FUJITSU

Datasheet
Brocade VDX 6730
Converged Switch

Brocade® VDX™ Converged Switches are specifically designed to improve network utilization, maximize application availability, increase scalability, and dramatically simplify network architecture in virtualized data centers.
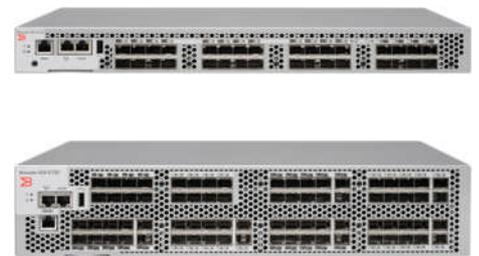
Revolutionizing the way data center networks are built

Seeking better ways to build clouds and virtualized data centers, today's IT organizations are turning to highperformance networking solutions that increase flexibility through leading-edge technologies. The Brocade® VDX™ 6730 Converged Switch is a high-performance 10 Gigabit Ethernet (GbE) fixed port switch with LAN and native Fibre Channel ports that supports the most demanding business applications. It is specifically designed to improve network utilization, maximize application availability, increase scalability, and dramatically simplify network architecture in virtualized data centers. With a rich set of Layer 2 features, the Brocade VDX 6730 is an ideal platform for traditional Top-of-Rack (ToR) switch deployments.

The Brocade VDX 6730 connects to Fibre Channel Storage Area Networks (SANs) in addition to Fibre Channel over Ethernet(FCoE), iSCSI, and NAS storage, providing unified Ethernet storage connectivity options.
It is available in two models—the 2U Brocade VDX 6730-76 with 60 10 GbE LAN ports and 16 8 Gbps native Fibre Channel ports, and the 1U Brocade VDX 6730-32 with 24 10 GbE LAN ports and eight 8 Gbps native Fibre Channel ports.

Brocade VDX 6730
- Offers high-performance 10 Gigabit Ethernet (GbE) data center LAN ports and native Fibre Channel ports in a fixed port switch configuration
- Provides industry-leading performance and ultra-low latency through wire-speed ports with 600 nanosecond port-to-port latency and hardware-based Inter-Switch Link (ISL) trunking
- Simplifies network architectures and enables cloud computing by delivering Brocade VCS Fabric technology
- Provides Ethernet storage connectivity for Fibre Channel over Ethernet (FCoE), iSCSI, and NAS
- Protects existing investments by bridging Fibre Channel Storage Area Networks (SANs) and Ethernet fabrics

Features and benefits

Main features	Benefits
Comprehensive layer 2 LAN capabilities for classic ToR server deployments	
■ Comprehensive Layer 2 LAN capabilities ■ High-bandwidth efficiency across trunks ■ Lowest power consumption ■ Scale-out solution for virtualized data centers ■ Local switching	■ Supports protocols such as Link Aggregation Control Protocol (LACP) and 802.1Q ■ Maximizes performance with hardware-based ISL trunking and wire-speed ports with ultra-low port-to-port latency ■ Features superior size and the industry's lowest power consumption–imperative in today's data centers ■ Enables dynamic, large-scale server virtualization deployments in private and public clouds with proven scalability capabilities and Layer 2 Equal Cost Multi-Path (ECMP) ■ Delivers high performance for intra-rack traffic in virtualized environments, providing ultra-low latency of 600 nanoseconds for the same ASIC on the switch
Ethernet storage connectivity ■ Brocade VDX 6730 connects to FCoE, iSCSI, and NAS storage, and includes Fibre Channel ports for connectivity to Brocade Fibre Channel SAN fabrics. ■ Server and storage virtualization automation support ■ Proactive monitoring	■ Helps protect existing SAN investments by bridging SAN fabrics and Ethernet fabrics ■ The Brocade Automatic Migration of Port Profiles(AMPP) feature enables a seamless migration. ■ Enables to monitor the health of certain switch components and, based on the threshold set, declare each component as marginal or down
Cloud-optimized network acquisition ■ Brocade offers flexible network acquisition and support alternatives to meet their financial needs.	■ Enables organizations to select from purchase, lease, and Brocade Network Subscription options to align network acquisition with their unique capital requirements and risk profiles.

Comprehensive layer 2 LAN capabilities for classic ToR server deployments

The Brocade VDX 6730 supports a rich set of traditional Layer 2 Ethernet protocols and features, including:

· Comprehensive Layer 2 LAN capabilities: Supports protocols such as Link Aggregation Control Protocol (LACP) and 802.1Q. The Brocade VDX 6730 is also ready for IPv4/IPv6 Layer 3 routing capabilities, which can be implemented in a future Brocade Network OS release.
· High-bandwidth efficiency across trunks: Maximizes performance with hardwarebased ISL trunking and wire-speed ports with ultra-low port-to-port latency.
· Lowest power consumption: Features superior size and the industry's lowest power consumption—imperative in today's data centers.
· Scale-out solution for virtualized data centers: Enables dynamic, large-scale server virtualization deployments in private (IT customers within an enterprise) and public (external customers of managed service providers) clouds with proven scalability capabilities and Layer 2 Equal Cost Multi-Path (ECMP).
· Local switching: Delivers high performance for intra-rack traffic in virtualized environments, providing ultra-low latency of 600 nanoseconds for the same ASIC on the switch. This helps organizations design a network with no oversubscription for deterministic network performance and improved application response times, making the Brocade VDX 6730 ideal for performance-demanding environments.

An intelligent foundation for cloud computing

Brocade VCS Fabric technology is an innovative technology that enables organizations to build high-performance cloud-optimized data centers while preserving existing network designs and cabling, and gaining active-active server connections. For scale-out fabric architectures, Brocade VCS Fabric technology allows organizations to flatten network designs, provide Virtual Machine (VM) mobility without network reconfiguration, and manage the entire fabric more efficiently. Learn more about Brocade VCS Fabric technology at www.brocade.com/vcs.

Ethernet storage connectivity

The Brocade VDX 6730 connects to FCoE, iSCSI, and NAS storage, and includes Fibre Channel ports for connectivity to Brocade Fibre Channel SAN fabrics. The Brocade VDX 6730 helps protect existing SAN investments by bridging SAN fabrics and Ethernet fabrics. The native Fibre channel ports and FCoE can be turned on with an add-on software license.

Server and storage virtualization automation support
Brocade VCS Fabric technology offers unique features to support virtualized server and storage environments. During a VM migration, network switch ports must be dynamically configured to ensure that the VM traffic experiences consistent policies and configurations. The Brocade Automatic Migration of Port Profiles (AMPP) feature enables a seamless migration. Port profiles and MAC address mapping are created on any switch in the fabric. This mapping provides the logical flow for traffic from the source port to the destination port. As a VM migrates, the destination port in the fabric learns of the MAC move and automatically activates the port profile configuration.

Brocade VM-aware network automation provides secure connectivity and full visibility to virtualized server resources with dynamic learning and activation of port profiles. By communicating directly with VMware vCenter, it eliminates manual configuration of port profiles and supports VM mobility across VCS fabrics within a data center. In addition to providing protection against VM MAC spoofing, AMPP and VM-aware network automation enable organizations to fully align virtual server and network infrastructure resources, and realize the full benefits of server virtualization.

Proactive Monitoring
Brocade Fabric Watch is an innovative switch health monitoring feature available on the Brocade VDX 6730. Fabric Watch monitors the health of certain switch components and, based on the threshold set, declares each component as marginal or down.

Cloud-optimized network acquisition

Brocade helps organizations easily address their information technology requirements by offering flexible network acquisition and support alternatives to meet their financial needs. Organizations can select from purchase, lease, and Brocade Network Subscription options to align network acquisition with their unique capital requirements and risk profiles.

Technical Details

BROCADE VDX 6730 Feature overview

	Brocade VDX 6730-32	Brocade VDX 6730-76
Switching bandwidth (data rate, full duplex)	480 Gbps for Ethernet ports	1200 Gbps for Ethernet ports
Fibre Channel ports	Eight 8 Gbps ports	Sixteen 8 Gbps ports
Port-to-port latency	600 nanoseconds within 10-port group	600 nanoseconds within 10-port group
Form factor	1U	2U
Dimensions and weight	Width: 42.8 cm (16.9 in.) Height: 4.37 cm (1.7 in.) Depth: 38.4 cm (15.1 in.) Weight: 7.3 kg (16.3 lb)	Width: 43.0 cm (17.0 in.) Height: 8.7 cm (3.5 in.) Depth: 43.2 cm (17.0 in.) Weight: 15.3 kg (33.9 lb)
1/10 GbE SFP+ ports	24	60
Ports on Demand (PoD) increments	16, 24	40, 50, 60
Power supplies	Two hot-swappable, load-sharing	Two hot-swappable, load-sharing
Cooling fans	N+1 redundant, integrated into power supplies	Three independent fans in a N+1 redundant configuration

BROCADE VDX 6730 Specifications

Scalability Information[1]

Connector options	1 GbE copper SFP option 1000Base-SX and 1000Base-LX 10 Gbps SFP+ options: 1/3/5 m direct-attached copper (Twinax) 10 GbE SR and 10 GbE LR 8 Gbps Fibre Channel optics: 8 Gbps Fibre Channel SWL, 8 Gbps Fibre Channel LWL 10 km, 8 Gbps Fibre Channel ELWL 25 km Out-of-band Ethernet management: RJ-45 (fixed) Remote lights-out management: 10/100/1000 BaseT Ethernet Console Management: RJ45 to RS-232 (fixed) Firmware and diagnostic: USB
Maximum VLANs	4,096
Maximum MAC addresses	32,000
Maximum port profiles (AMPP)	256
Maximum Layer 2 multicast groups	2,000
Maximum Spanning Tree instances	32
Maximum per-port priority pause level	8
Maximum LAG groups	512
Maximum members in a standard LAG	16
Maximum MAC addresses in a VCS fabric	30,000
Maximum switches in a VCS fabric	24
Maximum ECMP paths in a VCS fabric	8
Maximum trunk members for VCS fabric ports	8
Maximum switches across which a vLAG can span	4
Maximum members in a vLAG	32
Maximum jumbo frame size	9,208 bytes
Queues per port	8
DCB Priority Flow Control (PFC) classes	8

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[1] Please refer to the latest version of the release notes for the most up-to-date scalability numbers.

Maximum Layer 2 ACLs	1,000
Maximum ARP entries	12,000
Maximum ARP entries	2,000
Operating system	Brocade Network OS
Layer 2 switching features	·MAC Learning and Aging ·Static MAC Configuration ·Link Aggregation Control Protocol (LACP) IEEE 802.3ad/802.1AX ·Virtual Local Area Networks (VLANs) ·VLAN Encapsulation IEEE 802.1Q ·Rapid Spanning Tree Protocol (RSTP) IEEE 802.1w ·Multiple Spanning Tree Protocol (MSTP) IEEE 802.1s ·STP IEEE 802.1D ·Per-VLAN Spanning Tree (PVST+/PVRST+) ·STP PortFast and PortFast BDPU Guard ·STP Root Guard ·Layer 2 Access Control Lists (ACLs) ·IGMP v1/v2 Snooping ·Pause Frames IEEE 802.3x
Brocade VCS features	· Automatic Fabric Formation · Distributed Fabric Services · Transparent LAN Services · Virtual Link Aggregation Group (vLAG) spanning multiple physical switches · Switch Beaconing · Distributed Configuration Management · Transparent Interconnection of Lots of Links (TRILL) · Equal Cost Multi-Path (ECMP) · Automatic Migration of Port Profiles (AMPP) · VM-aware network automation
DCB features	· Priority-based Flow Control (PFC) IEEE 802.1Qbb · Enhanced Transmission Selection (ETS) IEEE 802.1Qaz · Data Center Bridging eXchange (DCBX) · DCBX Application Type-Length-Value (TLV) for FCoE and iSCSI
FCoE features	· Multihop Fibre Channel over Ethernet (FCoE); requires Brocade VCS technology · FC-BB5 compliant Fibre Channel Forwarder (FCF) · Native FCoE forwarding · End-to-end FCoE (initiator to target) · FCoE Initialization Protocol (FIP) v1 support for FCoE devices login and initialization · Name Server-based zoning · Supports connectivity to FIP Snooping Bridge (FSB) device
Fibre Channel features	· Name Server-based zoning · FC authentication · Bridging to Fibre Channel SANs
Quality of Service (QoS)	· Eight priority levels for QoS · Class of Service (CoS) IEEE 802.1p · DSCP Trust · DSCP to Traffic Class Mutation · Random Early Discard · Per-port QoS configuration · Scheduling: Strict Priority (SP), Shaped Deficit Weighted Round-Robin (SDWRR)
Switch health monitoring	· Fabric Watch monitoring and notification

Management

Management and control	· IPv4/IPv6 management · Industry-standard Command Line Interface (CLI) · Remote lights out management (future update) · In-band management · Link Layer Discovery Protocol (LLDP) IEEE 802.1AB · MIB II RFC 1213 MIB · Switch Beaconing · Switched Port Analyzer (SPAN)	· Telnet · SNMP v1/v2C,v3 · sFlow RFC 3176 · Out of Band management (standalone mode) · RMON-1, RMON-2 · NTP · Management Access Control Lists (ACLs) · Role-Based Access Control (RBAC)
Security	· Port-based Network Access Control IEEE 802.1X · RADIUS · TACACS+ · Secure Shell (SSHv2) · BPDU Guard · Lightweight Directory Access Protocol (LDAP) · Secure Control Protocol	

Mechanical

Enclosure Brocade VDX 6730-32	Front-to-rear airflow; power from back Rear-to-front airflow; power from back 1U System weight: 16.3 lb with two power supply FRUs, without transceivers
Enclosure Brocade VDX 6730-76	Front-to-rear airflow; power from back Rear-to-front airflow; power from back 2U System weight: 33.9 lb with two power supply FRUs, without transceivers

Environmental

Temperature	Operating: 0°C to 40°C (32°F to 104°F) Non-operating and storage: −25°C to 70°C (−13°F to 158°F)
Humidity	Operating: 10% to 85% non-condensing Non-operating and storage: 10% to 90% non-condensing
Altitude	Operating: Up to 3000 meters (9842 feet) Non-operating and storage: Up to 12 kilometers (39,370 feet)
Shock	Operating: 20 g, 6 ms half-sine Non-operating and storage: Half-sine, 33 g 11 ms, 3/eg Axis
Vibration	Operating: 0.5 g sine, 0.4 grms random, 5 to 500 Hz Non-operating and storage: 2.0 g sine, 1.1 grms random, 5 to 500 Hz
Airflow Brocade VDX 6730-32	Maximum: 53 CFM Nominal: 35 CFM
Heat dissipation	447 BTU/hr
Airflow Brocade VDX 6730-76	Maximum: 115 CFM Nominal: 76 CFM
Heat dissipation	477 BTU/hr (for 32-port switch); 1194 BTU/hr (for 76-port switch)

Power

Power supplies	Two internal, redundant, field-replaceable, load-sharing AC power supplies
Power inlet	C13
Input voltage	100 V to 240 V ~5 A – 2.5 A
Input line frequency	47 to 63 Hz
Inrush current	50 amps max
Maximum current	4 amps max (24-port switch); 7 amps max (60-port switch)
Maximum power consumption Brocade VDX 6730-32	140 W
Maximum power consumption Brocade VDX 6730-76	350 W

Safety Compliance
- Bi-Nat UL/CSA 60950-1 Second Edition
- CAN/CSA-C22.2 No. 60950-1 Second Edition
- EN 60950-1 Second Edition
- IEC 60950-1 Second Edition
- GB4943-2001 and GB9254-1998
- CNS 14336(94)

EMC
- FCC Class A
- ICES A
- VCCI-A
- CE
- C
- BSMI
- GOST
- KC Class A
- CCC

Immunity
- ANSI C63.4
- ICES-003 Class A
- CISPR22 and JEIDA (Harmonics)
- EN55022 and EN55024
- EN55022 or CISPR22 or AS/NZS CISPR22
- CNS 13438(95)
- 51318.22-99 and 51318.24-99
- KN22 and KN24
- GB17625.1-2003

Environmental Regulatory Compliance
· RoHS-6 (with lead exemption) Directive 2002/95/EC

Standards Compliance
Brocade VDX 6730 products conform to the following Ethernet standards:
· IEEE 802.1D Spanning Tree Protocol
· IEEE 802.1s Multiple Spanning Tree
· IEEE 802.1w Rapid reconfiguration of Spanning Tree Protocol
· IEEE 802.3ad Link Aggregation with LACP
· IEEE 802.3ae 10G Ethernet
· IEEE 802.1Q VLAN Tagging
· IEEE 802.1p Class of Service Prioritization and Tagging
· IEEE 802.1v VLAN Classification by Protocol and Port
· IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
· IEEE 802.3x Flow Control (Pause Frames)
· IEEE 802.3ab 1000BASE-T
· IEEE 802.3z 1000BASE-X

The following draft versions of the Data Center Bridging (DCB) and Fibre Channel over Ethernet (FCoE) standards are also supported on the Brocade VDX 6730:
· IEEE 802.1Qbb Priority-based Flow Control
· IEEE 802.1Qaz Enhanced Transmission Selection
· IEEE 802.1 DCB Capability Exchange Protocol (Proposed under the DCB Task Group of IEEE 802.1 Working Group)
· FC-BB-5 FCoE (Rev 2.0)

More information

Fujitsu OPTIMIZATION Services

In addition to Brocade VDX 6730 Converged switch, Fujitsu provides a range of platform solutions. They combine reliable Fujitsu products with the best in services, know-how and worldwide partnerships.

Dynamic Infrastructures

With the Fujitsu Dynamic Infrastructures approach, Fujitsu offers a full portfolio of IT products, solutions and services, ranging from clients to datacenter solutions, Managed Infrastructure and Infrastructure as a Service. How much you benefit from Fujitsu technologies and services depends on the level of cooperation you choose. This takes IT flexibility and efficiency to the next level.

Computing products

www.fujitsu.com/global/services/computing/
- PRIMERGY: Industrial standard server
- SPARC Enterprise: UNIX server
- PRIMEQUEST: Mission-critical IA server
- ETERNUS: Storage system
- BS2000 mainframes

Software

www.fujitsu.com/software/
- Interstage: Application infrastructure software
- Systemwalker: System management software

More information

Learn more about Brocade VDX 6730 Converged switch, please contact your Fujitsu sales representative, Fujitsu business partner, or visit our website. www.fujitsu.com/eternus/

Fujitsu green policy innovation

Fujitsu Green Policy Innovation is our worldwide project for reducing burdens on the environment. Using our global know-how, we aim to resolve issues of environmental energy efficiency through IT. Please find further information at: www.fujitsu.com/global/about/environment/

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