Automotive Machine Vision Middleware (AMV MW) enables the cross-platform execution of ADAS algorithms utilizing various inputs (cameras, sensors), outputs (IVI link, HDMI) and multiple processing cores (CPU, GPU, DSP). Middleware abstracts SoC specifics from algorithms, allowing the optimizations available from the SoC, but retaining the abstract nature and portability of algorithms.

Additionally, AMV Middleware is providing a chain-based abstract environment to integrate, manipulate, configure, connect and route signals from cameras and other sensors through a selection of algorithms. Middleware is used to port ADAS algorithm functions and implement ADAS applications, but hide the heterogeneous hardware architecture underneath.

**AMV MW covers the following:**

- HAL layer abstracting SoC specifics for efficient stack and algorithm porting
- Tailoring optimization APIs to suit best ADAS algorithm requirements
- High level API to allow abstract Sensor Fusion architecture
- A selection of ADAS algorithms enabled for AMV already
- Well defined connection with user application (IVI)

AMV MW is a core of a wider ADAS+IVI software stack, available from RT-RK. One of the key values of AMV is the empowerment of product scalability from proof of concept (PoC) to full deployment, going through following typical phases:

1. **AMV-based Informational ADAS + Infotainment as PoC**, in a development environment;
2. **Adding control loop** via AMV Safety Link through to the Safety Controller;
3. **Adding Hypervisor**, to separate concerns and enable a “one-brain” platform;
4. **Adding deterministic Ethernet**, deterministic task scheduling and AUTOSAR for mission-critical processes, thus enabling a ready-to-deploy solution.
AMV-based stack for Informational ADAS + Infotainment (fast Proof of Concept):

Pipeline example for driver monitoring: AMV-based stack for full ADAS+IVI "one brain" solution (deployment-ready):

Target applications examples:

Driver monitoring

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