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Product Brief

Brocade® G730 Switch

Create High-Scale Fabrics in Less Rack Space with the Highest-Density 64G Switch

Highlights

- Connect more devices and build larger fabrics with the highest-density 128-port 64G switch and double-density 64G Fibre Channel optical transceivers.
- Maximize performance with 50% lower switching latency and no oversubscription.
- Enable flexible scalability from 48 to 128 ports with Ports on Demand (POD).
- Safeguard mission-critical workloads from vulnerabilities with Gen 7 integrated security.
- Transform telemetry data into actionable insights to optimize performance and ensure reliability.
- Provide proactive, real-time monitoring and alerting of storage I/O health and performance with integrated network sensors.
- Automate actions to simplify management and resolve issues without intervention.
- Enable virtual machine (VM) visibility and monitoring in a storage fabric to optimize performance and identify anomalies.

Gen 7 Fibre Channel

Brocade Gen 7 Fibre Channel is the modern storage network infrastructure for mission-critical storage, enabling organizations to realize a self-learning, self-optimizing, and self-healing autonomous SAN. It combines powerful analytics, advanced automation, and integrated security capabilities to accelerate data access, adapt to evolving requirements, and drive always-on business operations. The Brocade G730 Switch with Gen 7 Fibre Channel is a high-density building block for increased scalability in less rack space to support growth and large fabrics in dense rackmount environments.

Overview

Organizations are under pressure to maximize the performance, productivity, and efficiency of their storage investments and resources, even as they rapidly scale their environments. In addition, they need to protect their enterprise against disruptions, outages, and cybersecurity vulnerabilities to ensure continuous availability. To address these requirements and the demands of an always-on data center, it is essential for organizations to deploy a modernized infrastructure that provides a faster, more intelligent, and more resilient network. With unmatched performance, integrated security, and automated SAN management technologies, Brocade® Gen 7 products transform current storage networks into an autonomous SAN and safeguard it against cybersecurity and business-continuity challenges that threaten to disrupt data center operations.

The Brocade G730 Switch with enhanced security and autonomous SAN technology takes the guesswork out of protecting and managing a network. The Brocade G730 Switch enables a cyber-resilient network that protects against security threats, enables nonstop operations, and maximizes management automation. With integrated security technology, the Brocade G730 protects mission-critical operations by validating the integrity of Gen 7 hardware and software. In addition, it reduces the vulnerabilities from malware and hijacking attacks by hardening Fabric OS (FOS) and strengthening hardware.

To simplify and automate management, the Brocade G730 Switch harnesses powerful analytics and advanced automation. Leveraging these capabilities enables organizations to realize a self-learning, self-optimizing, and self-healing SAN that maximizes performance and availability. The Brocade G730 with Gen 7 technology transforms billions of telemetry data points in real time into automated actions that ensure the reliability and performance of critical applications, virtual infrastructure, and NVMe storage. By understanding and analyzing network telemetry data in real time, the SAN can automatically make intelligent decisions on traffic prioritization and congestion mitigation to ensure nonstop operations. With automated congestion detection and resolution, Brocade Gen 7 instantly mitigates impacts to applications and resolves issues much faster, freeing up valuable admin time.

The Brocade G730 Switch is a Gen 7 high-density building block that enables dense rackmount environments to connect more devices and build larger fabrics. Its 128 line-rate 64G ports in a 2U design allow organizations to create high-scale fabrics in less space. The Brocade G730 utilizes 96 64G SFP+ ports and 16 2x64G double-density optical transceiver (SFP-DD) ports. Each of the 16 SFP-DD transceivers provides 2 ports, making 32 ports available for device or ISL connectivity. The addition of SFP-DD ports allows the Brocade G730 to connect more servers, storage, and switches in a very dense footprint. With a 50% latency reduction compared to the previous generation and no oversubscription, the Brocade G730 enables the maximum performance of NVMe storage and high-transaction workloads.

Autonomous SAN

The combination of SAN analytics and automation technologies unlocks the capabilities to deliver a self-learning, self-optimizing, and self-healing autonomous SAN.

Self-Learning

- Gather and transform millions of data points into network intelligence.
- Visualize application and device-based performance and health metrics.
- Detect abnormal traffic behaviors and degraded performance.
- Eliminate operational steps by automatically learning application flows.

Self-Optimizing

- Optimize critical application performance by automatically prioritizing traffic.
- Guarantee application performance by proactively monitoring and actively shaping traffic.
- Eliminate human errors and performance impacts through open DevOps automation technology.
- Optimize administrative resources with cloud-like SAN orchestration.

Self-Healing

- Instantly notify end devices of congestion for automatic resolution.
- Ensure data delivery with automatic failover from physical or congestion issues.
- Detect and automatically reconfigure out-of-compliance fabrics.
- Eliminate performance impacts by automatically taking corrective action on misbehaving devices.

Create High-Scale Fabrics in Less Rack Space

The Brocade G730 Switch delivers industry-leading port density with 128 Fibre Channel ports in a 2U form factor. Organizations can both increase scalability and optimize space utilization. Built to support maximum flexibility and dense Fibre Channel fabrics, the Brocade G730 Switch offers cost-effective pay-as-you-grow scalability, expanding from 48 ports to 128 ports with Ports on Demand (PoD). The Brocade G730 base configuration comes with 48 ports enabled. To scale from 48 ports to 128 ports, additional 24-port SFP+ PODs and a 32-port SFP-DD POD can be installed in any order and combination.

Each SFP-DD port provides 2 ports for device or ISL connectivity with SN connectors. These ports are capable of 2×64G, 2×32G, 2×16G, 64G, 32G, 16G, or 8G Fibre Channel speeds. Each SFP-DD port can accommodate either SFP+ or SFP-DD transceivers, providing the flexibility to use either transceiver in those ports when needed. SFP-DD ports can be used to form dense, high-performance device connectivity or ISLs between Brocade switches and directors.

Protect Mission-Critical Workloads with Gen 7 Integrated Security

The sophistication and volume of cybercriminal behavior have dramatically increased as a direct result of the added reliance on digital data by businesses. Counterfeiting and tampering with hardware and software have become a lucrative illegal trade that leads to billions of dollars in losses across all industries. This counterfeiting and tampering within the data center can cause serious damage and risk to your environment.

A Brocade Gen 7 cyber-resilient network protects against security threats, enables nonstop operations, and maximizes management automation. Fibre Channel fabrics are secure by design based on controlled access between servers and storage and isolation within the data center. Brocade Gen 7 technology further reduces the risk of vulnerabilities from malware and hijacking attacks by validating the integrity of the switch operating system, security settings, and hardware.

Brocade Fabric OS (FOS) adds additional security enhancements to validate the integrity and security of Brocade hardware and software. These features include Secure Boot, Brocade Trusted FOS (TruFOS) Certificates, FOS hardening with removal of root access, and automated distribution of SSL certificates via SANnav Management Portal. Brocade TruFOS Certificates ensure that enterprises running Brocade directors and switches are currently covered with support and securely enabled to perform critical operations without having to worry about whether the operating system has been tampered with. In addition, Brocade FOS has been hardened by removing root-level access to the operating system to protect the SAN against malware and hijacking attacks.

Those enterprises using Brocade SANnav Management Portal have the ability to automatically distribute SSL certificates across the SAN to ensure authenticity and encryption settings. In addition, security features are built into Brocade SANnav Management Portal to help administrators protect their network. With Brocade SANnav, administrators can set up monitoring and alerting for security configuration changes, customize security thresholds, give proper access control to individual admins, and view switch security events.

Autonomous SAN Innovation

The Brocade G730 Switch with Fabric Vision® technology provides a robust analytics architecture that delivers autonomous SAN technology through self-learning, self-optimizing, and self-healing capabilities. Brocade Fabric Vision technology is a suite of features that leverage comprehensive data collection capabilities with powerful

analytics to quickly understand the health and performance of the environment and identify any potential impacts or trending problems.

Analyze the SAN to Optimize Performance and Reliability

IT organizations are responsible for delivering nonstop performance and reliability to ensure that SLAs are met. They need analytics to help extract actionable intelligence from their environment, and they need simplified management tools to quickly and easily understand the state of their environment. This requires an infrastructure that can automatically learn its performance and health characteristics, identify potential risks, and provide recommended actions to resolve issues.

Gen 7 Brocade technology enables a self-learning SAN that gathers and transforms millions of data points into actionable intelligence to make fast, informed decisions to optimize performance and ensure reliability. Brocade products proactively monitor I/O performance and behavior data points through integrated network sensors to gain deep insight into the environment. The information that is captured is displayed in Brocade SANnav™ Management Portal to quickly identify and isolate problems before they impact application availability. With built-in best practice recommendations, organizations can simplify troubleshooting by identifying and isolating issues to resolve them as fast as possible. Combining these tools with automation, Brocade technology can detect abnormal traffic behavior and degraded performance to automatically take corrective action, eliminating the potential impact of these issues. These new autonomous SAN technologies simplify SAN management and enable unparalleled network performance and reliability.

Automate the SAN to Simplify Management Complexity

IT organizations spend nearly half of their time performing repetitive daily management tasks, such as zoning, inventory reporting, and operational validation checks. By automating these repetitive tasks, IT organizations can significantly improve their efficiency and dramatically decrease the risk of operational mistakes. Automation in large-scale IT environments integrates diverse infrastructure components with consistency and predictability to deliver greater operational efficiency and agility.

With Brocade automation, the Brocade G730 Switch can automate actions to simplify management and resolve issues without intervention to avoid network disruptions and outages. Through open DevOps automation technology, organizations can reliably perform resource-intensive tasks, such as infrastructure deployment and provisioning, in a fraction of the time to expedite IT services while eliminating human error. In addition, automation proactively monitors the network to self-optimize performance and automatically mitigate fabric-related issues with self-healing capabilities.

With self-optimizing capabilities, Brocade technology utilizes actionable intelligence to maximize performance. Real-time monitoring of health and performance characteristics enables the network to make smarter decisions on traffic prioritization, congestion management, and notification to ensure optimal network performance for applications and storage. Brocade Gen 7 delivers Traffic Optimizer capabilities that guarantee critical application performance by automatically prioritizing traffic. This advanced feature classifies and separates traffic with similar characteristics like protocol, speed, and latency. In addition, Traffic Optimizer can help avoid application performance impacts by automatically isolating traffic that is adversely impacting other flows.

Brocade Gen 7 raises the bar for network availability through automatic avoidance and recovery features, delivering a self-healing SAN. When potential disruptions are detected, the network will automatically mitigate or resolve issues without intervention. Brocade software identifies abnormal or unexpected behavior and automatically takes action to avoid a degradation in performance. If congestion occurs, it instantly notifies end devices of the congestion problem through an alerting and signaling process. Once the end devices are alerted, the software ensures data delivery with automatic failover or adjustment of traffic to mitigate the impact of the problem. Brocade SAN management tools can identify various latency severity levels, pinpointing exactly which devices are causing the issues or which devices are impacted by a bottleneck, and can quarantine misbehaving devices automatically.

Instant Visibility and Simplified Processes

Brocade SANnav Management Portal and SANnav Global View empower IT administrators with comprehensive visibility across the entire SAN, from a global view down to local environments. SANnav contextualizes data into visual dashboards and topology views, which allows administrators to quickly detect and isolate points of interest to increase operational efficiencies. In addition, Brocade SANnav streamlines management workflows to accelerate the deployment of new applications, switches, servers, and storage. All of the SAN telemetry data collected by SANnav Management Portal can also be streamed to third-party applications via Kafka streaming.

Brocade Global Support

Brocade Global Support has the expertise to help organizations build cyber-resilient, efficient SAN infrastructures. Leveraging 25+ years of expertise in storage networking, Global Support delivers world-class technical support, implementation, and migration services to enable organizations to maximize their hardware and software investments, accelerate new technology deployments, and optimize the overall performance of their network.

Brocade G730 Switch Specifications

System Architecture	
Fibre Channel ports	128 ports (96 64G SFP+ ports, plus 16 2x64G SFP-DD ports), each supporting E_Ports, F_Ports, M_Ports, D_Ports, and EX_Ports. 48-port base configuration; additional ports are enabled with two 24-port SFP+ PODs (Ports on Demand), plus a 32-port SFP-DD POD (16 2x64G SFP-DD transceivers), scaling the switch from 48 ports to 128 ports.
Scalability	Full-fabric architecture with a maximum of 239 switches
Certified maximum	4K active nodes; 56 switches, 19 hops in Brocade Fabric OS® fabrics
Performance	Fibre Channel: 8.5Gb/s line speed, full duplex; 10.53Gb/s line speed, full duplex; 14.025Gb/s line speed, full duplex; 28.05Gb/s line speed, full duplex; 57.8Gb/s line speed, full duplex; auto-sensing of 8, 10, 16, 32, and 64G port speeds. 10G optionally programmable to fixed-port speed.
ISL trunking	Frame-based trunking with up to eight SFP+ ports per ISL trunk; up to 512Gb/s per ISL trunk. Exchange-based load balancing across ISLs with Dynamic Path Selection (DPS) included in Brocade Fabric OS.
Aggregate bandwidth	8.192Tb/s
Maximum fabric latency	Latency for locally switched ports is 460 ns (including FEC).
Maximum frame size	2112-byte payload
Frame buffers	2K per switching ASIC
Classes of service	Class 2, Class 3, Class F (inter-switch frames)
Port types	D_Port (ClearLink® Diagnostic Port), E_Port, EX_Port, F_Port, M_Port; optional port-type control
Data traffic types	Fabric switches supporting unicast
Media types	64G FC SFP+ LC connector: SWL 32G FC SFP+ LC connector: SWL, LWL, ELWL 10G FC SFP+ LC connector: SWL, LWL 2x64G FC SFP-DD SN connector: SWL
USB	One standard USB port for firmware download, SupportSave, and configuration upload or download.
Fabric services	BB Credit Recovery; Brocade Advanced Zoning (Default Zoning, Port/WWN Zoning, Peer Zoning); Congestion Signaling; Dynamic Fabric Provisioning (DFP); Dynamic Path Selection (DPS); Extended Fabrics; Fabric Performance Impact Notification (FPIN); Fabric Vision; FDMI; FICON CUP; Flow Vision; F_Port Trunking; FSPF; Integrated Routing; ISL Trunking; Management Server; Name Server; NPIV; NTP v3; Port Decommission/Fencing; QoS; Registered State Change Notification (RSCN); Slow Drain Device Quarantine (SDDQ); Target-Driven Zoning; Traffic Optimizer; Virtual Fabrics (Logical Switch, Logical Fabric); VMID+ and AppServer.
Extension	Integrated optional 10G Fibre Channel for DWDM MAN connectivity.
Management	
Management	Brocade Advanced Web Tools; Brocade SANnav Management Portal and SANnav Global View; Command Line Interface (CLI); EZSwitchSetup; HTTP/HTTPS; RESTful API; SNMP v1/v3 (FE MIB, FC Management MIB); SSH.
Security	DH-CHAP (between switches and end devices); FCAP switch authentication; HTTPS; IP filtering; LDAP with IPv6; OpenLDAP; Port Binding; RADIUS; TACACS+; user-defined Role-Based Access Control (RBAC); Secure Boot; Secure Copy (SCP); Secure Syslog; SFTP; SSH v2; SSL; Switch Binding; Trusted Switch; Trusted FOS Certificates (TruFOS); root access removed.
Management access	10/100/1000Mb/s Ethernet (RJ-45) port, serial console port, and USB port.
Diagnostics	Active Support Connectivity (ASC) and Brocade Support Link (BSL); built-in flow generator; ClearLink optics and cable diagnostics, including electrical/optical loopback, link traffic/latency/distance; Fabric Performance Impact Monitoring (FPI); flow mirroring; Forward Error Correction (FEC); frame viewer; Global Quiet Time (GQT); IO Insight for SCSI and NVMe monitoring; Monitoring and Alerting Policy Suite (MAPS); nondisruptive daemon restart; optics health monitoring; POST and embedded online/offline diagnostics, including environmental monitoring, FCping, and Pathinfo (FC traceroute); power monitoring; RAStrace logging; Rolling Reboot Detection (RRD); Syslog/Audit Log; VM Insight.

Mechanical	
Enclosure	Front-to-back airflow; non-port-side exhaust; power from back, 2U Back-to-front airflow; non-port-side intake; power from back, 2U
Size	Width: 440.00 mm (17.32 in.) Height: 86.7 mm (3.41 in.) Depth: 609.6 mm (24.00 in.)
System weight	18.92 kg (41.71 lbs) with two power supply FRUs and three fan FRUs, without transceivers
Environment	
Operating environment	Temperature: 0°C to 40°C (32°F to 104°F) Humidity: 10% to 85% (noncondensing)
Nonoperating environment	Temperature: –25°C to 70°C (–13°F to 158°F) Humidity: 10% to 90% (noncondensing)
Operating altitude	Up to 3000m (9842 ft)
Storage altitude	Up to 12 km (39,370 ft)
Shock	Operating: Up to 20G, 6 ms half-sine Nonoperating: Half-sine, 33G, 11 ms, 3G axis
Vibration	Operating: 0.5 Grms sine, 0.4 Grms random, 5 Hz to 500 Hz Nonoperating: 2.0 Grms sine, 1.1 Grms random, 5 Hz to 500 Hz
Heat dissipation	128 ports at 3195 Btu/hr
Power	
Power supply	Dual, hot-swappable, redundant power supplies with integral cooling fans and status LEDs. 80 Plus Gold.
AC input	100 to 240 VAC nominal, 90 to 264 VAC range, maximum input current 12A @ 100V or 5A @ 240V
AC input line frequency	50 Hz to 60 Hz nominal, 47 Hz to 63 Hz range
AC power consumption	969W with all 128 ports operating at 64G (96 ports populated with 64G SWL transceivers, 16 ports populated SFP-DD SWL transceivers, each providing two ports of 64G connectivity). 364W for an empty chassis with no transceivers.

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For product information and a complete list of distributors, visit our website at: broadcom.com

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