

Amlogic Unveils A311Y3: Next-Generation 6nm SoC Built to Power the Edge AI Ecosystem

MOUNTAIN VIEW, CA, UNITED STATES, June 23, 2026 /EINPresswire.com/ -- Amlogic, a global leader in AI System-on-Chip (SoC) solutions for smart and connected devices, introduces the A311Y3 device today. Fabricated on TSMC's advanced 6nm process, this next-generation Edge AI SoC is purpose-built to drive high-performance, on-device AI and advanced intelligent computing workloads.

As one of the leading edge AI SoCs to adopt the Arm Mali-G625 GPU, the A311Y3 pairs cutting-edge graphics with Amlogic's proprietary 8TOPS NPU. This potent combination delivers a full-stack platform covering AI inference, premium multimedia processing, industrial-leading security, and a robust software ecosystem. The A311Y3 targets a broad spectrum of next-gen smart devices, including edge computing systems, robotics, AI tablets, Interactive Flat Panel Displays (IFPDs), and premium set-top boxes (STBs).

Key Product Highlights

1. Advanced 6nm Process & High-performance Heterogeneous Architecture

Optimized for demanding, low-latency local AI inference, the A311Y3 strikes an exceptional balance between raw performance and thermal efficiency:

- **High-performance Heterogeneous Computing:** Features a powerful octa-core big.LITTLE configuration mixing Arm Cortex-A78 and Cortex-A55 CPU cores, paired with Arm Mali-G625 GPU, which is available with Long-Term Support (LTS) to help extend product lifecycles. Supports Vulkan 1.4 for advanced graphics rendering and parallel AI acceleration.
- **8TOPS Proprietary NPU:** Purpose-built to run Large Language Models (LLMs), Vision-Language Models (VLMs), and other transformer-based models directly on-device for real-time applications to enhance data privacy and improve response time.
- **Massive Throughput:** Supports up to 16GB LPDDR5X memory at blistering speeds of 6400MT/s to effectively ensures smooth operation for complex multitasking and real-time AI computing.

2. Cinematic Multimedia & Multi-Camera Perception

Leveraging Amlogic's industry-leading imaging heritage, the SoC delivers immersive visual capabilities for both commercial and industrial deployments:

- **AI Super Resolution & HDR:** Features integrated hardware AI Super Resolution to upscale images in real time without draining system bandwidth. Fully supports Dolby Vision, HDR10/10+,

and HDR Vivid.

- Flexible Multi-Display Configurations: Capable of driving dual 4K displays simultaneously or split 4K + 2.5K outputs across LVDS, MIPI DSI, eDP, and V-by-One (Vx1) interfaces.
- Advanced Coders & Multi-Cam ISP: Supports 4K@120fps decoding (with native AV1 support) and 4K@60fps encoding. An integrated 16M30 ISP processes up to four 2-lane camera sensor inputs.

3. Industrial Reliability & Post-Quantum Security

Engineered for flawless, long-term deployment in mission-critical and harsh environments:

- Extended Lifecycles: Available in consumer and industrial temperature grades, backed by a minimum 10-year product longevity guarantee.
- Future-Proof Security: Integrates Arm TrustZone technology, robust DRM, and compliance with the EU Cyber Resilience Act. Notably, it introduces standard compliant Post-Quantum Cryptography to protect against next-generation digital threats.

4. Developer-First Software Ecosystem

Amlogic provides a comprehensive environment to minimize R&D complexity and accelerate time-to-market:

- OS Versatility: Out-of-the-box support for Android 16+ (Google VSR compliant), Yocto Linux, and Debian.
- Upstreamed Code: Core drivers and kernel code are actively being upstreamed to open-source repositories, slashing long-term maintenance overhead for developers.

Versatile, Full-Scenario Application Coverage

- Edge Computing: Combines the octa-core Arm CPU, 8TOPS NPU, PCIe 3.0, and dual Gigabit Ethernet for high-speed local analytics and multi-stream commercial data processing.
- Smart Robotics: Integrates Cortex-A78 cores, a fast NPU, and a HiFi 5 DSP to facilitate 3D environmental mapping, multimodal interaction, and autonomous navigation.
- Interactive Flat Panels (IFPDs) & Tablets: Employs a TV-grade image engine, HDMI 2.1 RX/TX, and superior power efficiency for fluid UI interactions in corporate, educational, and portable form factors.
- Premium Set-Top Boxes: Reinforces Amlogic's global market leadership by enabling 4K@120fps ultra-HD streaming, native AV1 decoding, and Dolby Vision.

“As AI workloads continue to evolve, performance increasingly depends on the ability to distribute processing intelligently across the entire compute platform,” said Parag Beeraka, Senior Director, Consumer Computing, Edge AI Business Unit, Arm. “Arm CPUs, Mali GPUs and dedicated AI accelerators each play distinct roles in delivering advanced AI experiences, from model execution and orchestration to graphics and parallel AI processing. The A311Y3 highlights the growing importance of a heterogeneous approach to next-generation edge AI applications

including smart displays and industrial systems.”

“The launch of the A311Y3 marks a defining milestone in Amlogic’s edge computing and on-device AI roadmap,” said James Xie, Senior Vice President of Corporate Business Strategy at Amlogic. “As the pioneer of our new family of high-performance AI processors, the A311Y3 demonstrates our commitment to pushing the boundaries of the edge. By fusing our high efficient, high performance NPU with advanced Arm architectures and our signature multimedia engines, we are giving developers a comprehensive, one-stop platform to build the next generation of intelligent AIoT devices.”

About Amlogic

Amlogic is a world-leading fabless semiconductor company that specializes in the design, development, and application of high-intelligence system-on-chips (SoCs). As a result of its cutting-edge technologies and best-in-class solutions, the company has actively expanded into new areas including edge AI processors, wireless connectivity, and automotive electronics — ushering in a new era of smart living. By providing complete turnkey solutions in combination with industry-leading software and hardware technologies — including multimedia processing, AI accelerators, state-of-the-art security systems, and advanced CPUs and GPUs — customers can rapidly optimize and develop market-leading products with world-class performance. Amlogic is dedicated to sustainability and implements state-of-the-art silicon processing techniques along with advanced power management solutions. Founded in Silicon Valley, Amlogic has R&D, support, and sales offices worldwide. To learn more about products of Amlogic visit: <https://www.amlogic.com/>

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