

WHITE PAPER

Leveraging Vendor Partnerships for ADAS Success: LeddarTech and Hailo

Release Date: July 26, 2023

Abstract

It's a late summer evening, you've had a long day at work and all you want to do is get home and relax, but the usual horrible traffic jam is worrying you. The thought of spending the next thirty minutes switching between the accelerator and brake pedals is frustrating.

As per the [INRIX 2022 report](#), the average driver in London, Chicago and Paris lost respectively 156,155 and 138 hours of the year in traffic jams, other cities showing the same patterns. ADAS developers realize that developing a solution to combat such situations is not just a matter of convenience but also safety, mental health and, overall, mobility experience. ADAS features such as traffic jam assist, highway assist and automatic lane change improve the driver's experience. However, as highlighted in J.D. Power's [2022 Mobility Confidence Index Study](#), consumer understanding of ADAS is not yet ubiquitous, and inconsistencies in operation and performance could worsen consumer understanding and acceptance.

Improved ADAS performance, enabled by better sensor fusion and perception, will likely increase ADAS adoption, trust and confidence. A goal that all ADAS developers work towards.

Unlocking ADAS: Challenges Faced by ADAS Developers

Automotive OEMs and suppliers are in a fierce race to deliver the latest ADAS features quickly due to the significant positive financial impact of ADAS on new vehicle sales, market share and profitability. ADAS developers must juggle multiple demands when developing ADAS features, such as:

1. Performance and innovation
2. Cost optimization
3. Ease of integration
4. Scalability across vehicle models and platforms
5. Flexibility (architectures that can be adapted)
6. Safety and compliance

How does one organization handle these competing demands? The key strength of automotive OEMs and suppliers has traditionally been to source sub-systems and collaborate with different partners to assemble innovative solutions that deliver value to car buyers. By sourcing ADAS sub-systems from partners, OEMs and suppliers benefit from reduced time-to-market, increased performance and lower costs. Additionally, it grants access to new technologies, methodologies, knowledge, solutions and mindset that might not exist within.

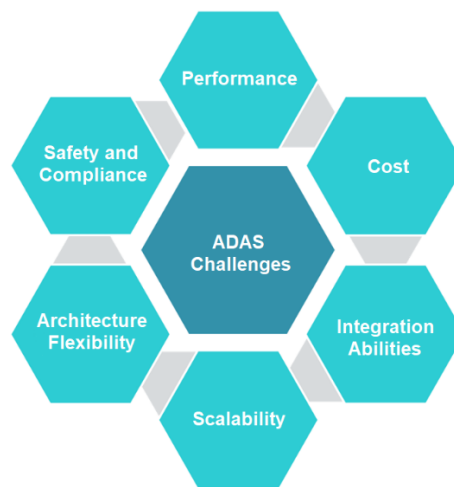


Figure 1 – Challenges addressed by the LeddarTech-Hailo combination

LeddarVision Surround-View: The Solution

In the ADAS/AD space, LeddarTech, *an automotive software company delivering AI-based low-level sensor fusion and perception solutions*, and Hailo, *a leading manufacturer of edge AI processors*, have delivered solutions that provide high performance, affordability, scalability and flexibility, and power efficiency to their customers.

The newly launched [LVS-2+](#) is a comprehensive low-level fusion and perception software stack supporting premium surround-view L2/L2+ ADAS highway assistance and 5-star NCAP 2025/GSR 2022 safety applications. The [Hailo-8 AI processor](#) delivers high compute power at low power consumption and a small form factor to run AI vision algorithms. The LVS-2+, combined with the Hailo-8 AI processor, leverages a 5-camera 5-radar (5V5R) sensor architecture to provide 360-degree situational awareness and bird's eye view (BEV) to ADAS systems to enable advanced comfort applications, such as automated lane change, highway pilot and traffic jam assist and safety applications, such as automatic emergency braking (C2C, VRU and evasive), cross-traffic alert and lane-keep assist.



Benefits to OEMs and Tier 1 Suppliers

While the “Surround-View” system for ADAS is not a novelty, it has not achieved mass-market adoption. Through the LVS-2+, LeddarTech and Hailo aim to change this. As partners to automotive OEMs and suppliers, they deliver the following benefits to ADAS and AD developers.

1. **Enhanced Expertise:** LeddarTech and Hailo provide deep domain expertise and cutting-edge technology in their respective fields of sensor fusion and perception and edge AI processing, offering high-quality products and technical solutions, comprehensive support and a partnership approach throughout the ADAS development process.
2. **Superior Performance:** Some of the performance advantages delivered by LVS-2+ are:
 - Capability in identifying objects at over 200 m
 - ACC support up to 160 km/h
 - Ultra-low false positive rate on objects in the danger zone
 - Closest in-path vehicle (CIPV) 3D bounding box accuracy at 150 m: typical standard length 0.5 m, width 0.2 m, height 0.3 m
3. **Cost Efficiency:** Through partnerships with LeddarTech and Hailo, OEMs and Tier 1s benefit from optimized cost structures. The costs associated with a sensor fusion and perception solution are not limited to the solution itself but also extend to other hardware, such as the sensor architecture required to deliver a level of performance, sensor specifications and the necessary processing power to run the solution. As the Hailo processor does not typically require external memory and consumes a very low amount of power, additional significant cost reduction can be achieved on RBoM and thermal solution for heat dissipation. Using lower-spec sensors and processors without compromising performance results in a significant profitability boost for OEMs and Tier 1s and enables ADAS to transgress the premium and luxury segments to value-based, mass-market vehicles.
4. **Larger Market Opportunity:** Current ADAS solutions are mainly implemented in premium and luxury vehicles. The LVS-2+ is a cost-effective solution that enables greater adoption and implementation in value-based, mass-market vehicles, increasing manufacturers’ available market.
5. **Power Efficiency:** A vehicle’s ECU(s) and processors must provide power to several systems; therefore, power efficiency is a key influencer of the vehicle’s electrical/electronic (E/E) architecture. The Hailo-8 chip enables high AI compute power at a power consumption as low as 2.5 W.

6. **Scalability and Flexibility:** [LeddarVision™](#), the foundational technology on which LVS-2+ is developed, is a scalable technology enabling OEMs and suppliers to scale from low to high levels of automated driving, such as from L2 to L5, on a common software platform. A scalable solution reduces rework efforts, R&D costs and time-to-market. Additionally, LeddarVision is compatible with any sensor architecture consisting of camera, radar and LiDAR sensors. This enables ADAS developers to leverage a common and scalable platform when designing various ADAS features, such as adaptive cruise control that might use a camera-radar architecture or highway pilot that might use a camera-radar-LiDAR architecture. Software that provides this flexibility is a key competitive advantage for ADAS developers as it reduces R&D time and costs and allows quick commercialization of the ADAS applications.
7. **Accelerated Time-to-Market:** Partnering with LeddarTech and Hailo enables OEMs and Tier 1s to expedite their ADAS development timelines by leveraging partner solutions, such as LVS-2+ and Hailo-8 AI processor, that have already reached a high level of performance and market traction. This support enables OEMs and suppliers to focus on their key strengths by defining the ADAS features, goals and the operational design domain.

Summary

ADAS has made huge strides in the last couple of years yet bears many deficiencies ranging from performance to cost issues. The LeddarTech-Hailo partnership provides OEMs and Tier 1s access to ADAS solutions that deliver high performance, affordability, scalability and flexibility, and power efficiency to automotive OEMs and Tier 1s. LeddarTech's LVS-2+ software, combined with the Hailo-8 AI processor, enables advanced comfort and safety ADAS applications and 360-degree situational awareness at an affordable price range for mass market.

To learn more on how we can help you accelerate your ADAS/AD development, go to:

- [LeddarTech's LeddarVision Surround \(LVS-2+\)](#)
- [Hailo's AI processor](#)

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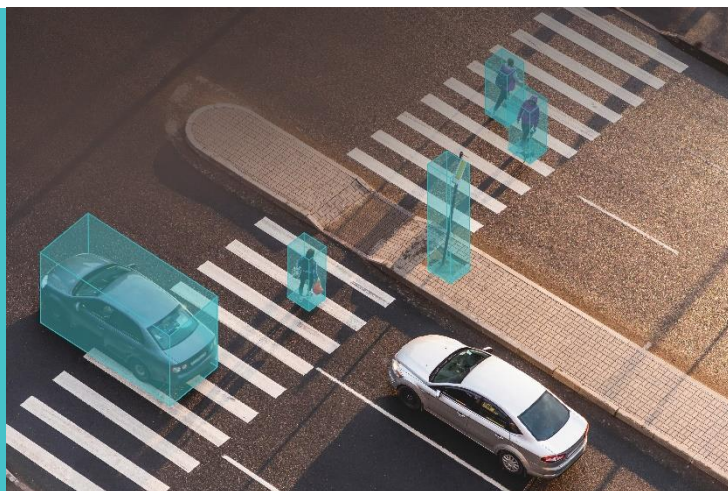
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About LeddarTech

A global software company founded in 2007 and headquartered in Quebec City with additional R&D centers in Montreal and Tel Aviv, Israel, LeddarTech develops and provides comprehensive AI-based low-level sensor fusion and perception software solutions that enable the deployment of ADAS, autonomous driving (AD) and parking applications. LeddarTech’s automotive-grade software applies advanced AI and computer vision algorithms to generate accurate 3D models of the environment to achieve better decision making and safer navigation. This high-performance, scalable, cost-effective technology is available to OEMs and Tier 1-2 suppliers to efficiently implement automotive and off-road vehicle ADAS solutions. LeddarTech is responsible for several remote-sensing innovations, with over 160 patent applications (87 granted) that enhance ADAS, AD and parking capabilities. Better awareness around the vehicle is critical in making global mobility safer, more efficient, sustainable and affordable: this is what drives LeddarTech to seek to become the most widely adopted sensor fusion and perception software solution.

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