Marvell Quad-Core ARMADA XP Series SoC

For Enterprise-Class Cloud Computing Applications

PRODUCT OVERVIEW

The Marvell® ARMADA™ XP (Extreme Performance) series of multicore processors is the industry's first quad-core ARM processor designed for enterprise-class cloud computing applications. The Marvell ARMADA XP employs a very low power architecture and incorporates up to four Marvell designed ARM V7 MP compliant 1.6GHz CPU cores to deliver the best performance per watt for next generation "Green" system designs. The ARMADA XP series supports SMP (Symmetrical Multi-processing)/AMP (Asymmetrical Multi-processing) modes with hardware cache coherency and 64-bit DDR2/DDR3 memory interface at 800MHz clock rate (1600MHz data rate) to enable very high-performance system design. These devices incorporate up to 2MB L2 cache, Quad x4 PCI-express™ interfaces, multiple USB ports, Gigabit Ethernet ports, SATA, security engine and advanced power management techniques — setting new technology benchmarks for high-performance, low power and integration. With its broad offering of 5 pin compatible chips, the ARMADA XP is ideally suited for applications ranging from high-performance networking, wireless infrastructure and web servers to high volume products like NAS, home servers, laser printers and other embedded applications.

- Up to four high-performance CPU cores with Vector Floating Point (VFP) support
- Up to 1.6GHz operating speed
- Heterogeneous multiprocessing (SMP/AMP/Mixed) with hardware-based cache coherency
- I/O cache coherency
- 32KB-Instruction (4-way) and 32KB-Data (8-way), set-associative L1 cache per core
- Up to 2MB shared and unified 32-way, set-associative L2 cache
- 64-bit DDR2/DDR3/DDR3L memory interface with ECC support at up to 800MHz clock rates (1600MHz data rate)
- Four Gigabit Ethernet MACs with interface options (GMII/RGMII/SGMII/QSGMII)
- High-performance security engines
- Four PCI-e 2.0 ports (two x4 ports can be configured to Quad x1 – up to 16 lanes)
- Three USB 2.0 ports
- Two SATA 2.0 ports
- Up to 16 high speed Marvell SERDES lanes with multi functionality (PCI-e, SATA, SGMII, QSGMII)
- Advanced power management
- On-chip LCD controller, NOR, NAND, SPI, SDIO, UART, I2C, TDM interfaces, etc.

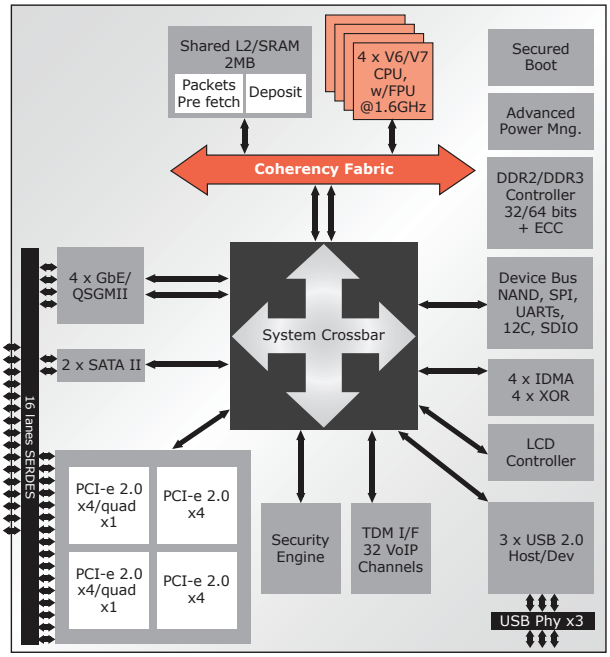

Fig 1. ARMADA XP Block Diagram

Marvell Quad-Core ARMADA XP Series SoC

ARMADA XP SERIES

MODEL	MV78230	MV78260	MV78460
• CPU	2 Core	2 Core	4 Core
• L2 Cache	1MB	1MB	2MB
• DDR2/DDR3/DDR3L	32bits+ECC	64/32bits+ECC	64/32bits+ECC
• PCI-e 2.0	1 unit x4 or quad x1 1 unit x4	2 unit x4 or quad x1 1 unit x4	2 unit x4 or quad x1 2 unit x4
• Gigabit Ports	3 Ports	4 Ports	4 Ports
• SERDES Lanes	7 Lanes PCI-e/SGMII/SATA/QSGMII/ETM	12 Lanes PCI-e/SGMII/SATA/QSGMII/ETM	16 Lanes PCI-e/SGMII/SATA/QSGMII/ETM
• Local Bus	16-bit	32-bit	32-bit

COMPREHENSIVE DEVELOPMENT TOOLS

Marvell offers complete development platforms for ARMADA XP series SoCs, enabling customers to start system development without waiting for their own hardware. Complete reference design platforms include software drivers and board support packages for Linux, VxWorks and BSD, to help accelerate customer product development cycles.

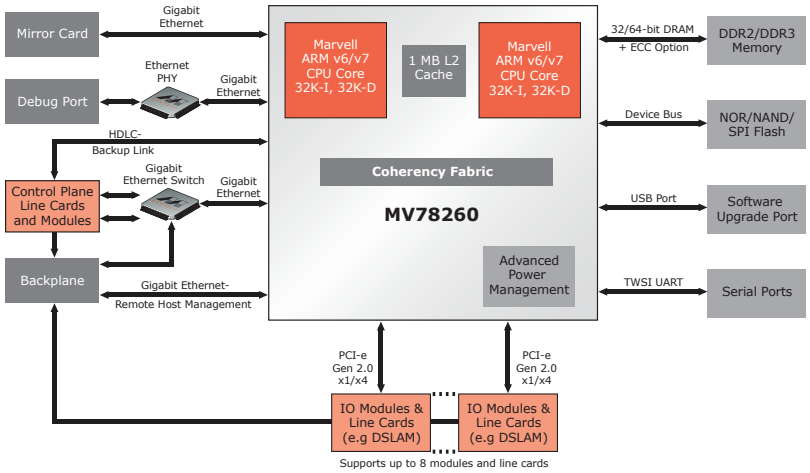

Fig 2. ARMADA XP - System Implementation in Networking Applications

THE MARVELL ADVANTAGE: Marvell chipsets come with complete reference designs which include board layout designs, software, manufacturing diagnostic tools, documentation, and other items to assist customers with product evaluation and production. Marvell's worldwide field application engineers collaborate closely with end customers to develop and deliver new leading-edge products for quick time-to-market. Marvell utilizes world-leading semiconductor foundry and packaging services to reliably deliver high-volume and low-cost total solutions.

ABOUT MARVELL: Marvell is a leader in storage, communications, and consumer silicon solutions. Marvell's diverse product portfolio includes switching, transceiver, communications controller, processor, wireless, power management, and storage solutions that power the entire communications infrastructure, including enterprise, metro, home, storage, and digital entertainment solutions. For more information, visit our Web site at www.marvell.com.

Marvell Semiconductor, Inc.

5488 Marvell Lane
Santa Clara, CA 95054

Phone 408.222.2500
www.marvell.com

Copyright © 2012. Marvell International Ltd. All rights reserved. Marvell, and the Marvell logo are registered trademarks of Marvell or its affiliates. Armada is a trademark of Marvell or its affiliate. All other trademarks are the property of their respective owners.

ArmadaXP-03 5/12