

# RK3188

## High Performance Mobile Application Processor for Tablet

- Quad-core ARM Cortex-A9 processor with up to 1.8GHz speed
- 28nm HKMG process with low leakage and high performance
- Quad-core Mali-400 GPU, supporting OpenGL ES 1.1/2.0 and OpenVG 1.1, up to 500Mhz
- High performance dedicated 2D processor
- Full memory support, including DDRIII and LPDDRII
- 1080P@60fps multi-format video decoder
- 1080P@30fps video encoding for H.264 and vp8
- Embedded 60bit/s ECC for MLC NAND , 16bit data width to improve performance
- Support MLC NAND Flash, iNAND Flash ,eMMC/SDMMC and USB booting
- Dual panel display with multi-layer, with maximum 2048x1536 resolution support
- One USB OTG 2.0, one USB Host2.0 interface and High-Speed Inter Chips interface
- Support RMI Ethernet interface
- Embedded GPS baseband

### Package

RK3188 BGA453 19mmX19mm 0.8mm ball pitch

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## 高性能移动应用处理器

- Cortex-A9 四核处理器，频率高达 1.8GHz
- 低漏电，高性能 28nm HKMG 工艺
- Mali-400 MP4 GPU, 频率高达 500Mhz, 支持 OpenGL ES 1.1/2.0 and OpenVG 1.1
- 支持 DDR3, LVDDR3 and LPDDR2
- 内嵌高性能 2D 加速硬件
- H.264 , VP8 , RV , WMV , AVS , H.263 , MPEG4 等全视频格式的 1080P@60fps 解码
- H . 264 和 VP8 1080P@30fps 视频编码
- 内置 MLC NAND 60bit/s ECC , 支持 16bit 位宽
- 支持 MLC NAND, E-MMC/SD-MMC, i-NAND 和 USB 启动
- 双 LCD 显示接口，支持 5 个图层，完美支持 2048\*1536 分辨率
- 内置一个 USB OTG 2.0 , 一个 USB Host2.0 接口
- 内置高速通信接口
- 支持以太网接口
- 内置双摄像头接口
- 内置 GPS

封装:

RK3188 BGA453 19mmX19mm 0.8mm ball pitch

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## System Peripheral

Clock & Reset

PMU

PLL x 4

System register

Timerx3

PWMx4

WatchDog

SAR-ADC

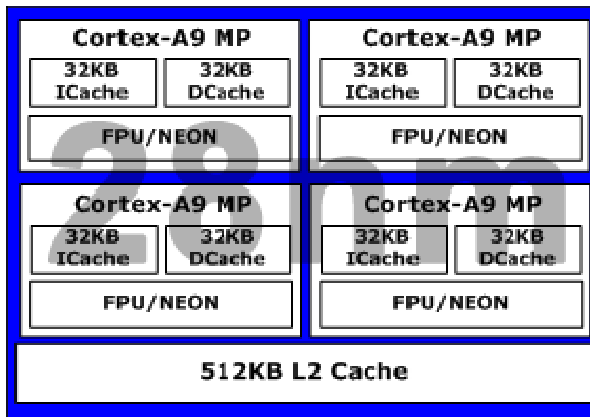
Interrupt  
Controller

DMACx2 (13ch)

## Image Interface

12 bits CCIR/  
Camera I/F

Dual LCD Controller  
(2048X1536 output  
24 bits panel  
5-layer window  
Scale up/Down)



## Multi-Media Processor

2D Graphics  
Engine

ARM Mali-400  
MP4 GPU

JPEG Codec

Imager Post  
processor

1080P Video  
decoder

1080P Video  
encoder

## External Memory Interface

Inand /eMMC I/F

Nor Flash / Async  
SRAM 32KB

SD3.0 / HS-  
MMC4.41(8bits)

SDR/DDR/LBA  
Nand Flash

DDR3/DDR3L  
1066Mbps,32bit

LPDDR2  
1066Mbps,32bit

## Connectivity

USB OTG 2.0

USB HOST 2.0

High-Speed Inter Chlp

I2S/PCM (2ch )

GPS

UARTx4

SPI(M/S) x2

MAC (RMII)

SDIO 3.0  
(4bits)

I2C x5

HSADC TS I/F  
(10bit)

GPIOx128

## Memory

SRAM

ROM

eFuse