STRADVISION ACCELERATES AI PERCEPTION FOR NEXT-GEN AUTO SAFETY WITH AMD ADAPTIVE SoCs

AMD × STRADVISION

EXECUTIVE SUMMARY

StradVision, a global leader in AI-powered perception software for Advanced Driver Assistance Systems (ADAS), has collaborated closely with AMD to redefine how vehicles perceive their surroundings. By integrating its SVNet MultiVision software stack onto the AMD Versal™ AI Edge Gen 2 adaptive SoC, StradVision says it has been able to deliver high levels of accuracy, flexibility, and computational efficiency in its automotive vision systems.

The collaboration has empowered StradVision to deliver real-time 360-degree perception using up to five cameras, while maintaining low compute requirements. Building on this success, StradVision is now preparing to launch its next-generation MultiVision Gen 2 product, a transformer-based solution that will extend Operational Design Domain (ODD) and enable multi-sensor fusion for more advanced levels of autonomy.

INTRODUCTION

Founded in 2014, StradVision develops cutting-edge computer vision software that enables vehicles to interpret their surroundings in real time. Its flagship product, SVNet, uses deep neural networks to identify, classify, and track objects with exceptional accuracy and low latency. The company's software is deployed in over 4.5 million vehicles worldwide, powering essential safety and driver-assist features.

As automotive OEMs push toward higher levels of autonomy, StradVision continues to evolve its product line, from its early single-camera systems to MultiVision Advanced and MultiVision Premium, which integrate multiple front, side, and rear cameras into a single perception framework.

"We started developing from a front video camera and have now extended to MultiVision Advanced and MultiVision Premium," explained Junhwan Kim, CEO of StradVision. "We have very good accuracy and performance compared to the competition, but we also have a very lightweight network that makes us extremely flexible."

CHALLENGES

As StradVision expanded its product scope, the company was looking to support scalable camera configurations for different OEMs, ranging from five to eleven cameras, while maintaining consistent inference speed and reliability. Moreover, flexibility in hardware deployment was essential. StradVision's OEM partners required systems that could quickly migrate between chipsets and software stacks.

INDUSTRY

Automotive

AT A GLANCE

- StradVision is advancing from CNN-based perception to transformer-based architectures capable of long-range reasoning and multi-sensor fusion.
- AMD Versal AI Edge Gen 2 adaptive SoCs with NPUs enable flexible, efficient deployment across multiple OEM vehicle platforms.
- Together, AMD and StradVision prove that AI innovation in automotive safety can be both powerful and practical.

CHALLENGES

StradVision was looking to address computational and scalability challenges in automotive vision systems requiring adaptable hardware and multi-camera support.

SOLUTION

StradVision used AMD Versal AI Edge Gen 2 adaptive SoCs to boost deep-learning speed, flexibility, and scalability, enabling rapid hardware adaptation, efficient multi-camera support, and advancing toward a transformer-based solution.

RESULTS

By leveraging AMD adaptive computing, StradVision has reduced its hardware porting cycle from over a year to just a few months—a critical advantage in the fast-moving automotive industry.

AMD TECHNOLOGY

AMD Versal™ AI Edge Gen 2 adaptive SoCs

The company also recognized that convolutional neural networks (CNNs), while highly effective at near-field perception, are somewhat limited in their ability to identify distant or partially hidden objects. "CNN-based perception remains efficient for near-field tasks," Kim noted, "transformer-based architectures enable longer temporal and spatial reasoning – a key requirement for next-generation perception stacks increasingly influenced by end-to-end design philosophies."

The company wanted a flexible hardware solution that could support future transformer-based models.

SOLUTION

To overcome these challenges, StradVision turned to AMD Versal™ AI Edge Gen 2 adaptive SoCs, leveraging their unique blend of high-performance NPUs and adaptable logic. This hardware allowed the company to accelerate deep-learning inference while maintaining flexibility across multiple camera configurations and operating environments.

Kim emphasized that AMD technology aligns perfectly with StradVision's agile development model. "Our solution gives customers speed and flexibility with very low compute requirements," he said. "Our OEM partners can run multiple features on one chip without worrying about power. AMD's NPU makes that possible."

"The speed at which we can adopt a new set of hardware is about three to six months, which is highly uncommon in this market," said Kim.

The collaboration between StradVision and AMD traces back to 2015, when the company first began experimenting with FPGA concepts. "We recognized early value in FPGA-based architectures and needed the hardware flexibility of an FPGA," Kim recalled. Over the years, this relationship deepened as StradVision transitioned from FPGA prototypes to full-scale deployments on AMD adaptive SoCs.

The implementation began with proof-of-concept trials of CNN-based perception on AMD hardware, followed by the optimization of inference workloads using the integrated NPU. As the solution scales, StradVision will expand its configuration from five to eleven cameras, delivering full 360-degree situational awareness. The final phase involves preparing for MultiVision Gen 2, a transformer-based perception engine that will tap into the latest AMD hardware capabilities for multi-sensor fusion.

"AMD is moving at the same breakneck speed as we are," Kim said. "That's what makes this collaboration so powerful."

RESULTS AND IMPACT

The collaboration with AMD has already yielded significant results. StradVision's CNN-based system now leverages 8-megapixel resolution images at nearly 30 frames per second, delivering full-feature frontal vision while managing surround-view and park-assist perception features concurrently. By leveraging AMD adaptive computing, StradVision has reduced its hardware porting cycle from over a year to just a few months—a critical advantage in the fast-moving automotive industry.

Metric	With AMD Versal™ AI Edge
Resolution	8MP
Frame Rate	30 fps
Camera Integration	5 cameras
Hardware Porting Time	3–6 months

Kim credited hands-on engineering support from AMD as a key enabler of these gains. "When we have any technical issues, AMD is there immediately," he said. "They are very hands-on and incredibly fast. That kind of collaboration is rare and invaluable for a startup like ours."

"AMD has offered us great support, plus the NPU is excellent and the tools are excellent," said Kim. "When we have any questions or technical issues, AMD is very quickly supporting us to resolve them. The collaboration has been incredible."

NEXT STEPS

Looking ahead, StradVision is preparing to launch its transformer-based MultiVision Gen 2 system, with up to 11 cameras, built on AMD hardware optimized for long-range perception and multi-sensor fusion. This next-generation platform will extend beyond traditional CNN performance to deliver richer, more intelligent environmental understanding for L2+ and L3 autonomous vehicles.

"This year we have become very familiar with AMD's NPU and other components," said Kim. "These will become very useful as we start to build out transformer networks."

For automotive manufacturers and technology partners seeking to accelerate perception systems with adaptive compute, AMD offers the tools, performance, and support needed to bring AI-driven safety features to market faster.

CALL TO ACTION

To learn more, visit https://amd.com/automotive.

ABOUT STRADVISION

Founded in 2014, StradVision is an automotive industry pioneer in artificial intelligence-based vision perception technology for ADAS. The company is accelerating the advent of fully autonomous vehicles by making ADAS features available at a fraction of the market cost compared with competitors. StradVision's SVNet is being deployed on various vehicle models in partnership with OEMs; can power ADAS and autonomous vehicles worldwide; and is serviced by over 300 employees in Seoul, San Jose, Detroit, Tokyo, Shanghai, and Dusseldorf. StradVision has been honored with Frost & Sullivan's 2022 Global Technology Innovation Leadership Award, the Gold Award at the 2022 and 2021 AutoSens Awards for Best-in-Class Software for Perception Systems, and the 2020 Autonomous Vehicle Technology ACES Award in Autonomy (software category). In addition, StradVision and its software have achieved TISAX's AL3 standard for information security management, as well as being certified to the ISO 9001:2015 for Quality Management Systems and ISO 26262 for Automotive Functional Safety.

ABOUT AMD

For more than 50 years AMD has driven innovation in high-performance computing, graphics, and visualization technologies. Billions of people, leading Fortune 500 businesses, and cutting-edge scientific research institutions around the world rely on AMD technology daily to improve how they live, work and play. AMD employees are focused on building leadership high-performance and adaptive products that push the boundaries of what is possible. For more information about how AMD is enabling today and inspiring tomorrow, visit the AMD (NASDAQ: AMD) website, blog, LinkedIn, and X pages.

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