# JZ4775 Powerful & Green Engine for Mobile Device


## Powerful and Efficiency

Powered by the innovative, extremely low power CPU core technology – XBurst, and integrated rich and powerful engines, Ingenic produces the high performance application processor– JZ4775, the best solution for the mobile device. JZ4775 makes the device achieve more powerful performance and very long life time, increasing the user experience anytime, anywhere.

## Highlights

- XBurst-core, 1GHz(up to 1.2GHz) , the industry' s most power-effective CPU core
- Full-format video decoder, support 720p resolution of main formats
- Rich memory interface supports variety of memory type, allows flexible design requirement
- High integration, the most BOM cost-effective solution
- Multiple OS support, include Android, Linux, uC/OS etc.
- Turn-key solution for mobile devices of smart phone, smart watch, eReader, education and industry electronics.

### Ingenic XBurst technology

Based on MIPS, the pure, fast, efficient, and elegant RISC Architecture, the XBurst CPU core adopts an innovative high-performance and ultra-low-power pipelining architecture, which consumes only 1/3 power of industry licensable CPU core. It consumes less than 100mW when running at 1GHz (with L1 cache) under full load. Powered by XBurst, Ingenic produces series SOC chips which spread out in variety market, such as mobile internet, education, eReader, biometric, portable media player & game, and so on.

### Ingenic video processing engine

The VPU (Video Processing Unit) core is powered with another XBurst processor engine. The SMID instruction set implemented by XBurst engine, together with the on chip video accelerating engine and post processing unit, delivers high video performance. The maximum resolution of 720p in the formats of H.264, VC-1, MPEG-2, MPEG-4, RealVideo and VP8 are supported in decoding.

## Key benefits of JZ4775

### High-performance core engines

The performance of application processor influence the user experience of the mobile device seriously, JZ4775 is one of the up-to-date SOC chip to meet the requirement. JZ4775 powered by XBurst CPU core running up to 1GHz and an optimized 720p video processing engine, make the device incorporate rich multimedia and high-performance applications/functionality.

### Power-effective

JZ4775 SOC chip features Ingenic innovative low power design technology including the CPU and video processing. It only has half power consumption when keeping the same performance, and support multiple modes of power management, allowing best-in-class power consumption.

### Cost-effective

JZ4775 has the industry-leading integration, including numerous analog/application blocks and rich interconnect interface, such as audio codec, SAR-ADC, NAND Flash, USB Host1.1, USB OTG 2.0, E-paper interface, MMC/SD. So optimize both the footprint of PCB and the BOM cost of JZ4775 solution, and has the most competitive cost in market.

### Multiple operation system

More than three years experience on Android system, Ingenic release serious Android based mobile devices to the market.
Also we support the Linux and uC/OS.

### Easy-of-use turn-key solution

Under the cooperation with industry partner, Ingenic develops the turn-key solution for many applications. That help customer reduce the risk of product development and the time to market, deliver the stable devices to market.

### Comprehensive software and easy-to-design platform

Ingenic develops comprehensive software based on Linux, including the kernel, integral device drivers, key middle-ware components, and rich applications from third-party. Coordinate with the JZ4775 SOC chip, Ingenic release the hardware reference design platform with detailed guide, and the development suite. All of these are opened, that help customer build their own product quickly.

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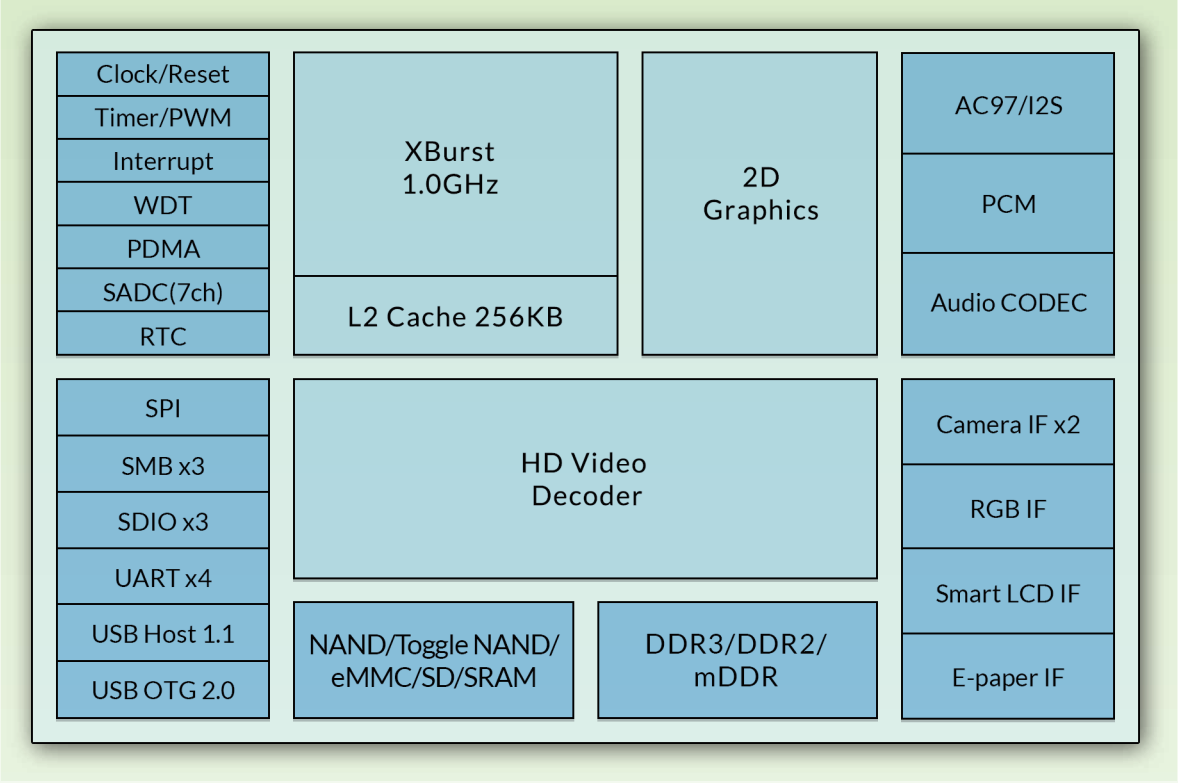
## JZ4775 Block Diagram




## Product Feactures

### CPU Core

- XBurst RISC instruction set, XBurst SIMD instruction set
- XBurst FPU instruction set , IEEE745 compatible
- XBurst core, 9-stage pipeline, 1GHz(up to 1.2GHz)
- Full MMU support
- L1 cache: 16KB instruction cache and 16KB data cache
- 256KB L2 cache

### VPU Core

- Powered by XBurst RISC + SIMD instruction set, full format support
- Hardware acceleration engine for decoder up to 720p resolution

### Memory Sub-systems

- Support DDR2, DDR3, LPDDR, up to 800Mbps
- Support x16 and x32 external DDR data width
- 64-bit ECC NAND flash support, 512B/2KB/4KB/8KB/16KB page size

### System Devices

- Clock generation and power management with 2 PLLs
- Interrupt controller, total 64 sources
- OS timer, general timer and counter unit, watchdog timer

### Audio/Display/UI Interfaces

- LCD controller, 1024x600@60Hz
- 24-bit parallel/serial TFT interface
- Image enhancement engine and Image post processor
- Support E-paper interface.
- Camera interface up to 2K x 2K pixels with dedicated DMA
- Internal audio codec, 24-bit ADC/DAC, line-in/line-out and headphone interface
- AC97/I2S/SPDIF interface for external audio codec
- 1 PCM interface
- 7 channels SAR A/D controller

### On-chip Peripherals

- USB 1.1 Host, and USB 2.0 OTG interface
- 3 MMC/SD/SDIO controllers, support MMC version 4.2, SD 3.0
- 4 full-duplex UART ports
- 1 synchronous serial interface controller
- 3 two-wire serial interface controllers

### Process Technology and Package

- 65nm CMOS low power
- BGA314 14mm x 14mm x 1.4mm, 0.65mm pitch