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# Marvell Extends its Printing Leadership by Delivering the World's Fastest and Most Highly Integrated 64-bit Quad Core System-on-Chip for the Enterprise Printer/MFP and Growing 3D Markets

## Marvell's 64-bit quad-core 88PA6270 in 28nm process sets a new performance standard with over 220 ppm PDL rendering, advanced connectivity, industry-leading low power, and a 3D GPU for stunning display capabilities

SANTA CLARA, Calif., Aug. 18, 2015 /PRNewswire/ -- Marvell (NASDAQ:MRVL) **--** a worldwide leader in providing complete silicon solutions from mobile communications to storage, Internet of Things (IoT), cloud infrastructure, digital entertainment, in-home content delivery and Kinoma® software enabling the "Smart Life and Smart Lifestyle"-- today announced the industry's most advanced printer system-on-chip (SoC), the Marvell® 88PA6270. This 28nm performance-driven SoC integrates a quad-core ARM® Cortex-A53 (64-bit) processor running at 1.2GHz, Marvell's industry-leading 32-bit DDR3/4 memory controller, dual-channel configurable scan and print pipelines, advanced high-speed expansion options, and a high-performance Vivante® 2D/3D GPU, setting a new standard with over 220 pages per minute (ppm) page description language (PDL) rendering.

The 88PA6270 is designed to power the industry's fastest and highest quality enterprise-class multi-function printers (MFPs) and copiers and integrates ink, laser, and LED technologies. In the past, to achieve this level of performance these products have required a separate PC-class CPU; the 88PA6270 is designed to enable OEMs to adopt a common architecture across their entire product line. The 88PA6270 also advances a new class of 3D printers with the imaging horsepower to provide high-performance object rendering and slicing, and includes the cloud and mobile connectivity required by today's mobile users.

"The 88PA6270 design platform is the new flagship product in Marvell's printer SoC family and we believe that it will establish new standards for the entire industry," said Mark Montierth, Vice President and General Manager, Marvell Printer and Customer Solutions Business Unit. "This solution reflects our passion to innovate and to collaborate with top global printer manufacturers to advance the industry. Marvell's investment in advanced integration in 28nm process enables an extremely low-cost bill of material while providing extensive connectivity options. The 88PA6270 offers unprecedented performance and feature integration to allow our customers to quickly develop their industry-leading solutions."

The 88PA6270 has received strong acceptance and has begun sampling to lead OEMs in U.S., Japan and Korea.

With Marvell's complete SDK and partnership with Global Graphics Software to provide access to the industry's highest performing rendering engines, OEMs can greatly expedite their development and greatly shorten their time to introduction. The SDK seamlessly integrates Marvell's breakthrough JavaScript Kinoma software.

Martin Bailey, CTO at Global Graphics Software, said, "Our partnership with Marvell has been hugely productive and offers printer vendors unprecedented commercial opportunity for reducing their bill of materials on the one hand and extending the range and speed of devices they can drive on the other. Our Harlequin PDL rendering software is now the fastest available across PCL, PDF, PostScript® and XPS, even in a very small footprint, and is renowned for its rendering quality. So when you combine Marvell's high performance SoC with our software, you've got the best of both worlds."

A new standard for performance in the printer industry:

- 28nm Low Power (LP) process technology
- Quad-core ARM Cortex-A53 (64-bit) processor with a 1MB L2 cache
- Page processing speeds of over 220 pages per minute, average speed across PDLs as measured with Global Graphics® PDL interpreters and the J11.ppt industry standard performance test file for 600 dpi full color pages.
- Dedicated dual-channel imaging hardware pipeline optimized to handle the unique and computationally intensive functions required by high-performance, high-quality printers and MFPs. The pipeline is configurable but always runs at a blazing fast 200MPixels/second.
- Hardware image sensor error calibration and correction, image quality optimization, hardware accelerated compression/decompression and native support for dual sided scanning and copying.
- A powerful Vivante GC400LT GPU provides fast, smooth 2D/3D graphics support.
- Three additional 32-bit ARM CPUs for user customization, real-time mechanism control, low power standby and co-processor functions.
- Dedicated Direct Engine Control hardware (DEC) provides real-time control of critical printer functions such as laser video signals or LED arrays, laser scanners, fusers, motors, sensors, CIS/CCD scanner control. DEC is also configurable to drive a wide range of 3D printing technologies.
- The quad-core ARM Cortex-A53 performance advances 3D printing by enabling in-product rendering and slicing, further reducing cost, complexity and increasing speed of 3D printers.

Designed to deliver a complete solution:

- Built-in security hardware to authenticate and monitor consumables. The 88PA6270 works seamlessly with Marvell's 40nm PA800, the industry's most advanced and cost-effective consumables security chip.
- Platform and SDK support for 802.11a/b/g/n/ac, NFC, 802.3 (GigE), and Bluetooth 4.0 advanced connectivity.
- Supports Marvell's JavaScript Kinoma software, and coupled with the embedded GPU, enables developers to quickly develop rich graphical user interfaces and cloud-enabled applications.

Advanced Integrated Connectivity:

- 1xSATA

- 1x4, 1x1 PCIe
- 2xUSB2.0, 1xUSB 3.0, 1xGbE
- 3xSerial Control Channel Processors (SCCP). Each SCCP interface is programmable to emulate industry-standard serial interfaces or customer unique serial protocols.
- Multiple eMMC/SDIO, SPI, UART, I2S OWI and Audio DDACs

World-Class security system including:

- Hardware authentication, encryption and decryption for industry standards protocols such as: AES, 3DES, RC4, SHA256, SHA1, MD5
- Chain of trust for secure boot
- Hardware support for Marvell PA800 Consumable Security Chip
- Hardware Currency Detection

Low Power Operation:

- 28nm LP process node
- Power islands and clock gating to minimize power consumption
- Intelligent activity monitoring
- Exceeds demanding requirements of EnergyStar® and other regional low power standards

The 88PA6270 Development Kit includes a fully tested hardware development environment, complete Linux Software Development Kit, detailed documentation and application notes, reference designs, a full family of wireless connectivity solutions, power management ICs, consumables security system, code security system, and Kinoma software. This kit enables customers to easily develop complete, full-featured, high-performance and cost-effective products.

The 88PA6270 further extends Marvell's broad family of printer SoCs which includes the 88PA6170, 88PA6120 and 88PA6110.

The 88PA6270 is sampling now and will be in production in 2H'15. For further information about Marvell's 88PA6270 and the rest of the Marvell Printer SoC family, visit: http://www.marvell.com/printers/.

**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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