power supply health, and fan module status, allowing for rapid, at-a-glance system diagnostics.

HARDWARE FEATURES

The Fibre Channel Switch Configuration Manual is equipped with a

comprehensive suite of hardware features designed for performance, resilience, and ease of deployment.

- ****High-Performance Switching:****

- Non-blocking switching fabric, ensuring 100% throughput at line rate.
- Ultra-low deterministic latency, essential for performance-sensitive databases and AI/ML workloads.
- Support for 8G/16G/32G Fibre Channel speeds, with auto-negotiation and backward compatibility to protect infrastructure investments.

- ****High Availability (HA) and Redundancy:****

- 1+1 redundant, hot-swappable management modules for stateful failover.
- Redundant power supplies and fan trays.
- Online Diagnostics (Diag-on-Boot) and continuous background fault monitoring to ensure early detection of hardware issues.
- Support for hitless software upgrades to eliminate planned downtime.

- ****Advanced Configuration & Management:****

- A full-featured CLI that is compliant with industry-standard syntax and scripting, facilitating automated configuration and management.
- An intuitive web-based graphical user interface (GUI) for simplified day-to-day management.

- Full SNMP support for integration with third-party management platforms and NOCs.

- Support for automated provisioning and orchestration through REST APIs.

- ****Port Capabilities:****

- Universal port support allowing each port to be configured as E_Port, F_Port, or N_Port, providing flexibility in topology design.

- Fabric shortest path first (FSPF) routing protocol support for a resilient multi-switch fabric.

- Hardware-based zoning and access control lists (ACLs) for robust fabric security.

COMPLIANCE & STANDARDS

The Fibre Channel Switch Configuration Manual is designed and certified to meet the most stringent industry and regulatory standards worldwide, ensuring compatibility and smooth deployment in any enterprise environment.

- ****Fibre Channel Industry Standards:****

- ANSI INCITS 513 (FC-SW-6)

- ANSI INCITS 512 (FC-FS-4)

- FC-FLA, FC-GS-6, FC-PI-5
- **Regulatory & Safety Certifications:**
 - UL 60950-1 / CAN/CSA C22.2 No. 60950-1 (Safety)
 - FCC Part 15, Class A (EMI)
 - VCCI, CCC, CE Mark, RCM (EMC)
 - RoHS and WEEE Compliant (Environmental)

TECHNICAL SPECIFICATIONS

Parameter	Specification
Form Factor	1RU / 2RU Rack-Mountable Chassis
Switching Capacity	Up to 768 Gbps (Full-Duplex)
Port Densities	24, 48, or 64 ports per chassis; 8G/16G/32G SFP/SFP+ support
Latency	< 2 μ s (cut-through, 32G FC)
Management	CLI, Web GUI, SNMPv3, REST API, SMI-S
Power Supply	1+1 Redundant, 550W AC or DC, Hot-Swappable
Cooling	Modular, Hot-Swappable Fan Trays, Front-to-Back Airflow
Operating Temperature	0°C to 40°C (32°F to 104°F)

Storage Temperature	-25°C to 70°C (-13°F to 158°F)
Relative Humidity	10% to 90% (Non-Condensing)
Mean Time Between Failures (MTBF)	> 350,000 Hours at 25°C
Compliance	CE, FCC, VCCI, UL, RoHS

ORDERING OPTIONS

The following ordering information provides the base and primary options for the Fibre Channel Switch Configuration Manual. Please contact your sales representative for a full list of compatible transceivers and cables. All field-replaceable units (FRUs) are designed to be hot-swappable to minimize service disruption.

****Base Chassis:****

- FC-CHASSIS-24S: 24-Port Fibre Channel Switch Chassis, includes (2) power supplies, (1) fan tray, (1) management module.
- FC-CHASSIS-48S: 48-Port Fibre Channel Switch Chassis, includes (2) power supplies, (1) fan tray, (1) management module.
- FC-CHASSIS-64S: 64-Port Fibre Channel Switch Chassis, includes (2) power supplies, (2) fan trays, (1) management module.

****Redundancy & Spares:****

- FC-MGMT-MOD: Spare/Redundant Management Module.
- FC-PSU-AC: Spare 550W AC Power Supply Unit (for 24S/48S).
- FC-PSU-DC: Spare 550W DC Power Supply Unit.
- FC-FAN-TRAY: Spare Fan Tray Module.

****Software Licensing (Optional):****

- FC-ENT-SW: Enterprise Software License (enables Advanced Zoning, Trunking, and QoS features).
- FC-FABRIC-MGR: Fabric Manager Server License (centralized management for up to 10 switches).

