

# Marvell 88PA6110 Laser SFP and MFP Printer SOC

Mono Laser SFP and MFP Printing Controller

## PRODUCT OVERVIEW

The Marvell® 88PA6110 is a highly-integrated cost effective system-on-a-chip (SOC) solution for monochrome laser single or multi-function printers. The 88PA6110 combines powerful processing with a host of I/O capabilities and dedicated imaging hardware acceleration to deliver high performance and excellent image quality. For single function printer applications, Marvell offers the 88PA6110S system in package with 32Mbytes of DDR2 memory.

The Marvell 88PA6110 incorporate a two-processor solution to provide both a low power optimized ARM Cortex-M3 running at up to 200MHz and a high performance ARM Cortex-R4 running at up to 600MHz. The 88PA6110 augments the main processors with a highly-configurable, hardware pipeline that supports scan as well as multiple printing technologies. It enables data correction and filtering, color space transformations, several half toning methods, as well as technology-specific operations like laser trapping. 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 88PA6110 integrates many system interfaces including a USB 2.0 host and a dual mode USB 2.0 interface, a complete 10/100BT (Fast Ethernet) solution, with integrated PHY and an SDIO interface for memory card or Marvell Wi-Fi solutions. In addition, Marvell 88PA6110 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 platforms and software development kit (SDK) simplifying development complexity enabling customers to quickly deliver products to market.

## BLOCK DIAGRAM

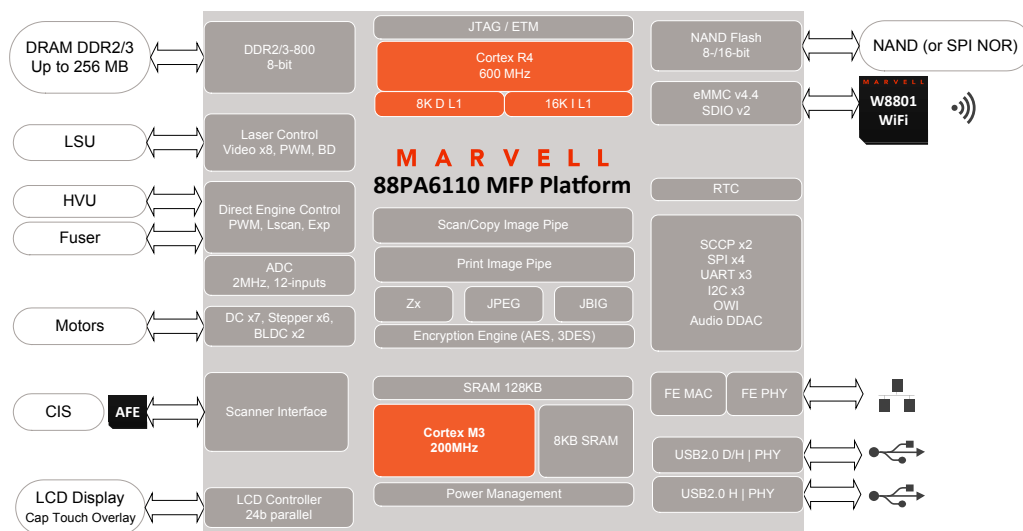


Fig 1. Marvell 88PA6110 Printer SOC

## 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>ARM v7-R Cortex-R4 CPU operating at 600MHz</li> <li>ARM Cortex-M3 CPU operating at 200MHz</li> <li>128kB shared local memory               <ul style="list-style-type: none"> <li>8-bit DDR2/DDR3 memory controller</li> <li>8-bit NAND Flash controller</li> </ul> </li> <li>Low power Energy Star compliance with fast response time</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>JBIG/JPEG Codec</li> <li>Image correction/enhancement/scaling/tone/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 32ppm mono and 8ppm color</li> <li>System cost savings through direct control of laser or ink print engines</li> <li>Single or dual-beam monochrome and multi-pass color systems</li> <li>Direct print engine control</li> <li>Motor control for three 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 print at engine speed</li> <li>Integrated solution for multi-function printers</li> <li>Support for CIS sensors</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</li> <li>Ethernet 10/100 MAC and PHY</li> <li>Color LCD controller</li> <li>Two USB 2.0 interfaces with integrated PHY</li> <li>SD/MMC/SDIO interface</li> <li>Interfaces to Marvell 802.11a/g/b/n and Bluetooth chipsets</li> <li>SPI (4x), UART (3x) OWI, I2C, I2S, JTAG, GPIO</li> </ul> |
| <ul style="list-style-type: none"> <li>Multi-chip Package Options</li> </ul>             | <ul style="list-style-type: none"> <li>Integrated package options save system cost and space</li> <li>32 Mbyte DRAM SIP</li> <li>Wi-Fi SIP</li> </ul>   |

## TARGET APPLICATIONS

The Marvell 88PA886110 is ideally suited for these highly integrated printer systems:

- Monochrome Laser Single Function Printer
- Monochrome Laser Multi-function Printer
- Multi-pass Color and Single and Multi-function Laser Printer
- Color Scanner

**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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