Switching Solutions

Link Street™ 88E6151/88E6181

5-Port/8-Port Gigabit Ethernet QoS Switches

88E6151/88E6181

LINK STREET™

PRODUCT OVERVIEW

The Marvell® Link Street™ family of low power Gigabit Ethernet (GbE) switches provides industry leading functionality and price-performance ratio for the cost-sensitive Small Office/Home Office (SOHO) and enterprise desktop switching market. The Link Street 88E6151 (5-port) and 88E6181 (8-port) devices are GbE Quality of Service (QoS) switches integrating a high-performance switching fabric with five (88E6151) or eight (88E6181) SERDES ports. Each switch enables one port to be selected as a SERDES or as a fiber port that can directly drive a fiber module.

Other advanced features include 802.1p/IPv4/IPv6 traffic classification, port-based VLANs, four priority queues, a high-speed address look-up engine, and 1 Mb of packet memory and MAC address storage. The Link Street 88E6151/88E6181 devices may be used in conjunction with Marvell Alaska® Gigabit PHYs to build a three-chip complete Gigabit switch solution. The Link Street 88E6151/88E6181 switches perform wire-speed Gigabit switching and are ideal products for value-oriented enterprise-class desktop switches.

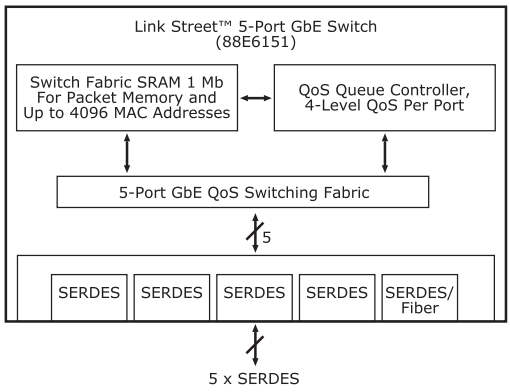

Fig 1. Link Street™ 5-Port GbE Switch (88E6151) Internal Block Diagram

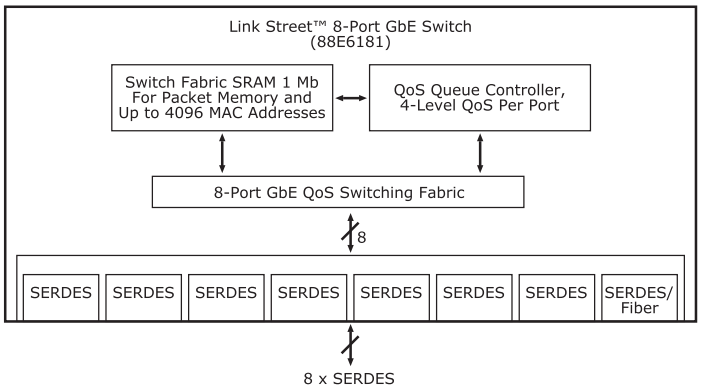

Fig 2. Link Street™ 8-Port GbE Switch (88E6181) Internal Block Diagram

FEATURES	BENEFITS
• Single-chip integration of a 5-port (88E6151) or 8-port (88E6181) GbE QoS switch	• Provides a complete SOHO switching solution with true non-blocking switching performance and IEEE 802.1p QoS provisions
• Five/eight integrated triple-speed 10/100/1000 SERDES ports	• Provide a glueless interface to Marvell Alaska Gigabit PHYs, including to the 88E1145 quad-port Gigabit PHY and the 88E1111 single-port PHY. Allows triple-speed Ethernet 10/100/1000 Mbps operation
• One port is selectable as SERDES or fiber	• Enables the fiber port to drive a Gigabit fiber module directly
• Port-based VLANs supported in any combination	• Provides Layer 2 firewall port isolation
• High-speed switch fabric – High-performance look-up engine with support for up to 4,096 MAC address entries with automatic learning and aging – Port-based VLANs supported in any combination	• Provides true non-blocking switching performance – Supports a large number of Ethernet nodes – Allow suppression or addition of group membership to provide flexible management by IT managers
• QoS determined by destination MAC address, port ID, IEEE 802.1p and multimedia traffic tags, IPv4 Type of Service (ToS), and Differentiated Services (DiffServ)	• Supports the most number of traffic priority schemes in its class
• Link aggregation for any number of ports (port trunking)	• Groups multiple links into one higher speed link
• Port mirroring	• Enables monitoring/analysis tools to monitor data from the network mirrored from each selected port

MARVELL®

Link Street™-88E6151/88E6181 GbE QoS Switch

MOVING FORWARD FASTER®

FEATURES

- Multiple address data bases (up to 16)
- Chip configuration through SMI ports (MDC/MDIO) or by low-cost Serial EEPROM
- CMOS low power dissipation (typical 1.4W for 8-port)

BENEFITS

- Allows packet routing without modification of the MAC address
- Provides an easy, low-cost switching configuration
- Eliminates expensive heatsinks or fans and permits the use of low cost and small enclosures

APPLICATIONS

The Marvell Link Street family of products provides industry-leading functionality for Gigabit integrated switches. The 88E6181 device builds a complete 8-port Gigabit non-blocking QoS switch with all PHYs and memory in a 3-chip solution, when used with two 88E1145 Alaska Gigabit Quad PHYs. The 88E6151 device builds a 5-port Gigabit non-blocking QoS switch in a low-cost 4-layer PCB when used with five 88E1111 Alaska Gigabit Single-Channel PHYs; or alternatively, the 88E6151 product builds a smallest-board-space 3-chip solution when used with one 88E1145 Alaska® Gigabit Quad PHY plus one 88E1111 Single-Channel PHY. The 88E6151 switch's high integration, low power, and glueless interface to Marvell Gigabit PHYs save BOM costs and support many applications with few additional active components in a small footprint.

The 88E6181 and 88E6151 switches have optimizations for fast packet switching and are ideal products for low cost enterprise-class desktop switches and SOHO networks.

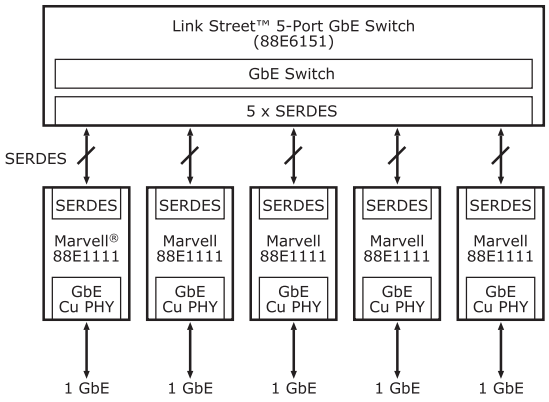

Fig 3. Link Street™ 5-Port GbE Switch (88E6151) System Block Diagram (4-Layer PCB Design)

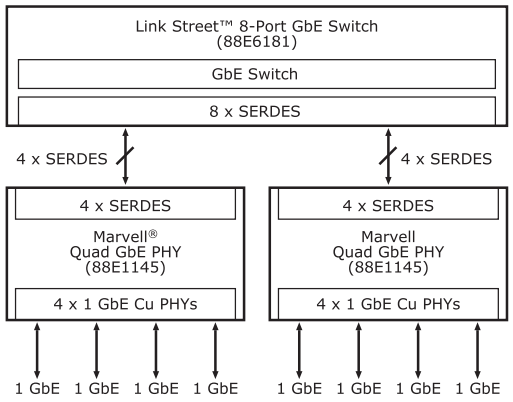

Fig 4. Link Street™ 8-Port GbE Switch (88E6181) System Block Diagram

THE MARVELL ADVANTAGE: Marvell's worldwide field applications engineers collaborate closely with network equipment vendors to develop and deliver new competitive products to market on time. All Marvell products, including the Link Street 88E6151/88E6181 Gigabit Ethernet QoS Switches, are supported by a complete set of hardware and software tools to assist network hardware engineers with product evaluation.

For more information, visit our website at www.marvell.com.

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