PC Connectivity Solutions

Yukon® Dual-Port Gigabit Ethernet Controller with PCI-X Interface

88E8022/88E8021

PRODUCT OVERVIEW

The Marvell® Yukon® 88E8022 device integrates dual Gigabit Ethernet (GbE) ports with a PCI-X interface in a single-chip solution. With a PCI-X 64-bit 133 MHz interface, the device is capable of full-wire-speed performance on both Gigabit ports simultaneously. The 88E8021 is a single-port device that is pin-compatible with the 88E8022 device. These server class devices offer unprecedented integration of Marvell's market-leading Alaska® Gigabit PHY, MAC technology and SERDES cores with the industry's most comprehensive software driver suite. With built-in support for copper and fiber applications, these Marvell Yukon devices are ideally suited for Server and Workstation LAN on Motherboard (LOM), Server blades for backplane, Network Interface Card (NIC), and embedded applications. The Yukon products' 96 KB per port deep memory buffers maximize throughput while eliminating the need for costly external memory and associated board space.

Marvell offers a complete driver suite and hardware reference design for fast time-to-market implementations with the Yukon products. Server features such as teaming and failover that enable reliable and fail-safe connectivity and performance are built into the Yukon solutions. The Marvell Yukon products are the first to utilize the Company's unique Virtual Cable Tester® (VCT) technology for advanced cable diagnostics, reducing network installation and support costs.

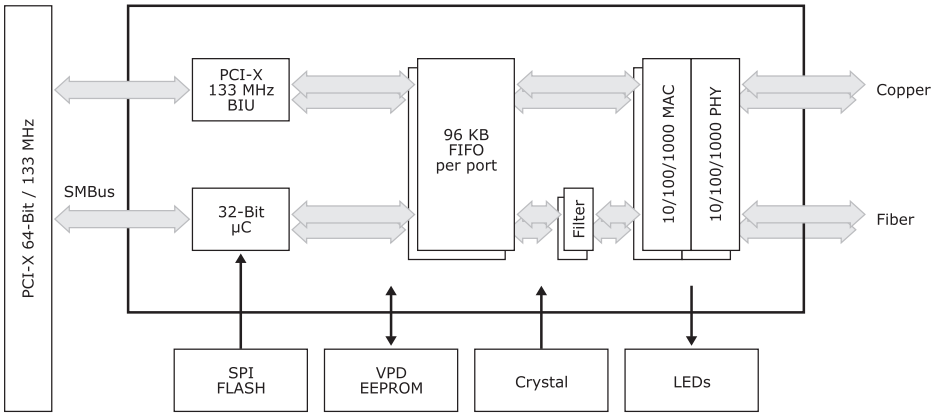

Fig 1. Yukon Dual-Port GbE with PCI-X Interface (88E8022) Block Diagram

FEATURES	BENEFITS
• PCI-X 1.0a and PCI 2.3 compliant – 64-bit interface – PCI up to 66 MHz – PCI-X from 66 MHz up to 133 MHz	• Conforms to latest PCI-X 1.0a and PCI 2.3 compliance standard • Full-wire-speed support for 2 GbE in each direction
• Pin-compatible single and dual link support (copper and fiber) 23mm x 23mm, 440 PBGA Yukon device – PCI-X with single Gigabit link (88E8021) – PCI-X with dual Gigabit link (88E8022)	• Support for single and dual link server and workstation applications requiring copper or fiber support • Enable failover redundancy, teaming and higher throughput • One layout for a dual-port or single-port design
• 96 KB deep buffer for each link	• Eliminates the need for costly external memory and associated board space • Maximizes throughput for better system performance and responsiveness
• Integrated market-leading Marvell Alaska GbE PHY	• Provides highly reliable GbE network connectivity
• Triple-speed 10/100/1000BASE-T IEEE 802.3 compliant operation	• Automatically configures to 10, 100 or 1000 Mbps • Compatible with existing installed base

MARVELL®

Yukon® Dual-Port Gigabit Ethernet Controller with PCI-X Interface

MOVING FORWARD FASTER®

FEATURES	BENEFITS
• Integrated dual SERDES	• For fiber GbE and blade backplane connections
• Fully integrated ASF 2.0 functionality with on-chip µC and support for IPMI packet filtering – SMBus 2.0 master interface for ASF/IPMI functionality – Serial Peripheral Interface (SPI) for ASF firmware	• Enables easy remote management of systems
• Host offloads – TCP/IP and UDP Checksum generation/checking "on the fly" – TCP segmentation offload/large-send support – VLAN insertion and removal in hardware – Interrupt moderation – Jumbo frame support	• Provides offloading from the host system CPU and Input and Output (I/O) resources to improve application response • Provide high throughput for superior network performance
• Advanced cable diagnostics – Marvell VCT technology for advanced cable diagnostic function – Cable monitoring and auto-correct	• Enable IT managers to easily pinpoint location of cabling issues. Result in plug-and-play operation, reducing support requirements
• Low power modes and Advanced Power Management – Wake on LAN (WOL) power management support – WOL Plug-In-Go support – Advanced power management, compliant to ACPI 2.0	• Provide smart energy efficient minimal power operation and sleep states • Provide wake-up out of the box functionality • Provide cost-effective remote management and network administration • Enable server, desktops and mobile client applications
• Broadest software driver suite – Microsoft® Windows®, 2000, 2003, and XP; Linux; and Novell Netware	• Reduces development time for quick time-to-market • Implements a range of desktop and server platforms based on compatible technology
• Preboot Execution Environment (PXE) 2.1 support	• Provides network boot capability for diskless workstations and thin clients
• IEEE 802.1Q VLAN support – Support for up to 64 VLANs	• Enables VLANs for network segmentation and security
• Programmable LEDs – Software configurable LED support	• Provide flexibility to display link speed, status and quality

APPLICATIONS

The Yukon 88E8021/88E8022 GbE controllers with single and dual link support is ideal for high-performance server and workstation motherboard designs as well as NIC and embedded implementations. Along with true wire-speed performance and reliability, the 88E8021/88E8022 solutions offer offloading and load-balancing features that make them suitable for applications ranging from workstation platforms to mid/high-end server platforms.

THE MARVELL ADVANTAGE: The Marvell Yukon family of GbE controllers come with complete software driver suites and a hardware evaluation platform to assist with customer product evaluation and quick time-to-market implementations. Marvell's worldwide field applications engineers collaborate closely with network equipment vendors to develop and deliver new competitive products to market on time. Marvell utilizes recognized world-leading semiconductor foundry and packaging services to reliably deliver high-volume and low cost total solutions.

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

MARVELL®

Marvell Semiconductor, Inc.

700 First Avenue
Sunnyvale, CA 94089

Phone 408.222.2500

www.marvell.com

88E8021/88E8022-001 12/04