Marvell 88PA6270 Quad-Core MFP Printer SoC

ARM Cortex A53 Quad-Core, 3D GPU, HW Image Pipeline

PRODUCT OVERVIEW

The Marvell® 88PA6270 is a highly integrated system-on-a-chip (SoC) solution for the enterprise class color and monochrome single or multi-function printers. The 88PA6270 combines powerful processing with a host of I/O capabilities and dedicated imaging hardware to deliver high performance and excellent image quality.

The 88PA6270 integrates a powerful quad core 1.2 GHz ARM® A53 processor to handle all the application processing and PDL rendering requirements. The 88PA6270 also includes a highly-configurable, hardware pipeline supporting imaging functions for scan/copy/print. Functions include image data correction and filtering, color space transformations and multiple half-toning methods. The 88PA6270 drives multiple printing technologies and incorporates print engine technology-specific operations like laser trapping and inkjet depletion. With pixel processing rates of up 200 Megapixel/sec, the 88PA6270 supports even the fastest printing needs. The direct engine control interface supplies highly integrated motion control of print and scan mechanisms and print engine output, thereby reducing overall system cost and complexity.

The 88PA6270 integrates key system interfaces including a multi-lane, multi-channel PCIe Gen2, USB 3.0, integrated Gigabit Ethernet and a 3x SDIO interfaces for memory card and Marvell Wi-Fi solutions. In addition, the 88PA6270 integrates support for many different serial peripheral interfaces including SPI, 16550-compatible UARTs, and I2C for external fax/modem, Bluetooth, etc. User interfaces are supported by an integrated LCD controller (parallel or LVDS), and on-board GPU.

The 88PA6270 is well suited for related applications, such as 3D printing, or use as an Application Processor.

Marvell provides a complete hardware development platform, Linux® software development kit (SDK), and the Marvell Kinoma® JavaScript development platform thereby reducing development complexity and enabling customers to quickly deliver products to market.
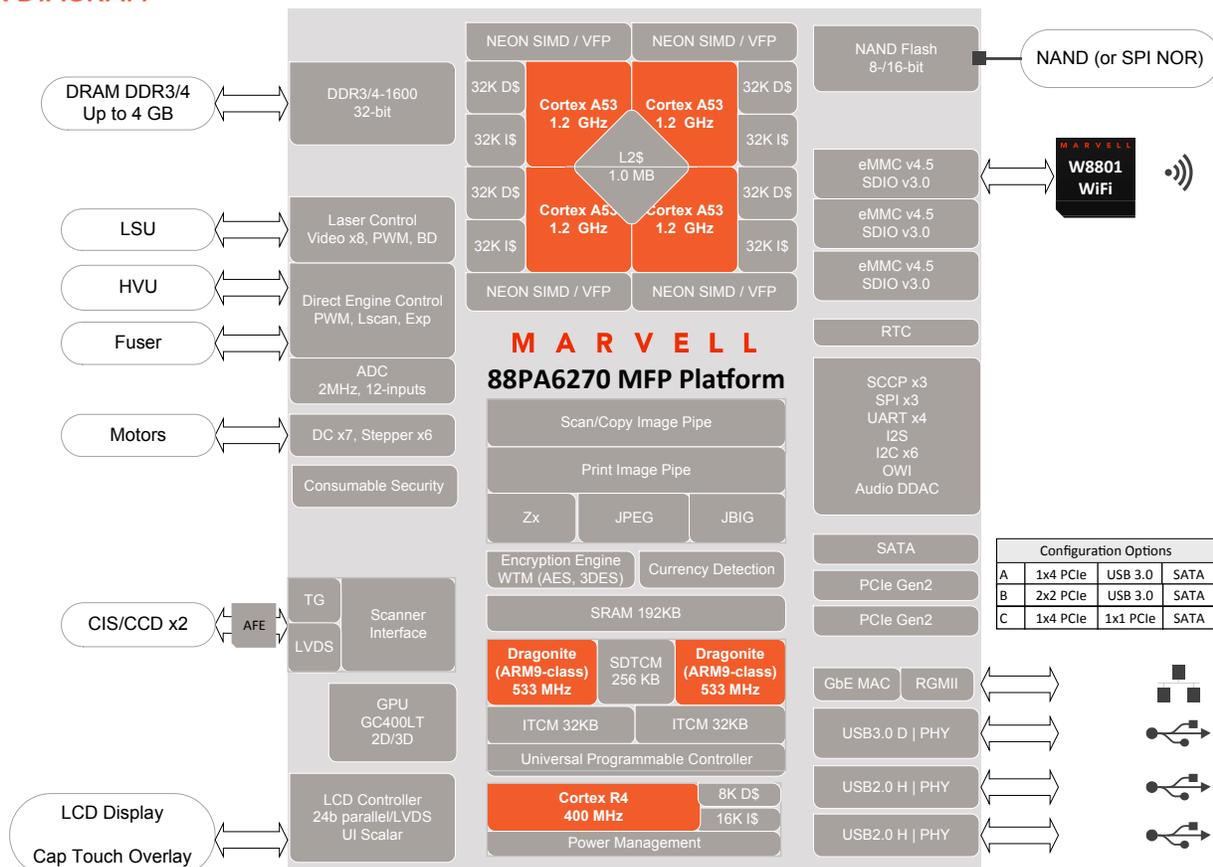
BLOCK DIAGRAM

Fig 1. Marvell PA6270 Quad-Core SOC

FEATURES AND BENEFITS

SPECIAL FEATURES	BENEFITS
• CPU	• Leading edge performance with ARM Cortex Quad-Core CPU at 1.2 GHz • NEON™ engine for broad support of media codecs • ARM Cortex R4 for power management, or other tasks while SoC is active • Universal Programmable Controller with 2x ARM9-class processors for dedicated real time control • Secure boot from NAND and eMMC
• Memory	• Advanced 5-port DDR controller with Reordering Buffer (ROB) and pseudo zero-latency write buffer to optimize performance • Up to 4GB DDR3L, DDR4 32-bit provides 1600 MT/s per pin
• GPU	• Vivante GC400LT for smooth 3D and 2D video and graphics • Peak Rate rendering at 30 Mtriangles/s , 0.15 Gpixels/s, and 75 M Vert/sec • Support for industry standard APIs, including OpenGL ES 2.0/1.1, OpenVG 1.1, DirectFB, BLTsville, 2D GAL
• Imaging	• Hardware pipeline dedicated to image processing, running at 200 Mpixel/sec • Mono copy: 150 IPM (dual 75 IPM scan, 150 ppm print output) wide format A4 • Color Copy: 60 IPM (dual 30 IPM scan, 60 ppm print output) wide format A4 • Duplex Scanning
• Security	• Secure Boot • Hardware authentication, encryption and decryption for industry standards protocols such as: AES, 3DES, RC4, SHA256, SHA1, MD5 • Integrated support for Marvell PA800 Security Chip for Consumables Management • Currency Detection
• Connectivity	• Broad set of connectivity features to meet individual customer needs. Key features include: - USB 2.0/3.0 - PCIE Gen2 - SATA - SCCP, a configurable serial port capable of emulating standard and customer-unique serial communication protocols.
• Development Kit	• Full Hardware Development Kit (HDK), including 8PA6270 Evaluation Board • Full Linux Software Development Kit (SDK) • Complete HDK and SDK Documentation

TARGET APPLICATIONS

• Enterprise Class Printers and MFPs

• Inkjet, Laser, LED Technologies

• General Purpose Embedded Controllers

• Consumer Electronic Devices

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 (NASDAQ: MRVL) is a global leader in providing complete silicon solutions and Kinoma® software enabling the "Smart Life and Smart Lifestyle." From mobile communications to storage, Internet of Things (IoT), cloud infrastructure, digital entertainment and in-home content delivery, Marvell's diverse product portfolio aligns complete platform designs with industry-leading performance, security, reliability and efficiency. At the core of the world's most powerful consumer, network and enterprise systems, Marvell empowers partners and their customers to always stand at the forefront of innovation, performance and mass appeal. By providing people around the world with mobility and ease of access to services adding value to their social, private and work lives, Marvell is committed to enhancing the human experience.

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