



NEWS RELEASE

# Ambiq Launches Two New Edge AI Runtime Solutions

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Launches Designed to Accelerate Ultra-Low Power AI Deployment on Apollo SoCs



**Ready to  
Launch Edge AI**



AUSTIN, Texas, July 22, 2025 (GLOBE NEWSWIRE) -- Ambiq Micro, Inc. ("Ambiq"), a technology leader in ultra-low-power semiconductor solutions for edge AI, today unveils HeliarT (Runtime) and HeliarAOT (Ahead-of-Time), two new edge AI runtime solutions optimized for the Ambiq Apollo Systems-on-Chip (SoCs) family. These developer tools are designed to significantly enhance the performance and energy efficiency of AI models for the unique demands of edge computing environments.

### Addressing Critical Edge AI Challenges

As AI workloads increasingly migrate to edge devices, developers face growing pressure to deliver high performance within strict power budgets. Traditional AI frameworks often struggle in ultra-low-power scenarios, making it difficult to deploy sophisticated AI models in battery-powered devices, such as wearables, hearables, IoT sensors, and industrial monitors.

Ambiq's new runtime solutions expand its growing portfolio of developer-centric tools, designed to help engineers unlock the full potential of Apollo SoCs. HeliarT and HeliarAOT offer flexible, high-performance deployment options for edge AI across a wide range of applications, from digital health and smart homes to industrial automation and beyond.

### HeliarT: Power-Optimized LiteRT

HeliarT is a performance-enhanced implementation of LiteRT (formerly TensorFlow Lite for Microcontrollers) that is tailored for energy-constrained environments. Fully compatible with existing TensorFlow workflows, HeliarT introduces key improvements:

- Custom AI kernels optimized for Apollo510's vector acceleration hardware
- Improved numeric support for audio and speech processing models
- Up to 3x gains in inference speed and power efficiency over standard LiteRT implementations

### HeliarAOT: Compiling LiteRT to Optimized C Code

HeliarAOT introduces a ground-up, ahead-of-time compiler that transforms TensorFlow Lite models directly into embedded C code for edge AI deployment. This innovative approach offers runtime-level, or better, performance with additional benefits:

- 15-50% reduction in memory footprint versus traditional runtime-based deployments
- Granular memory control, enabling per-layer weight distribution across Apollo's memory hierarchy
- Streamlined deployment, with direct integration of generated C code into embedded applications

- Greater flexibility for resource-constrained systems

"The intersection of developer experience and power efficiency is our north star," said Carlos Morales, VP of AI at Ambiq. "HeliaRT and HeliaAOT are designed to integrate seamlessly with existing AI development pipelines while delivering the performance and efficiency gains that edge applications demand. We believe this is a major step forward in making sophisticated AI truly ubiquitous."

Powered by SPOT® and Real-World Success

Both Helia solutions are built on Ambiq's patented Sub-threshold Power Optimized Technology (SPOT), which is the foundation behind over 270 million devices deployed worldwide. Leveraging years of hardware-software co-design, these tools deliver measurable performance gains and streamlined deployment for developers targeting the edge.

Availability

- HeliaRT is available now in beta via the neuralSPOT SDK, with general release expected in Q3 2025
- HeliaAOT is currently available as a technical preview for select partners, with wider availability planned for Q4 2025

Both solutions are supported with robust documentation, ready-to-use examples, and dedicated engineering assistance for Ambiq customers.

About Ambiq

Ambiq's mission is to enable intelligence (artificial intelligence (AI) and beyond) everywhere by delivering the lowest power semiconductor solutions. Ambiq enables its customers to deliver AI compute at the edge where power consumption challenges are the most profound. Ambiq's technology innovations, built on the patented and proprietary sub-threshold power optimized technology (SPOT), fundamentally deliver a multi-fold improvement in power consumption over traditional semiconductor designs. Ambiq has powered over 270 million devices to date. For more information, visit [www.ambiq.com](http://www.ambiq.com).

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