MRV

Datasheet

DaVinci MR2324-4C L2/4 Gigabit Managed Switch

24 - ports 10/100/1000Base-T Layer 2 Gigabit Ethernet standalone switch – 20 ports 10/100/1000 Base-T and 4 combo Gigabit ports each comprised of a RJ-45 and a SFP

Introduction to the DaVinci Family of switches

The DaVinci family of Intelligent Ethernet Switches is a line of enterprise-class, stackable, multilayer switches that provide high availability, security and quality of service (QoS) to enhance the operation of the network. With a range of Fast Ethernet and Gigabit Ethernet configurations. The DaVinci Series can serve as a powerful access layer switch for small medium and large enterprise wiring closets, as well as a backbone switch for networks. Customers can deploy network-wide intelligent services, such as advanced QoS, rate-limiting, MRV's security-access-control lists, multicast management, and high-performance IP routing, while maintaining the simplicity of traditional local area network (LAN) switching. Also embedded in the the DaVinci series of switches is the MRV's Operating and Management Software, which is common to all the switches in the DaVinci series. The DaVinci Series of Switches enhances any network performance by intelligently providing 10, 100, and 1000 Mbps communication over existing Category 5 copper cabling as well as High Speed fiber-optic connectivity to the backbone through Small Form-Factor Pluggable (SFP) optical transceivers. The DaVinci Series Switches are in a 1-RU form factor ideal for wiring closet installation. Members of the DaVinci family are:

- **MR2228-S2C L2/4 Stackable Switch** — A switch comprised of 24 10/100BASE-T(RJ-45) ports, two Gigabit combo ports each comprised of an RJ-45 and an SFP interface for Gigabit uplink, and two 1Gbps ports for stacking
- **MR2252-S2C L2/4 Stackable Switch*** — A switch comprised of 48 10/100BASE-T(RJ-45) ports, two Gigabit combo ports each comprised of an RJ-45 and an SFP interface for Gigabit uplink, and two 1Gbps ports for stacking
- **MR2324-4C L2/4 Gigabit Managed Switch** — A 24 ports 10/100/1000 Layer 2 Gigabit Ethernet standalone switch comprised of 20 ports 10/100/1000 Base-T, and 4 Gigabit combo ports each comprised of an RJ-45 and an SFP.
- **MR3312-4C Layer 3 Managed Switch** — A 12 Gigabit SFP ports and 4- 10/100/1000 Base-T ports (combo ports) Ethernet Routing standalone Switch.
- **MR3325-S4C Layer 3 Managed Switch*** — A 24 ports 10/100/1000 Ethernet Routing, Stackable Switch comprised of 20 10/100/1000 Base-T ports, and 4 Gigabit combo ports each comprised of an RJ-45 and an SFP plus 1 optional I/O module for 10G uplink.
- **MR3349-S4C Layer 3 Managed Switch*** — A 44 ports 10/100/1000 Ethernet Routing Stackable Switch comprised of 40 10/100/1000 Base-T ports , 4 Gigabit combo ports each comprised of an RJ-45 and an SFP, and one optional I/O module for 10G uplink.

* To be introduced in Nov. 2004.

Datasheet

MR2324-4C Product Overview

The MR2324-4C Gigabit-to-the-desktop Ethernet Switch delivers wire-speed intelligent services. With 24 10/100/1000 Base T ports,this switch is ideal for high-performance departmental workgroups that need to boost network performance over existing Category 5 copper cabling. The MR2324-4C also offers High Speed fiber connectivity to the backbone through SFP fiber-optic transceivers. The MR2324C Switch enhances any Network performance by intelligently scaling beyond 100 Mbps over existing Category 5 copper cabling. The MR2324-4C offers a complete set of sophisticated multilayer services delivering security, quality of service (QoS), and availability with the simplicity of traditional LAN switching.

MR2324-4C supports comprehensive layer 2 features such as, IEEE 802.3ad (LACP) trunking and Link aggregation; port-based 802.1x, HTTPS/SSL and SSH security features and QoS features include 802.1p and DiffServ, WRR, strict scheduling, 4-level priority in switching to ensure the steadiness of data communication. Furthermore, its unique SMTP function will send alerts for unusual packets to the administrator's email box. The MR2324-4C Jumbo packets can support up to 9K bytes under Gigabit speed that give administrators the flexibility to make performance-enhancing adjustments. The MR2324-4C provides multiple security algorithms such as Port Security, SSL, Web management Encryption, RADIUS, TACACS+ and 802.1x.

Feature Highlights

• Wire-speed performance.

• 4 Gigabit Ethernet ports to deliver integrated RJ-45 (Copper) or SFP (fiber) for uplink installation, giving greater flexibility and cost savings for wiring closet installations

• Complete Layer 2 standard features including:
— IEEE 802.1q and 802.1p (Class of Service) with 4 hardware queues per port to enable prioritization of mission-critical applications
— Port-base VLAN
— Spanning Tree IEEE 802.1D, 802.1W
— 802.3ad for automatic link aggregation and 802.1x for port security
— 802.1w Rapid Spanning Tree Protocol for superior network reliability
— Support for Generic VLAN Registration Protocol (GVRP)
— Internet Group Management Protocol (IGMP) Snooping

• CoS Features:
Bandwidth Management, Class of Service (802.1p) mapping to Type Of Service,
DiffServ, priority queuing algorithm such as Weighted Round Robin,

• Support for jumbo frames of up to 9,000 bytes ideal for high-end server connectivity and network attached file servers

• Supports Up to 16K MAC address entries• Management –access control list, Cisco look alike CLI interface, SNMP V1/V2c/V3*, RMON, WEB Management, BOOTP client, DHCP client, SNTP, Syslog

• Security- IEEE 802.1X, RADIUS, TACACS+, Port Security, SSH, SSL

Performance

The MR2324-4C High-end switch performs L2/L4 switching eliminating network bottlenecks with wire-speed switching capabilities. The MR2324-4C switch offers an elaborate set of software to manage and secure the entire communication network.
The intelligent high-quality design of the MR2324-4C switch provides a comprehensive set of features, including: Quality of Service-DHCP/BOOTP relay, Port trunking, broadcast storm protection, extensive VLAN support, IGMP snooping, Rapid Spanning Tree, and link aggregation.

Fault-Tolerance

Spanning tree is a link management protocol that provides path redundancy while preventing undesirable loops in the network. The MR2324-4C switch performs the IEEE802.1D (Spanning Tree) protocol, the IEEE802.1s* (Multiple Spanning Tree) protocol, the IEEE802.1w* (Rapid Spanning Tree) protocol, and Spanning Tree for Fault-Tolerance.
The MR2324-4C also provides redundant power supply hook-ups to enable simultaneous connections to two independent power sources to ensure the system reliability.

Enhanced Security Features

The DaVinci Series switches offer enhanced data security through a wide range of security features that protect network management and administrative traffic, secure the network from unauthorized users, provide granular levels of network access to users, and track where users are located.
Secure Shell (SSH), Secure Telnet (v1.5/2.0) port based security, Simple Network Management Protocol version 3 (SNMPv3)* and network management information, thereby protecting it from tampering or eavesdropping. Terminal Access Controller Access Control System (TACACS+) or Remote Access Dial-In User Service (RADIUS) authentication enables centralized access control of switches and restricts unauthorized users from altering the configurations. Alternatively, a local username and password database can be configured on the switch itself. Multi levels of authorization on the switch console and two levels on the web-based management interface provide the ability to give different levels of configuration capabilities to different administrators.
Port security and 802.1x provide the ability to keep unauthorized users from accessing the network. Port security limits access on an Ethernet port based on the MAC address of the device that is connected to it. It can also be used to limit the total number of devices plugged into a switch port, thereby reducing the risks of rogue wireless access points or hubs. 802.1x can be used to authenticate users based on username and password (or other credentials) via a centralized RADIUS server. This is particularly useful for a mobile workforce because the authentication will be executed regardless of where the user connects to the network.

Network Control through Advanced QOS

The MR2324-4C switch prioritizes each packet based on the required level of service, using four priority queues with Weighted Round Robin Queuing. It uses IEEE 802.1p and 802.1Q tags to prioritize incoming traffic based on input from the end-station application. These functions can be used to provide independent priorities for delay-sensitive data and best-effort data.
The MR2324-4C switch also supports several common methods of prioritizing traffic to meet application requirements. Traffic can be prioritized based on the priority bits in the IP frame's Type of Service (ToS) octet. When these services are enabled, the priorities are mapped to a Class of Service value by the switch, and the traffic then
sent to the corresponding output queue.

Interface Options using SFP

The MR2324-4C switch offers 4 combination ports , each comprised of an SFP interface for fiber-optic hookup and an RJ-45 connector for category 5 copper cable connection. The SFP interface supports both single mode and multi mode Gigabit fiber-optic communication, allowing network managers the flexibility to upgrade their networks connecting the distribution back to the enterprise backbone using SX, LX, or EZX optics. Fiber-optic transmission enables distances of 300m, 5Km, or up to 120Km, respectively.

Eliminates Network Bottlenecks

To secure bandwidth for bandwidth-hungry traffic applications, the MR2324-4C switch offers the basic IEEE 802.3ad Link Aggregation, and Cisco's Ether Channel for static trunks. Users have a user-friendly option to choose which of the two better suits their needs.

MR2324-4C switch properties

Physical Ports

- 20/44 Giga RJ-45 ports
- 4 Giga combo port (RJ-45/ SFP)
- 1 RS232 port
- 1 Redundant Power (DC) connector

L2 Features

- 10/100/1000BASE-TX ports support auto-sensing, auto-negotiation.
- Supports Jumbo frame up to 9KB
- Supports up to 16K MAC address entries
- Supports Flow Control supported:
- Provides IEEE802.3x for full duplex mode
- Back-Pressure flow control half duplex mode
- Provides store-and-forward forwarding scheme
- Provides HOL (Head of Line) blocking prevention
- Provides Broadcast storm protection
- Supports IGMP snooping v1/v2
- Supports IGMP querier

Advanced Features

- Link Aggregation
- Complies to IEEE 802.3ad (LACP)
- Cisco Ether-Channel compatible (Static Trunk)
- Up to 6 trunks
- 2 ~ 8 ports per trunk
- Support Load Balance for both Unicast and Multicast traffic
- Spanning Tree

- Supports IEEE 802.1D Spanning Tree Protocol
- Supports IEEE 802.1s Multiple Spanning Tree*
- Supports IEEE 802.1w Rapid Spanning Tree
- VLAN functions
- IEEE 802.3ac frame extension for VLAN tagging
- IEEE 802.1Q tagging VLAN
- Up to 255 VLAN entries
- Supports Port-based VLAN
- GVRP protocol for dynamic VLAN management

Security

- User/Password protected system management terminal
- Static port security (MAC-based)
- RADIUS
- TACACS+
- SSH/Secure Telnet (v1.5/2.0) port based security
- HTTPS/SSL
- IEEE 802.1x

Quality of Service features

- 802.1p based CoS
- 4 priority queues per port
- WRR for priority queue
- IP TOS/Precedence based CoS
- DSCP based CoS
- DiffServ*

Management

- Provides 1 Male DB9 RS-232C console interface configured as DTE
- Supports Cisco-liked Command Line Interface (CLI) using VT-100 style terminal, 4 sessions
- Supports Telnet management
- Supports Embedded Web-based Management
- Supports software upgrade/download via XMODEM or TFTP
- Supports configuration download/upload via TFTP
- Support Port Mirroring
- Supports BOOTP/DHCP client for IP address Assignment
- Supports Remote Ping
- Supports dual copies of Firmware image
- Supports multiple copies of configuration

- Supports System/Crash/Error log
- Supports SNTP (RFC 2030)
- Supports SNMPv1/v2c/v3*
- Supports RFC 2819 RMON group (1,2,3 & 9)
- Supports MIBs

Mechanical

- Dimension (D x W x H): 35.4cm x 44cm x 4.4cm

Performance

- Switch Fabric: 24Gbps
- MAC addresses: 16K

Electrical Power Requirements

- Nominal Input Voltages: 110V & 230V
- Input Voltage Range: 90-240V RMS
- Input Frequency: 50/60Hz
- Maximum i/p current: 1.2A@110V, 0.6A@230V

Safety

- CSA/NRTL (UL1950, CSA 22.2.950)
- TUV/GS (EN60950)
- CB

Electromagnetic Compatibility

- CE Mark
- FCC Class A
- VCCI Class A
- CISPR Class A

Environmental

- Temperature:
- IEC 68-2-14
- 0ºC to 50ºC (Standard Operating)
- -40ºC to 70ºC (Non-operating)
- Humidity: 5% to 95% (Non-condensing)
- Vibration: IEC 68-2-36, IEC 68-2-6
- Shock: IEC 68-2-29
- Drop: IEC 68-2-32

IEEE Standards

- IEEE 802.3 10BASE-T [1]
- IEEE 802.3u 100BASE-TX and 100BASE-FX [2]
- IEEE 802.3z[3] 1000BASE-SX
- IEEE 802.3x flow control support
- IEEE 802.1D (Bridging), 1993
- IEEE 802.1Q (Virtual LAN) 1998
- IEEE 802.3ad (LACP)
- IEEE 802.1s*
- IEEE 802.1w
- IEEE 802 1x Port based security Management

* future specifications

Ordering Info

MR3349-S4C	48 - ports 10/100/1000Base-T Gigabit Routing Stackable Switch - 44 ports 10/100/1000 Base-T and 4 combo Gigabit ports each comprised of a RJ-45 and a SFP plus 1 optional I/O module for 10G uplink.
Gigabit Ethernet SFP	
SFP-G-SX	SFP 1000Base-SX, MM, 850nm, 0-550m.
SFP-G-MMX	SFP 1000Base-SX, Extended MM, 1310nm, 0-2km.
SFP-G-LX	SFP 1000Base-LX, SM, 1310nm, 10km.
SFP-GD-ELX	SFP 1000Base-ELX, SM, 1310nm, 25km
SFP-GD-XD	SFP 1000Base-XD, SM, 1550nm, 50km
SFP-GD-ZX	SFP 1000Base-ZX, SM, 1550nm, 80km
SFP-GD-EZX	SFP 1000Base-EZX, SM 1550nm, 120km
SFP-GD-EZX	SFP 1000Base-EZX, SM 1550nm, 120km

MRV has more than 50 offices throughout the world. Addresses, phone numbers and fax numbers are listed at www.mrv.com.
Please e-mail us at **sales@mrv.com** or call us for assistance.

Contact

Shmuel Zaarur szaarur@mrv.com +1 818-773-0900 ext. 266	Chen Genossar cgenossar@mrv.com +972 (4) 993-6200 ext. 290

102704 v1