DATACOM

DM4050

ETHERNET SWITCH

DATASHEET

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DM4050

ETHERNET SWITCH

HIGH CAPACITY GE/10GE L2/L3 SWITCHES FOR ETHERNET ACCESS AND AGGREGATION NETWORKS

DM4050 family switches provide the ideal solution to meet the growing demands of traffic aggregation and access to services on Metro Ethernet and high-capacity local area networks.

DM4050 family is equipped with Datacom´s DmOS modular network operating system, ensuring robustness and high availability of services on a platform with support for a number of L2 / L3 functionalities, like the support for VLAN operations such as QinQ and VLAN Translate, LAG / LACP, ring operation through the EAPS protocol, RSTP support, OSPF and BGP routing protocols, access policy creation (ACL) filters, QoS functionality, among others.

Two switch models are available, one with electrical interfaces and the other with optical interfaces, both containing six 10GE uplink interfaces based on SFP+ connectors. All L2 / L3 packet forwarding is done in HW, as well as filter applications and QoS policies, ensuring wirespeed operation for any packet size.

The products offer configuration via command line (CLI) accessible by SSHv2, Telnet and RS-232 or USB console port. RADIUS and TACACS functionality enable the creation of user authentication and access authorization policies. Local and remote Syslog features, NTP, DHCP, and SNMP clients are also available to enable equipment remote management and troubleshooting.

DM4050 family switches are compact 1U height units ready for installation on standard 19-inch racks. They feature power redundancy through two hot-swap slots for universal AC / DC power supplies with automatic selection, enabling the operation of high availability services.

- Models with 24 electrical (RJ45) or optical (SFP) Gigabit Ethernet ports
- 6 10GE SFP+ ports as uplink interfaces
- Compact design with 1U height
- VLAN, QinQ and EAPS support for Metro Ethernet applications
- L2 protocols tunneling for LAN-to-LAN services
- Static IPv4 / IPv6 and dynamic routing through OSPF or BGP
- Two hot-swap slots for full-range AC / DC redundant power supplies with automatic selection

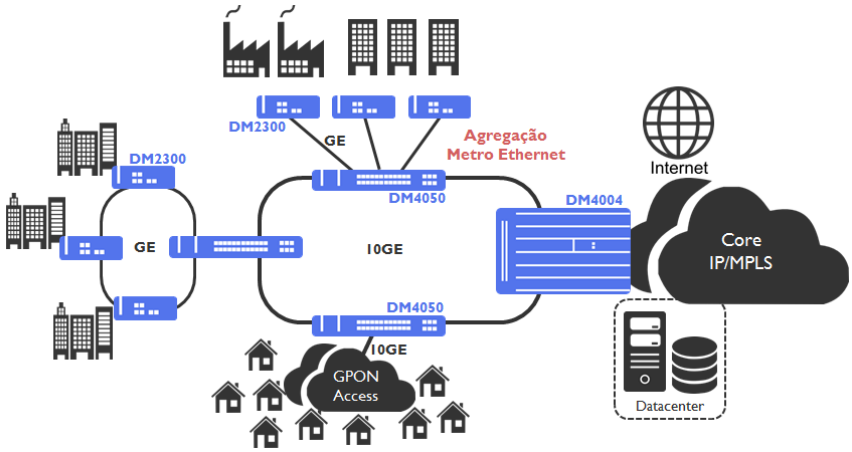
10GE ACCESS AND AGGREGATION

DM4050 switches have six 10GE SFP+ interfaces that can be used for both access links to services greater than 1GE as well as uplink interfaces for 10GE or more than 10GE aggregation rings with Link Aggregation and LACP.

APPLICATIONS

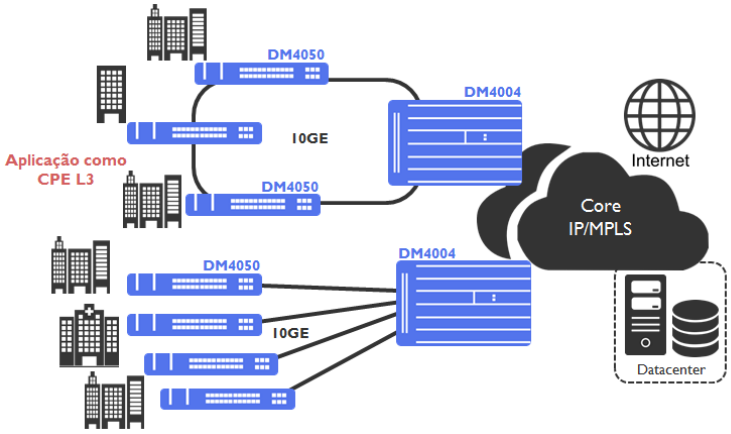
METRO ETHERNET AGGREGATION

Through its GE / 10GE optical interfaces and its L2 and L3 features, DM4050 switches serve high-capacity Metro Ethernet traffic aggregation applications, providing a reliable, high availability solution for corporate or residential services. The product supports the use of ring, star or linear topologies, allowing the network design that best suits the needs of the solution.



IP ACCESS

DM4050 switches support routing functionality and packet forwarding done in HW, ensuring wirespeed operation across all its interfaces for any packet size. Through OSPF and BGP protocols, the ability to create L3 filters and QoS functionality, the switches can also be used as an IP access solution for high value-added enterprise services, ensuring redundancy through features such as LACP, STP or EAPS, depending on the network topology used.



FEATURE LIST

MANAGEMENT

- Configuration commit and rollback
- In-band and out-of-band management
- Statistics per Ethernet port
- CPU and memory usage monitoring, with status available through SNMP
- Firmware rollback
- Firmware upgrade via TFTP, SCP or HTTP
- RADIUS Accounting
- SNMPv1, SNMPv2, SNMPv2c, SNMPv3
- Command line interface (CLI) via SSHv2, Telnet and RS-232 or USB console
- Digital diagnostics of optical modules according to SFF 8472
- System status LEDs and alarms
- Inventory information
- Storage for up to 2 firmware and up to 64 configurations in Flash memory
- SNTP support
- Remote Syslog

SWITCHING

- Switching capacity of up to 168 Gbit/s
- Packet forwarding of up to 125 Mpps
- EAPS
- Static and dynamics Link Aggregation (LACP), of up to 8 groups with up to 8 ports per group
- VLAN
- Q-in-Q
- Selective Q-in-Q
- VLAN Translate
- Spanning Tree (STP), Rapid Spanning Tree (RSTP)
- Aging L2 Global configuration
- Auto negotiation interface configuration, with Auto MDI/MDIX support
- L2PT – L2 protocols tunneling
- Support for a Jumbo Frames of up to 9200 bytes
- Configuration of up to 4k VLANs with up to 4k VLAN IDs
- MAC table with 16k addresses

FILTERS AND SECURITY

- ACL Remark and deny actions
- ACL Match for L2 and L3 fields
- Up to 512 ACL rules (256 L2 and 256 L3)
- Local and remote Syslog
- Protection mechanisms against Broadcast, Multicast or DLF attacks
- CPU protection against Denial of Service (DoS) attacks
- Protection mechanisms against IP spoofing
- Authentication of users through RADIUS or TACACS+

QOS

- P-bit remarking (PCP)
- Packet classification based on DSCP, Src/Dst IP, Src/Dst MAC, VLAN, port
- DSCP mapping for COS
- Scheduling of queues by WFQ and Strict Priority
- Packet buffer of 2Mbytes
- Up to 8 priority queues per port

ROUTING

- BGP, with MD5 authentication option
- BGP IP Prefix Lists and Route Map
- Up to 32 BGP neighbors
- Up to 1k IPv4 routes
- OSPFv2, with MD5 authentication option
- Up to 32 areas and 32 OSPFv2 adjacencies
- IPv4 / IPv6 static routing
- Routing between VLANs
- Up to 64 VLANs with configured IP
- Routes distribution between routing protocols
- Up to 2k IPv4 hosts

SERVICES

- IPv4 ping IPv4
- SSH Client
- Telnet Client

MULTICAST

- IGMPv2, IGMPv3
- IGMP snooping with proxy report
- Up to 1k multicast groups support

STANDARDS

IETF

draft-grant-tacacs-02	The TACACS+ Protocol
RFC783	The TFTP Protocol (Revision 2)
RFC792	Internet Control Message Protocol (ICMP) (Ping IPv4)
RFC854	TELNET Protocol Specification
RFC894	A Standard for the Transmission of IP Datagrams over Ethernet Networks
RFC1157	A Simple Network Management Protocol (SNMPv1)
RFC1213	Management Information Base for Network Management of TCP/IP-based internets: MIB-II (Obsoletes RFC 1158)
RFC1215	A Convention for Defining Traps for use with the SNMP - TRAPS MIB
RFC1441	Introduction to version 2 of the Internet-standard Network Management Framework (SNMPv2)
RFC1700	ASSIGNED NUMBERS
RFC1901 to RFC1908	SNMPv2c
RFC2030	Simple Network Time Protocol (SNTP) Version 4 for IPv4, IPv6 and OSI
RFC2236	Internet Group Management Protocol, Version 2 - IGMPv2
RFC2328	OSPF Version 2 (obsoletes RFC2178, RC1583, RFC1247 e RFC1131)
RFC2348	TFTP Blocksize Option (obsoletes RFC1783)
RFC2385	Protection of BGP Sessions via the TCP MD5 Signature Option
RFC2474	Definition of the Differentiated Services Field (DS Field) in the IPv4 Headers (DSCP Remarking for IPv4)
RFC2865	Remote Authentication Dial In User Service (RADIUS) (obsoletes RFC 2138)
RFC2866	RADIUS Accounting (obsoletes RFC2139)
RFC3021	Using 31-Bit Prefixes on IPv4 Point-to-Point Links
RFC3376	Internet Group Management Protocol, Version 3 - IGMPv3
RFC3410 to RFC3418	SNMPv3 agent
RFC3619	EAPS
RFC4271	A Border Gateway Protocol 4 (BGP-4) (obsoletes RFC1771)
RFC4632	Classless Inter-domainRouting (CIDR): The Internet Address Assignment and Aggregation Plan
RFC4742	Using the NETCONF Configuration Protocol over Secure Shell (SSH)
RFC5277	NETCONF Event Notifications
RFC5717	Partial Lock Remote Procedure Call (RPC) for NETCONF
RFC6020	YANG - A Data Modeling Language for the Network Configuration Protocol (NET-CONF)
RFC6021	Common YANG Data Types
RFC6022	YANG Module for NETCONF Monitoring
RFC6241	Network Configuration Protocol (NETCONF) (Obsoletes RFC 4741)
RFC6242	Using the NETCONF Configuration Protocol over Secure Shell (SSH)
RFC6243	With-defaults capability for NETCONF
RFC6470	NETCONF Base Notifications
RFC6536	NETCONF Access Control Model
RFC6991	Common YANG Data Types (Obsoletes RFC 6021)

IEEE

802.1ad	Double Tagging (Q-in-Q)
802.1AX/802.3ad	Link Aggregation
802.1D	MAC bridges
802.1D	Spanning Tree Protocol (STP)
802.1p	Traffic Class Expediting
802.1Q	Virtual Bridged LAN (VLAN)
802.1w	Rapid Spanning Tree Protocol (RSTP)
802.3ae	10 Gigabit Ethernet over fiber; 10GBASE-SR, 10GBASE-LR, 10GBASE-ER, 10GBASE-SW, 10GBASE-LW, 10GBASE-EW
802.3z	1000BASE-X Gbit/s Ethernet over Fiber-Optic at 1 Gbit/s (125 MB/s)

ANATEL

Resolução 242 (Nov, 30, 2000)
Rules for Certification and Homologation of Telecommunication Products

Resolução 323 (Nov, 7, 2002)

Standard for Certification of Telecommunication Products

Resolução 442 (Jul, 21, 2006)
Rules for the Certification of Telecommunication Equipment in Aspects of Electromagnetic Compatibility

ETSI

EN 300 019-1-1, Class 1.2	Environmental Conditions for storage
EN 300 019-1-2, Class 2.3	Environmental Conditions for Transport
EN 300 386 V1.6.1 (2012-09)	Electromagnetic compatibility and Radio spectrum Matters (ERM)
EN 55022	Information technology equipment. Radio disturbance characteristics - Class A

IEC

60825-1 Laser Safety Class

61000-4-11	Voltage dips, short interruptions and voltage variations immunity tests
61000-4-6	Immunity to conducted disturbances, induced by radio-frequency fields
EN 61000-4-2	Electrostatic Discharge Immunity Test
EN 61000-4-4	Electrical fast transient/burst immunity test
EN 61000-4-5	Surge immunity test

TECHNICAL SPECIFICATIONS

		DM4050 24GX+6XS	DM4050 24GT+6XS
HARDWARE CHARACTERISTICS	Power supply	2 hot swappable slots for PSUs compatible with PSU 85 (100V to 240Vac (50/60Hz) / 48V to 60Vdc)	
	Maximum power consumption	85 W	70 W
	Typical power consumption	80 W	60 W
	Operational temperature (*)	0ºC to 55ºC	
	Operational relative humidity	10% to 90%, non-condensed	
	Operational altitude	0 to 3000m	
	Storage temperature	-20ºC to 70ºC	
	Storage relative humidity	10% to 90%, non-condensed	
	Dimensions (H x D x W)	43mm x 230mm x 447mm (481mm with brackets)	
	Weight	2,9kg	3,0kg
INTERFACES	10/100/1000Base-T (RJ45)	-	24
	1000Base-X (SFP)	24	-
	10G Base-X (SFP+)	6	
	GE Outband Management (RJ45)	1	
	Console (RJ45)	1	
	USB	1	
	Alarms (**)	1 output and 2 inputs	
MEMORY	Flash memory	1GB	
	RAM memory	2GB	

(*) For temperatures above 45ºC, extended temperature optical modules may be necessary.

(**) Features in roadmap. Please contact Datacom for more information.

Accessories

Accessory	Description
SFP+ 10GbE *PN: Inquire*	Optical 10 Gigabit Ethernet SFP+ modules. Several models with varying power and reach specifications are offered.
SFP 1GbE *PN: Inquire*	Optical Gigabit Ethernet SFP modules. Several models with varying power and reach specifications are offered.
PSU 85 *PN: 800.0830.xx*	AC/DC full range (100V to 240Vac (50/60Hz) / 48V to 60Vdc) power supply with automatic selection.

Ordering Information

Model	Description	
DM4050 24GX+6XS *800.5190.xx*	L2/L3 wirespeed switch with 24 optical Gigabit Ethernet ports (SFP) and 6 optical 10Gisgabit Ethernet ports (SFP+). 1U Metal cabinet for 19-inch racks. Two slots for power supplies. Power supplies and SFPs to be ordered separately.	
DM4050 24GT+6XS *800.5189.xx*	L2/L3 wirespeed switch with 24 electrical Gigabit Ethernet ports (RJ45SFP) and 6 optical 10Gisgabit Ethernet ports (SFP+). 1U Metal cabinet for 19-inch racks. Two slots for power supplies. Power supplies and SFPs to be ordered separately.	

DATACOM

Rua América, 1000 | 92990-000 | Eldorado do Sul | RS | Brasil
+55 51 3933 3000
sales@datacom.ind.br