PC Connectivity Solutions

Yukon™-EC
PCI Express based
Gigabit Ethernet Controller
88E8050

YUKON™

PRODUCT OVERVIEW

The Marvell® Yukon™-EC 88E8050 PCI Express™ single-chip Gigabit Ethernet (GbE) controller offers unprecedented integration of Marvell's market-leading Gigabit MAC/PHY and PCI Express technologies with the industry's most comprehensive software driver suite. The Yukon-EC device is offered in an ultra-small form factor and is ideally suited for PCI Express based LAN-on-Motherboard (LOM), Network Interface Card (NIC) and embedded applications. The Yukon-EC (88E8050) device is offered in a minimal footprint 9mm x 9mm, 64-pin QFN package enabling a simplified and cost-effective motherboard implementation for sleek and high-performance PCs. The Marvell Yukon-EC products offer the Virtual Cable Tester™ (VCT) technology for advanced cable diagnostics, reducing network installation and support costs. Marvell offers a complete driver suite and hardware reference design that result in fast time-to-market.
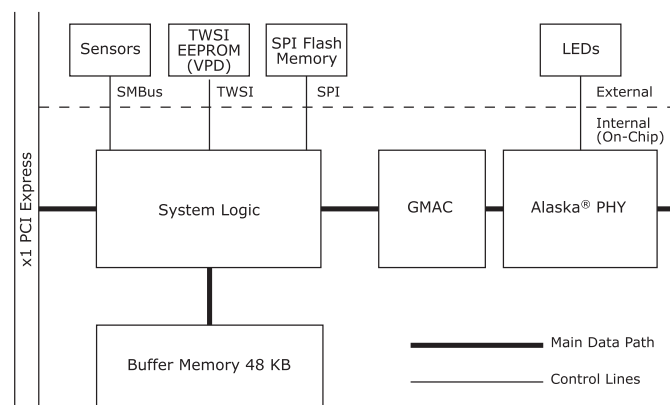

Fig 1. Yukon™-EC PCI Express™ LOM/NIC/Embedded Application (88E8050) Block Diagram

FEATURES

- PCI Express 1.0a compliant
  – x1 PCI Express interface

- Ultra small form factor with low pin count
  – 9mm x 9mm, 64 QFN Yukon device

- Integrated market-leading PHY

- Triple-speed 10/100/1000BASE-T IEEE 802.3 compliant operation

- Fully integrated ASF 2.0 functionality with on-chip µc
  – SMBus 2.0 master interface for ASF functionality
  – Serial Peripheral Interface for ASF firmware

- Host offloads
  – TCP/IP and UDP Checksum generation/checking "on the fly"
  – TCP segmentation offload/large-send support
  – Interrupt moderation
  – Jumbo frame support

BENEFITS

- Seamless interoperability with spec compliant chipsets

- Minimizes board space, simplifies signal routing and reduces required PCB layers, decreasing overall system costs
- Enables low profile NIC implementations

- Provide highly reliable Gigabit Ethernet (GbE) network connectivity

- Automatically configures to 10, 100 or 1000 Mbps
- Compatible with existing installed base

- Enables easy remote management of systems

- 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

MARVELL®

FEATURES

- Advanced cable diagnostics
  - Marvell® VCT™ technology for advanced cable diagnostic functions
  - Cable monitoring and auto-correct

- Broadest software driver suite
  - Microsoft® Windows® 98/Me, NT, 2000, and XP; Linux; and Novell Netware

- Preboot Execution Environment (PXE) 2.1 support

- 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

- IEEE 802.1Q VLAN support
  - Support for up to 64 VLANs

- Programmable LEDs
  - Software configurable LED support

BENEFITS

- Enable IT managers to easily pinpoint location of cabling issues
- Result in plug-and-play operation, reducing support requirements

- Reduces development time for quick time-to-market
- Implements a range of desktop and server platforms based on compatible technology

- Provides network boot capability for diskless workstations and thin clients
- Enhances network security and enables automated system checking

- 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 mobile client applications in addition to desktops and servers

- Enables VLANs for network segmentation and security

- Provide flexibility to display link status, speed and mode of operation

APPLICATIONS

The Marvell Yukon-EC products are designed for motherboard, NIC and embedded applications. The Yukon-EC 88E8050 product's small footprint and low pin count is optimized for high-volume PCI Express desktop and notebook motherboard designs as well as NIC implementations. Features such as ASF 2.0, which are required for corporate PCs, are also supported in the 88E8050 device.

THE MARVELL ADVANTAGE: The Marvell Yukon-EC family of GbE controllers come with complete software driver suite and a hardware evaluation platform to assist with customer product evaluation and quick time-to-market implementation. Marvell's worldwide field applications engineers collaborate closely with our customers 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.

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