



# A33 QUAD-CORE PROCESSOR

## The Most Efficient Quad-Core Mobile Application Processor

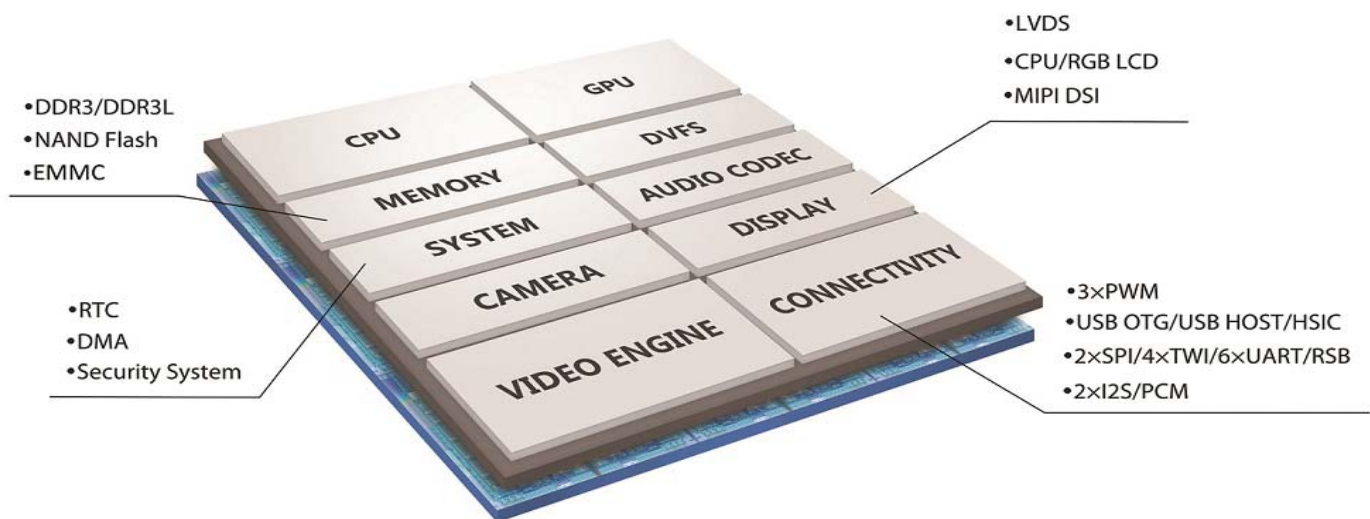


The Allwinner A33 is an extremely efficient quad-core mobile application processor designed to bring impressive performance to your leading-edge mobile device with low power consumption. It is pin-compatible with Allwinner's dual-core A23 processor.

The A33 features quad Cortex<sup>TM</sup>-A7 CPU cores to enable the best balance between high performance and power efficiency, and packs the mature and leading GPU technology to deliver amazing graphics, fluid video and immersive gaming experiences. With outstanding multi-format 1080p HD video processing capability, WXGA display support, SmartColor display technology, 5MP image sensor support, and advanced DDR technology, the A33 delivers performance beyond expectations. Security system is supported to provide digital content protection.

Allwinner designed the A33 to enable stunning battery life experiences for end devices. A33 achieves lower power through a balanced combination of several features: ultra energy-efficient Cortex<sup>TM</sup>-A7 CPU cores, an advanced fabrication process, optimized DVFS technology, and a unique Talking Standby Mode that allows extremely low power consumption during voice calls. Allwinner's A33 also comes with a wide range of connectivity including 4-lane MIPI DSI, LVDS, USB OTG/HOST, SD/MMC, I2S/PCM and RSB, etc, significantly reducing system cost and speeding up product time to market.

# BLOCK DIAGRAM



## FEATURES

### Specifications & Features

CPU	<ul style="list-style-type: none"> <li>• Quad-core Cortex™-A7</li> <li>• 256KB L1 Cache</li> <li>• 512KB L2 Cache</li> </ul>
GPU	<ul style="list-style-type: none"> <li>• Mali400MP2</li> <li>• Supports OpenGL ES 2.0 / VG 1.1 standards</li> </ul>
Video	<ul style="list-style-type: none"> <li>• Supports 1080p@60fps video playback</li> <li>• Supports multi-format FHD video decoding, including Mpeg1/2, Mpeg4 SP/ASP GMC, H.263, H.264, WMV9/VC-1, VP8, etc.</li> <li>• Supports H.264 High Profile 1080p@60fps encoding</li> <li>• Complies with RTSP, HTTP, HLS, RTMP, MMS streaming media protocols</li> <li>• Supports OpenMax protocol</li> </ul>
Display	<ul style="list-style-type: none"> <li>• Supports 1/2/4-lane MIPI DSI up to 1280x800 resolution <ul style="list-style-type: none"> <li>- Supports MIPI DSI V1.01 and MIPI D-PHY V1.00</li> <li>- Supports command mode and video mode (non-burst mode with sync pulses, non-burst mode with sync event and burst mode)</li> </ul> </li> <li>• Supports RGB/CPU/LVDS LCD up to 1280x800 resolution</li> </ul>
Camera	<ul style="list-style-type: none"> <li>• Integrated parallel camera sensor interface</li> <li>• Supports 5M CMOS sensor</li> <li>• Supports 8-bit YUV sensor</li> </ul>
Memory	<ul style="list-style-type: none"> <li>• Supports DDR3/DDR3L SDRAM controller, supports two ranks</li> <li>• Supports 8-bit NAND Flash controller</li> </ul>
Audio	<ul style="list-style-type: none"> <li>• Integrated Hi-Fi audio codec</li> <li>• Two integrated differential analog mic amplifiers for headset and phone</li> <li>• Supports Talking Standby Mode for ultra-low power consumption during voice calls</li> </ul>
PMIC	<ul style="list-style-type: none"> <li>• AXP223 PMIC</li> <li>• Supports 21-channel power output and 2.1A Flash charging</li> <li>• Complies with USB 3.0 power supply standard</li> </ul>
OS	<ul style="list-style-type: none"> <li>• Supports Android 4.4 and above</li> <li>• Supports Android multi-user function</li> </ul>

# SELECTION GUIDE

## ALLWINNER CORTEX-A FAMILY

	A31	A31s	☆ A33	A23	A20
<b>CPU</b>	Quad-Core Cortex™-A7	Quad-Core Cortex™-A7	Quad-Core Cortex™-A7	Dual-Core Cortex™-A7	Dual-Core Cortex™-A7
<b>GPU</b>	SGX544MP2	SGX544MP2	Mali400MP2	Mali400MP2	Mali400MP2
<b>Video Playback</b>	4Kx2K	2160p	1080p	1080p	2160p
<b>Video Capture</b>	H.264 HP 1080p@60fps	H.264 HP 1080p@30fps 720p@60fps	H.264 HP 1080p@60fps	H.264 HP 1080p@60fps	H.264 MP 1080p@30fps
<b>LCD</b>	2048x1536	1280x800	1280x800	1280x800	1280x800
<b>Package</b>	BGA609 18mmx18mm 0.65mm Pitch	BGA460 18mmx18mm 0.80mm Pitch	BGA282 14mmx14mm 0.80mm Pitch	BGA280 14mmx14mm 0.80mm Pitch	BGA441 19mmx19mm 0.80mm Pitch
<b>Applications</b>	Tablet Smart TV	Phablet Smart TV	Tablet	Tablet	Tablet Smart TV

**ABOUT ALLWINNER:** Allwinner Technology is a leading fabless design company dedicated to smart application processor SoCs and smart analog ICs. Its product line includes multi-core application processors for smart devices and smart power management ICs used by brands worldwide.

With its focus on cutting edge UHD video processing, high performance multi-core CPU/GPU integration, and ultra-low power consumption, Allwinner Technology is a mainstream solution provider for the global tablet, internet TV, smart home device, automotive in-dash device, smart power management, and mobile connected device markets. Allwinner Technology is headquartered in Zhuhai, China.

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