

Storage Interface FC Speed



Overview

The biggest advantage of Fibre Channel is speed, and it can be used to build a fully-functional high-speed network.

Key Takeaways

Fibre Channel (FC) interfaces support speeds ranging from 1 Gbps to 128 Gbps, with modern deployments commonly using 16GFC and 32GFC, and higher speeds like 64GFC and 128GFC emerging.

Fibre Channel is a high-speed, lossless protocol primarily used to connect servers to storage in SAN environments. Its interface speeds have evolved significantly over time, doubling approximately every few years since 1996. The standard FC speeds include 1, 2, 4, 8, 16, 32, 64, and 128 Gbps, with backward compatibility maintained for at least two previous generations, allowing older devices to interoperate with newer ones .

- 1GFC to 8GFC: Early generations, widely used in legacy SANs.
- 16GFC and 32GFC: Dominant in modern enterprise storage networks, offering high throughput for databases, virtualization, and critical workloads .
- 64GFC and 128GFC: Emerging speeds, supported by new FC transceivers and switches, designed for high-performance storage and NVMe over FC deployments .

FC Transceivers and Interface Types

FC interfaces use optical transceivers (SFP, SFP+, SFP28, SFP56, QSFP28) to achieve these speeds. These transceivers are protocol-specific and optimized for low-latency, deterministic, and lossless data transmission, which is critical for mission-critical storage workloads .

- SFP/SFP+: Common for 1-16 Gbps connections.
- SFP28/SFP56: Used for 32-64 Gbps connections.
- QSFP28: Supports 128 Gbps and beyond, often in multi-lane configurations for inter-switch links (ISLs), .

Practical Considerations

While interface speed is important, overall storage performance also depends on factors like multipath connectivity, latency, and host bus adapter (HBA) capabilities. FC is preferred in environments requiring predictable latency and high reliability, such as large virtualization clusters, databases, and ERP systems . Modern FC networks also support FC-NVMe, enabling NVMe commands to be transported natively over FC, which leverages the high-speed interface to reduce latency and maximize SSD performance . In summary, Fibre Channel interface speeds range from 1 Gbps to 128 Gbps, with 16GFC and 32GFC being the most common today, and higher speeds like 64GFC and 128GFC emerging to meet the demands of high-performance storage and NVMe deployments. The choice of speed depends on workload requirements, SAN design, and compatibility with existing infrastructure.

Article Content

Fiber Channel SFP: A Complete Guide for Storage Networks

Learn what a Fiber Channel SFP is, how it works, common FC SFP types, speeds, and how to choose the right one for SAN and

iSCSI vs SAS vs FC: Protocols Comparison

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FC, or Fibre Channel, is a high-speed, high-performance storage protocol used for block-level data access. Unlike

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Fibre Channel Layers

Fibre Channel FC-0 Overview : Fibre Channel (FC) is a high-speed data transfer technology used for storage area

Fibre Channel

What is Fibre Channel? FC (Fibre Channel) is a network technology, predominantly used within storage area networks,

Fibre Channel Connectivity

Speed When people think of Fibre Channel, they usually envision high-speed fiber optic links between servers and storage. The

Fibre Channel storage

Fibre Channel storage While FC storage has strong performance and reliability, those factors add up to both high cost and

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Fibre Channel

Fibre Channel is a high-speed, reliable, and scalable networking technology designed specifically for storage area

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Fibre Channel (FC) is a serial I/O interconnect network technology capable of supporting multiple protocols. It is used primarily for

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Fundamentals of Fibre Channel

Fibre Channel is a high-speed network technology used to connect server to data storage area network. It handles

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Fibre Channel is a high-speed data transfer technology designed to connect computers to storage devices. It delivers

Comparing 7 storage network protocols

Fibre Channel is a high-speed networking technology that delivers lossless, in-order raw block data. The technology

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