

# Marvell® 88PA6220 Dual-Core MFP Printer SoC

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

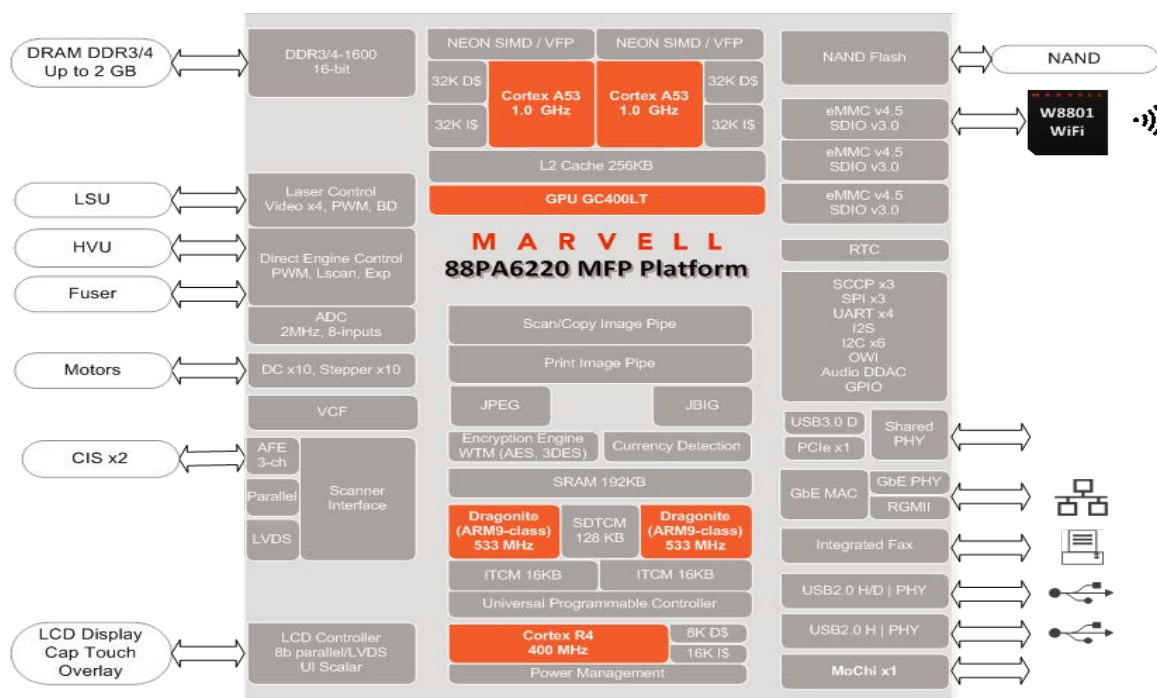
## PRODUCT OVERVIEW

The Marvell® 88PA6220 is a highly integrated system-on-a-chip (SoC) solution for the mainstream class color and monochrome single or multi-function printers. The 88PA6220 combines powerful processing with a host of I/O capabilities and dedicated imaging hardware to deliver high performance and excellent image quality.

The 88PA6220 integrates a powerful dual core 1.0 GHz ARM® A53 processor to handle all the application processing and PDL rendering requirements. The 88PA6220 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 88PA6220 drives multiple printing technologies and incorporates print engine technology-specific operations like laser trapping and inkjet depletion. With pixel processing rates of 200 Megapixel/sec, the 88PA6220 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 88PA6220 integrates key system interfaces including PCIe Gen2, USB 3.0, integrated Gigabit Ethernet and a 3x SDIO interfaces for memory card and Marvell Wi-Fi solutions. In addition, the 88PA6220 integrates support for other 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.

## BLOCK DIAGRAM



## KEY FEATURES AND BENEFITS

FEATURES	BENEFITS
CPU	<ul style="list-style-type: none"> <li>• Leading Edge Performance with ARM Cortex Dual-Core CPU at 1.0 GHZ</li> <li>• NEON™ Engine for broad support of codecs</li> <li>• ARM Cortex R4 for power management, or other tasks while SoC is active</li> <li>• UPC with 2x ARM9-class processors for dedicated real time control</li> </ul>
Memory	<ul style="list-style-type: none"> <li>• Fast, wide bus supports fast page processing</li> <li>• Up to 4GB DDR3L, DDR4 32-bit provides 1600 MT/s per pin</li> </ul>
GPU	<ul style="list-style-type: none"> <li>• Vivante GC400LT for smooth 3D and 2D video and graphics</li> <li>• Peak Rate rendering at 30 Mtriangles/s, 0.15 Gpixels/s, and 75 M Vert/sec</li> <li>• Support for industry standard APIs, including OpenGL ES 2.0/1.1, OpenVG 1.1, DirectFB, BLTsville, 2D GAL</li> </ul>
Imaging	<ul style="list-style-type: none"> <li>• Hardware pipeline dedicated to image processing, running at 200 Mpixel/sec</li> <li>• Mono copy: 150 IPM (dual 75 IPM scan, 150 ppm print output) wide format A4</li> <li>• Color Copy: 60 IPM (dual 30 IPM scan, 60 ppm print output) wide format A4</li> <li>• Duplex Scanning</li> </ul>
Connectivity	<ul style="list-style-type: none"> <li>• Broad set of connectivity features to meet individual customer needs. Key features include: <ul style="list-style-type: none"> <li>- USB 2.0/3.0</li> <li>- PCIE Gen 2</li> <li>- SCCP, a configurable serial port capable of emulating standard and customer-unique serial communication protocols. Marvell's MoChi interface enables expansion through Marvell's growing portfolio of MoChi Southbridge solutions</li> </ul> </li> </ul>
Security	<ul style="list-style-type: none"> <li>• Secure Boot from NAND and eMMC</li> <li>• Hardware authentication, encryption and decryption for industry standards protocols such as: AES, 3DES, RC4, SHA256, SHA1, MD5</li> <li>• Integrated support for Marvell PA810 Security Chip for Consumables Management</li> <li>• Currency Detection</li> </ul>
Development Kit	<ul style="list-style-type: none"> <li>• Full Hardware Development Kit (HDK, including 88PA6220 Evaluation Board for fast evaluation and design</li> <li>• Full Linux Software Development Kit (SDK)</li> <li>• Complete HDK and SDK Documentation</li> </ul>

## TARGET APPLICATIONS

- Mainstream Class Printers and MFPs
- Inkjet, Laser, LED technologies
- Consumer Electronic Devices
- Dedicated Document Scanners
- General Purpose Embedded Controller

