

# Marvell PA6120 Ink and Color Laser MFP Printer SOC

High Performance, Highly Integrated, Cost-effective Printer SOC

## PRODUCT OVERVIEW

The Marvell® 88PA6120 is a highly integrated system-on-a-chip (SOC) solution for color and monochrome laser and ink single or multi-function printers. The 88PA6120 combines powerful processing with a host of I/O capabilities and dedicated imaging hardware acceleration to deliver high performance and excellent image quality.

The Marvell 88PA6120 integrates a powerful 533MHz ARM v7 compatible processor to handle all the application processing requirements. The 88PA6120 augments the main processor with a highly-configurable hardware pipeline that supports scan as well as multiple printing technologies. It enables data correction and filtering, color space transformations and several half toning methods, as well as technology-specific operations like laser trapping or inkjet depletion. With pixel processing rates of up to 200 Mpixel/sec and higher, it 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.

The 88PA6120 integrates many system interfaces including a USB 2.0 device, USB 2.0 host and a dual mode USB 2.0 interface, a complete 10/100BT (Fast Ethernet) solution with integrated PHY, and dual SDIO interfaces for memory card and Marvell Wi-Fi solutions. In addition 88PA6120 integrates support for a number of 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 and multiple GPIO.

Marvell provides complete hardware development platform, software development kit (SDK), and Kinoma® JavaScript development platform simplifying development complexity enabling customers to quickly deliver products to market.

## BLOCK DIAGRAM

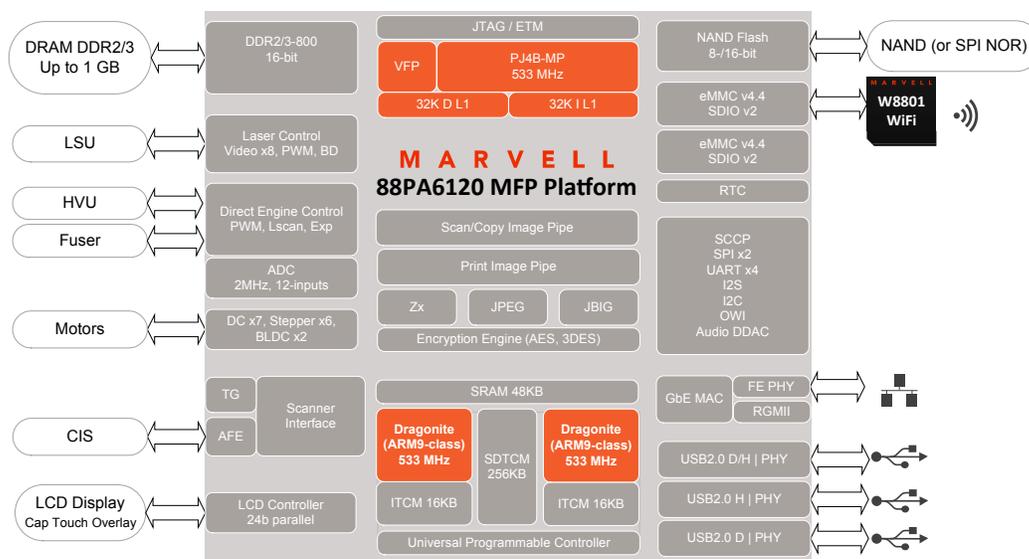


Fig 1. Marvell PA6120 Laser and Ink Printer SOC

## FEATURES AND BENEFITS

SPECIAL FEATURES	BENEFITS
<ul style="list-style-type: none"> <li>High Performance Processor</li> </ul>	<ul style="list-style-type: none"> <li>High performance PDL rendering               <ul style="list-style-type: none"> <li>Marvell 533MHz 32-bit ARM v7 compatible CPU</li> <li>Vector Floating Point</li> </ul> </li> <li>Flexible memory and storage interfaces support a wide range of applications.               <ul style="list-style-type: none"> <li>16-bit DDR2/DDR3 DRAM interface</li> <li>8/16-bit NAND Flash controller</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>Image Processing Hardware Acceleration</li> </ul>	<ul style="list-style-type: none"> <li>Highly configurable delivering excellent print quality and performance</li> <li>200 million pixels per second</li> <li>Universal error diffusion</li> <li>Auto halftone</li> <li>Non-linear laser path correction</li> <li>JBIG/JPEG Codec</li> <li>Image correction/enhancement/scaling/contrast/smooth/sharpen</li> <li>Three-dimensional non-linear Color Space Converter</li> </ul>
<ul style="list-style-type: none"> <li>Printer Interface</li> </ul>	<ul style="list-style-type: none"> <li>Up to 48ppm mono and color</li> <li>System cost savings through direct control of laser or ink print engines</li> <li>Supports 1-6 colors in various ink writing systems               <ul style="list-style-type: none"> <li>Single, dual or quad-beam monochrome and multi-pass color systems</li> </ul> </li> <li>Direct print engine control</li> <li>Motor control for five stepper or DC motors</li> </ul>
<ul style="list-style-type: none"> <li>Scanner/Copier Interface</li> </ul>	<ul style="list-style-type: none"> <li>Scan and copy at print engine speed</li> <li>Integrated solution for multi-function printers</li> <li>Support for CIS and CCD sensors</li> <li>Integrated AFE</li> <li>Direct control for Automatic Document Feeder (ADF) DC or stepper motor</li> </ul>
<ul style="list-style-type: none"> <li>Complete I/O Integration</li> </ul>	<ul style="list-style-type: none"> <li>System interface and connectivity for simplified design and cost savings               <ul style="list-style-type: none"> <li>Ethernet 10/100 MAC and PHY</li> </ul> </li> <li>Color LCD Controller</li> <li>3 USB 2.0 interfaces with integrated PHY</li> <li>2 SD/MMC/SDIO interface</li> <li>Interfaces to Marvell 802.11a/g/b/n and Bluetooth chipsets</li> <li>SPI (2x) UART (4x), OWI, I2C, I2S, JTAG, GPIO</li> </ul>

## TARGET APPLICATIONS

The Marvell 88PA6120 is ideally suited for these highly integrated printer systems:

- Color Laser Single Function Printer
- Color Laser Single Function Printer
- Monochrome Laser Single and Multi-function Printer
- Inkjet Single and Multi-function Printer
- Document Scanner
- POS Terminals
- Dye sub and Thermal Printers
- 3D Printers

**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.

**CONTACT US:** For additional information, please visit our website at [www.marvell.com](http://www.marvell.com) for a Marvell sales office or representative in your area.

