



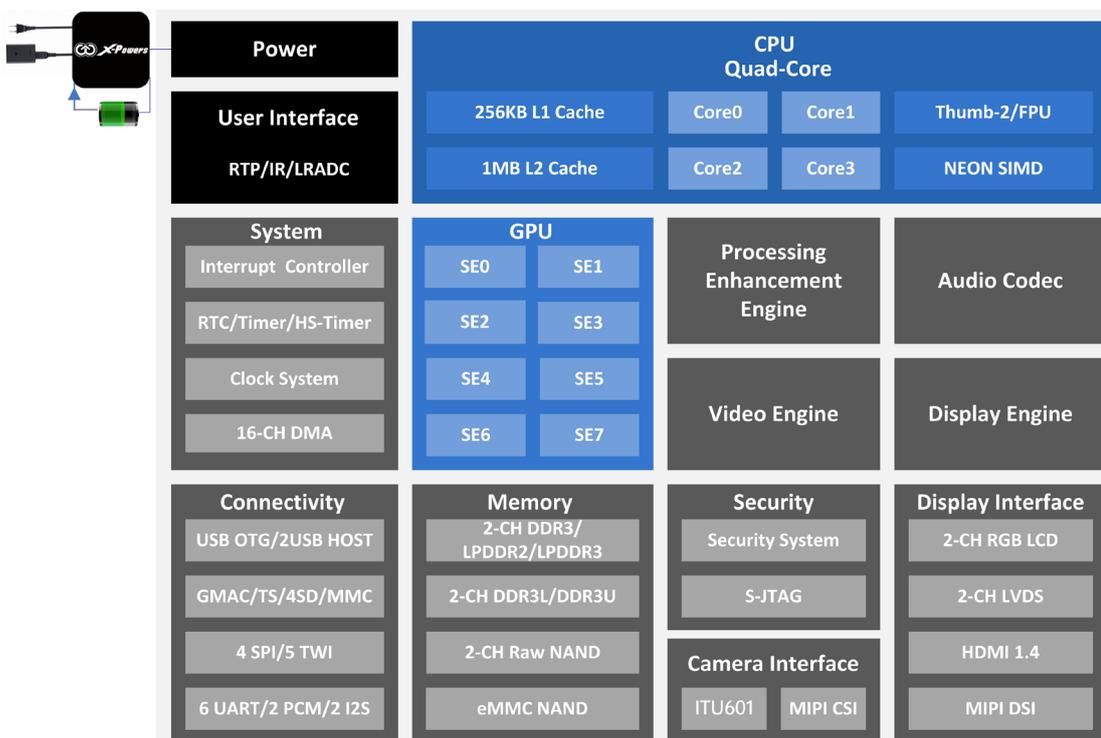
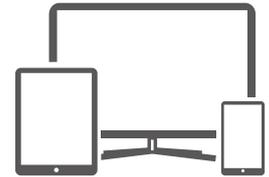
Quad-Core Mobile Application Processor

Allwinner's much-anticipated A31 mobile application processor brings next-generation graphics and multimedia performance to life for consumer, home, and automotive applications. The A31 seamlessly combines ARM®'s quad-core Cortex™-A7 low power processing performance together with Imagination Technologies' graphics workhorse PowerVR™ SGX5X series GPU to deliver outstanding performance value for tablets, smartphones, smart TVs, auto infotainment, and other connected devices.

A31 shines in high-resolution, video, and graphics-intensive applications. The PowerVR™ SGX544MP2 GPU's Universal Scalable Shader Engine (USSE™) enables incredibly fast rendering performance in resource-intensive applications like Unreal Engine 3, even at high resolutions such as 2048x1536 (Retina). And A31's robust multimedia processing enables 4Kx2K resolution decoding, Blu-ray 3D decoding, 1080p video @ 60fps encoding, and smooth streaming video on sites like YouTube. Much of this performance owes its thanks to dual-channel DRAM and NAND memory bandwidth: wider memory bandwidth reduces bottlenecks caused by A31's powerful computing graphics, and multimedia processing resource requirements.

Remarkably, the A31's innovative low power architecture drives this performance without a heavy power workload, increasing battery life for end products. Its quad-core Cortex™-A7 CPU delivers top-notch computing performance when applications need it, and a fifth power-saving core conserves energy when devices are in standby. A specially designed PMIC, AXP221, acts as the icing on the cake, further reducing power consumption by dynamically managing multi-channel power for all cores.

Applications



Features

CPU	<ul style="list-style-type: none"> • ARM® Cortex™-A7 Quad-Core • 256KB L1 Cache • 1MB L2 Cache
GPU	<ul style="list-style-type: none"> • PowerVR™ SGX544MP2 • Complies with OpenGL ES2.0, OpenCL 1.x, DX 9_3
Video	<ul style="list-style-type: none"> • UHD H.264 4Kx2K video decoding • Multi-format FHD video decoding, including Mpeg1/2, Mpeg4 SP/ASP GMC, H.263, H.264, etc. • H.264 High Profile 1080p@60fps encoding • 3840x1080@30fps 3D decoding, BD/SBS/TAB/FP supported • 3840x1080@30fps 3D encoding • Complies with RTSP, HTTP, HLS, RTMP, MMS streaming media protocol
Display	<ul style="list-style-type: none"> • Dual-channel LVDS 1920x1080@60fps • 4 lanes MIPI DSI 1920x1200@60fps • Dual-channel RGB/CPU LCD 2048x1536@60fps • Integrated HDMI1.4 1080p@60fps
Camera	<ul style="list-style-type: none"> • Integrated Parallel & MIPI I/F sensor • Integrated powerful ISP, supporting Raw Data CMOS sensor • Supports 5M/8M/12M CMOS sensor • Supports 8/10/12-bit YUV/Bayer sensor
HawkView™ ISP	<ul style="list-style-type: none"> • Static and dynamic defect pixel correction and lens shading correction • Anisotropic non-linear Bayer interpolation with false color suppression • Programmable color correction, dynamic range compression and contrast enhancement • Advanced spatial de-noise filter • AE/AF/AWB • Anti-flick detection
Memory	<ul style="list-style-type: none"> • Dual-Channel LPDDR2/LPDDR3/DDR3/DDR3L controller • Dual-Channel NAND FLASH controller with 64-bit ECC
PMIC	<ul style="list-style-type: none"> • Specially designed PMIC AXP221 • 21-channel power output and 2.2A Flash charging • Complies with USB 3.0 power supply standard
Audio	<ul style="list-style-type: none"> • Integrated Hi-Fi 100dB audio codec • Three integrated differential analog mic amplifiers for headset and phone • One digital mic interface with software noise cancellation
OS	<ul style="list-style-type: none"> • Supports Android 4.1/4.2 and above • Compatible with Microsoft Windows 8

Selection Guide

Allwinner Cortex-A Family

	A31	A31s	A20	A10s	A13
CPU	Quad-Core Cortex™-A7	Quad-Core Cortex™-A7	Dual-Core Cortex™-A7	Single-Core Cortex™-A8	Single-Core Cortex™-A8
GPU	SGX544MP2	SGX544MP2	Mali400MP2	Mali400	Mali400
Video Playback	4Kx2K	2160p	2160p	1080p	1080p
Video Capture	H.264 HP 1080p@60fps	H.264 HP 1080p@30fps 720p@60fps	H.264 HP 1080p@30fps 720p@60fps	H.264 MP 720p@30fps	H.264 MP 720p@30fps
LCD	2048X1536	1280x800	1280x800	1024x768	1024x600
Package	BGA609 18mmx18mm 0.65mm Pitch	BGA460 18mmx18mm 0.80mm Pitch	BGA441 19mmx19mm 0.80mm Pitch	BGA336 14mmx14mm 0.65mm Pitch	eLQFP176 20mmx20mm
Applications	Tablet Smart TV	Phablet	Tablet Smart TV	HDMI Dongle	Tablet E-reader

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.