

Marvell PXA918 Mass Market Smartphone Communication Platform

Cost Efficient High Performance Modem Integrated Cellular Platform Solution



PRODUCT OVERVIEW

The Marvell PXA918 communication platform is a member of the Marvell PXA920 platform family, featuring a 624MHz advanced application processor. PXA918 is targeted to provide a lower-cost yet high performance solution among the PXA920 family.

The Marvell® PXA920 communication platform is an advanced, highly integrated 3G platform for multimedia-centric handsets. The PXA920 platform solutions incorporate the performance of Marvell’s mobile application processor with Marvell’s mature and proven 3.5G technology to provide low-cost Linux™ and Android™ handset platforms. The combination of Marvell’s advanced, high-performance, low-power application processor technology with Time Division Synchronous Code Division Multiple Access (TD-SCDMA)/Time Division High Speed Packet Access (TD-HSPA)/Enhanced Data for GSM Environment (EDGE) communication support for next-generation cellular services enable breakthrough end-user experiences for imaging, HD video, music, games, and other popular handset applications.

With Marvell’s 3G technology, seamless wireless connectivity, application processing, and support for next generation cellular data services — the new PXA918-powered smartphones offer exceptional performance for browsing, instant live video, access to personal music, 3D gaming, and other popular handset applications at attractive price points. The PXA918 supports Android and other major mobile operating systems (OS).

BLOCK DIAGRAM

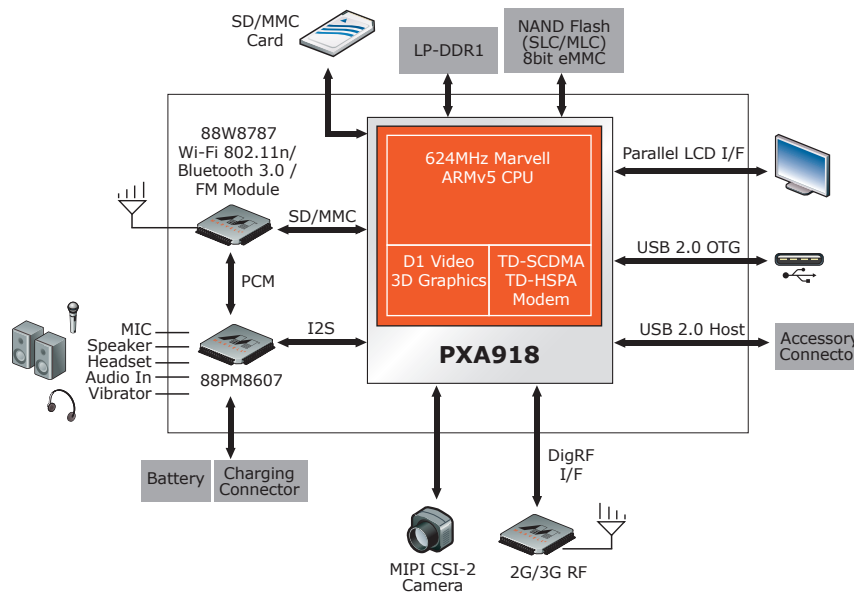


Fig 1. Marvell PXA918 Smartphone Platform

FEATURES

- Cellular Modem Solution

BENEFITS

- Integrated 3.5G modem and stack compliant with world’s leading carriers
- 3G/WLAN/BT Coexistence Enables support for IMS, VoIP and other advanced carrier services
- Fully integrated platform solution validated via extensive IOT, GCF, and field trial testing in China and Shipping in WW networks

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FEATURES (continued)

BENEFITS

- Tri-core, Shared Memory Hardware Architecture
 - Dedicated Modem and Applications Processor Cores
 - Shared External Memory Interface

- Enables reuse of a common application processor software stack across multiple air interfaces and cellular networks
- Prevents unwanted performance interactions/dependencies between AP and modem subsystems
- Protects cellular network from application processor security threats
- High-performance internal memory architecture enables sharing of external memory without the cost/space burden for independent flash and DDR
- High performance, efficient inter-processor communication interface between AP and modem using shared external DDR

- Modem processors
 - Modem RISC Core
 - Modem DSP Core

- Marvell-designed ARM9 with packet processing accelerators and L1/L2 caches
- Micro-Signal Architecture VLIW DSP core with L1/L2 caches

- CPU processor

- Marvell CPU Technology with ARMv5 core supports up to 624MHz clock speed (870 DMIPS operations), ARMv5 ISA compliant with GPS instruction set extensions, and Wireless MMX2 and L1 cache
- L2 Cache
- Internal SRAM
- Internal Boot ROM - Secure Boot ROM supports boot from NAND
- Mobile Security through Secure Boot, Root Key Protection, Secure JTAG re-enablement; supports multiple life cycle states which protect processor secrets at Chip Manufacturing, Device Manufacturing, Device Deployment and Failure Analysis stages

- Multimedia
 - Video
 - 3D
 - Audio
 - Imaging
 - Display

- Video Playback D1 at 30 fps for H.264, WMV, MPEG-4, H.263; Video Capture D1 at 24 fps for H.264, WMV, MPEG-4, H.263
- 3D Graphics capability up to 8Mtriangle/s and 150Mpixel/s fill rate; Integrated 2D accelerator; Supports industry standard APIs.
- Marvell's unique Audio Accelerator Subsystem offers low power audio playback via audio streaming
- Image Sensor support for primary and secondary smart image sensors with MIPI CSI-2 and parallel interfaces; Supports one MIPI-CSI2 serial interface
- LCD Controller supports parallel LCD displays over an 8/16/18-bit parallel smart panel interface or a 16/18/24bit parallel active matrix interface with sync signals; Primary/secondary display supports up to 4 simultaneous overlays with base + rotation scaling

- DMA Controller Interface

- Interface with companion chips configured as VLIO devices using flow through mode DMA transfers



APPLICATIONS

This highly integrated handset platform features the Marvell PXA918 single-chip application and communication processors, with a Marvell integrated power management and audio companion chip, RF transceiver and Marvell 802.11n WLAN/BT/FM TX/RX.

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 is a leader in storage, communications, and consumer silicon solutions. Marvell's diverse product portfolio includes switching, transceiver, communications controller, processor, wireless, power management, and storage solutions that power the entire communications infrastructure, including enterprise, metro, home, storage, and digital entertainment solutions. For more information, visit our Web site at www.marvell.com.



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