

NS730 — Cloud Gaming SoC Product Overview

Overview

The NS730 is a system-on-chip designed for the new generation of handheld cloud gaming devices. Its highly integrated single-chip architecture defines a new standard for performance, power consumption, and connectivity in handheld gaming terminals. It integrates a dedicated hardware decoder (H.264/H.265/VP9/AV1), multi-band Wi-Fi 6E, high-responsiveness touch and audio processing, and an adaptive power and thermal management unit. The CPU adopts a big.LITTLE configuration of RISC-V cores, delivering optimal performance under high load and excellent efficiency during light tasks.

Key Features

Basic Specifications

- CPU: Quad-core high-performance RISC-V + Quad-core high-efficiency RISC-V (big.LITTLE), up to 2.2GHz, DVFS support
- GPU: Quad-core Mali-G57, OpenGL ES 3.2, Vulkan 1.2
- Storage: eMMC 5.1 / UFS 2.1, SD card slot, quick boot (cold boot < 10 seconds, wake < 0.5 seconds)

Video Decode and Processing

- Hardware Decode: H.264 / H.265 / VP9 / AV1, up to 4Kp120 or 8Kp30, decode latency < 10ms
- Video Post-Processing: Super-resolution, HDR tone mapping, color space conversion (BT.709 ↔ BT.2020), low-latency mode
- Display: HDMI 2.1 (4K@120Hz / 8K@60Hz), MIPI DSI (1080p@240Hz), VRR support

Wireless and Connectivity

- Wi-Fi 6E: 2.4/5/6 GHz, 160MHz bandwidth, 2×2 MU-MIMO, OFDMA, peak 2.4Gbps
- Bluetooth 5.3
- Wired: 1GbE interface
- Wireless Optimization: Hardware UDP retransmission, FEC, adaptive jitter buffer, Wi-Fi/Cellular smart switching

Interaction and Audio

- Touch: 240Hz sampling rate, multi-touch (10 points), touch-to-render < 8ms
- Audio: Stereo DAC/ADC, 3.5mm headset, Dolby Atmos decode, AEC, noise reduction
- Peripherals: USB 3.0 (OTG), UART, I2C, GPIO, PWM (for vibration), sensor hub

Power and Thermal Management

- Power Consumption: 3–5W typical gaming, 8W peak
- Power Management: Multi-level DVFS, dynamic thermal management, battery-powered and USB PD fast charging support
- Thermal Design: Fanless (system < 6W) or small active fan, hotspot monitoring and clock-down protection

Software and Ecosystem

- Security: Secure Boot, TrustZone, Widevine L1, PlayReady, hardware encryption
- SDK: Cloud gaming-specific SDK (network adaptation, input prediction, frame synchronization), pre-integrated with major cloud gaming platforms
- Operating System: Android 13 / Linux, lightweight RTOS for low-latency tasks

Target Applications

 Professional Cloud Gaming Handheld

 Multi-Entertainment / Light Productivity Terminal (cloud apps, video streaming, mobile office)

 Industrial Application Devices (cloud desktop access, remote simulation training)
