



CONNECT WITH THE EXPERTS

Jumpstart AV Development with Drive OS and DriveWorks

(CWE 21184)

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THE DRIVE INITIATIVE

End-to-End, Open Platform for Building Autonomous Vehicles

Collect Data



AV & DNN Development

Ingest &
Process Data

Label

Train

Validation

Replay

Simulate

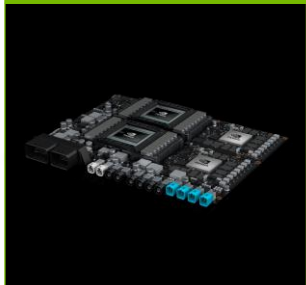


DRIVE AV

DRIVE IX

DRIVEWORKS

DRIVE OS



MagLev



Drive Sim & Omniverse

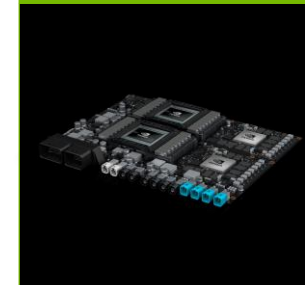


DRIVE AV

DRIVE IX

DRIVEWORKS

DRIVE OS

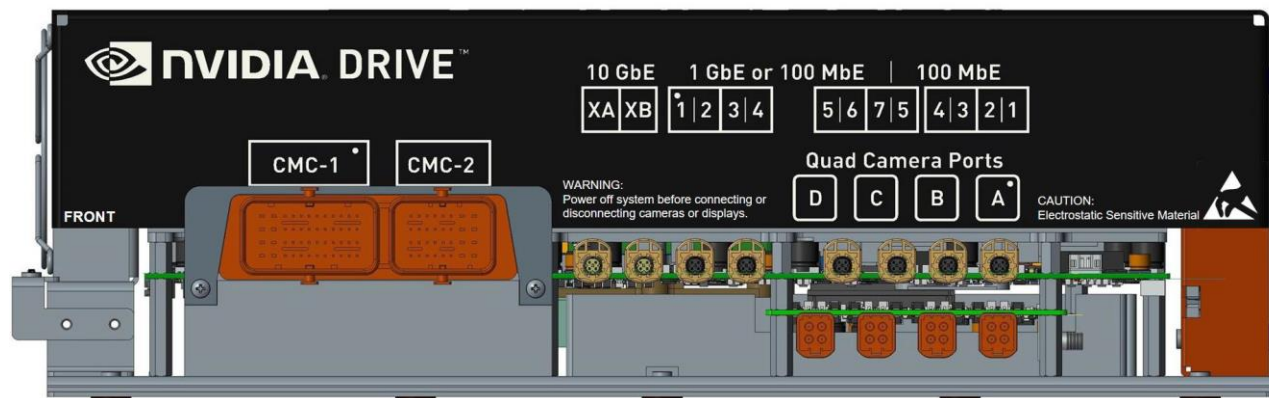


DRIVE™ AGX DEVELOPMENT KIT



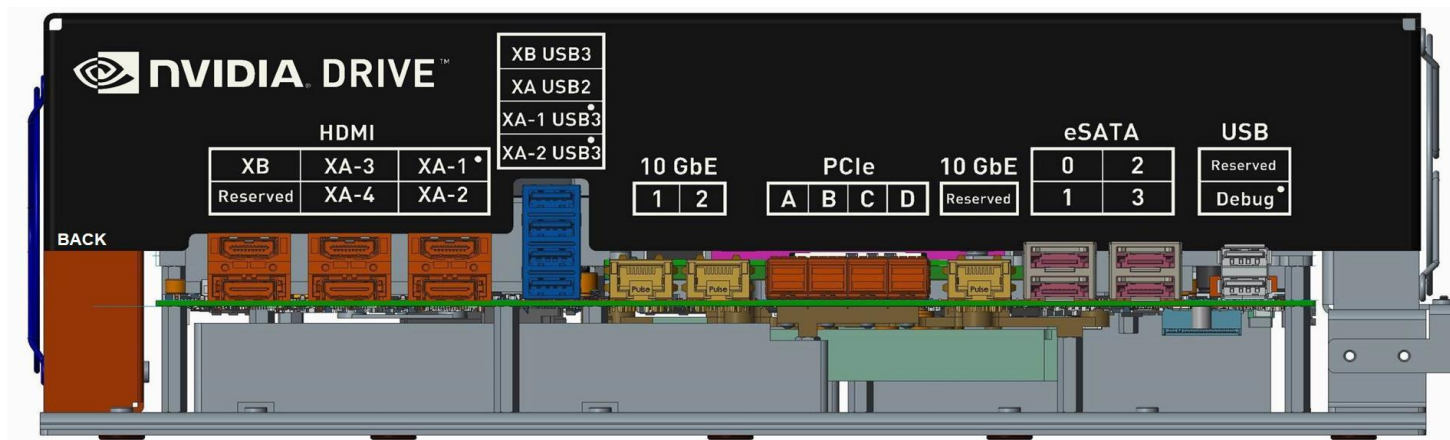
DRIVE™ AGX DEVELOPMENT KIT

Platform Connectors



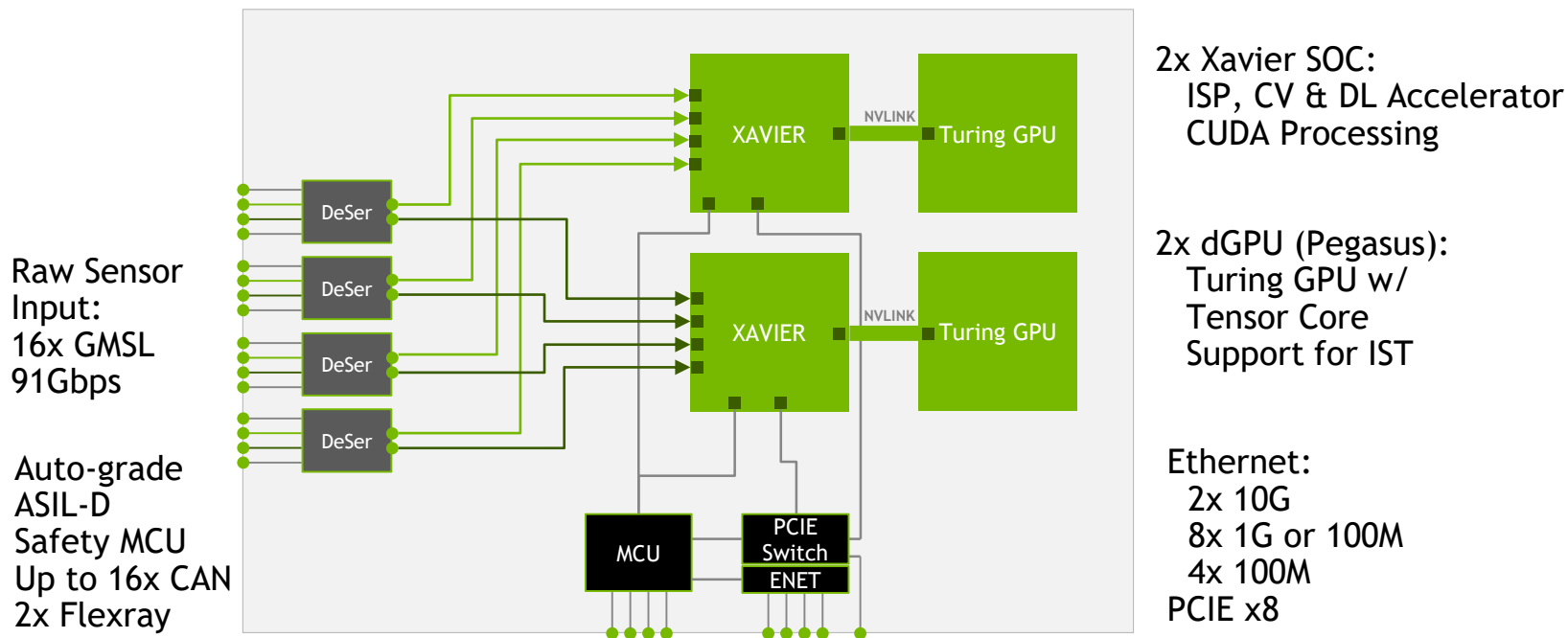
Front View

Back View



DRIVE™ AGX DEVELOPMENT PLATFORM

A Common Development Platform for DRIVE Xavier & DRIVE Pegasus



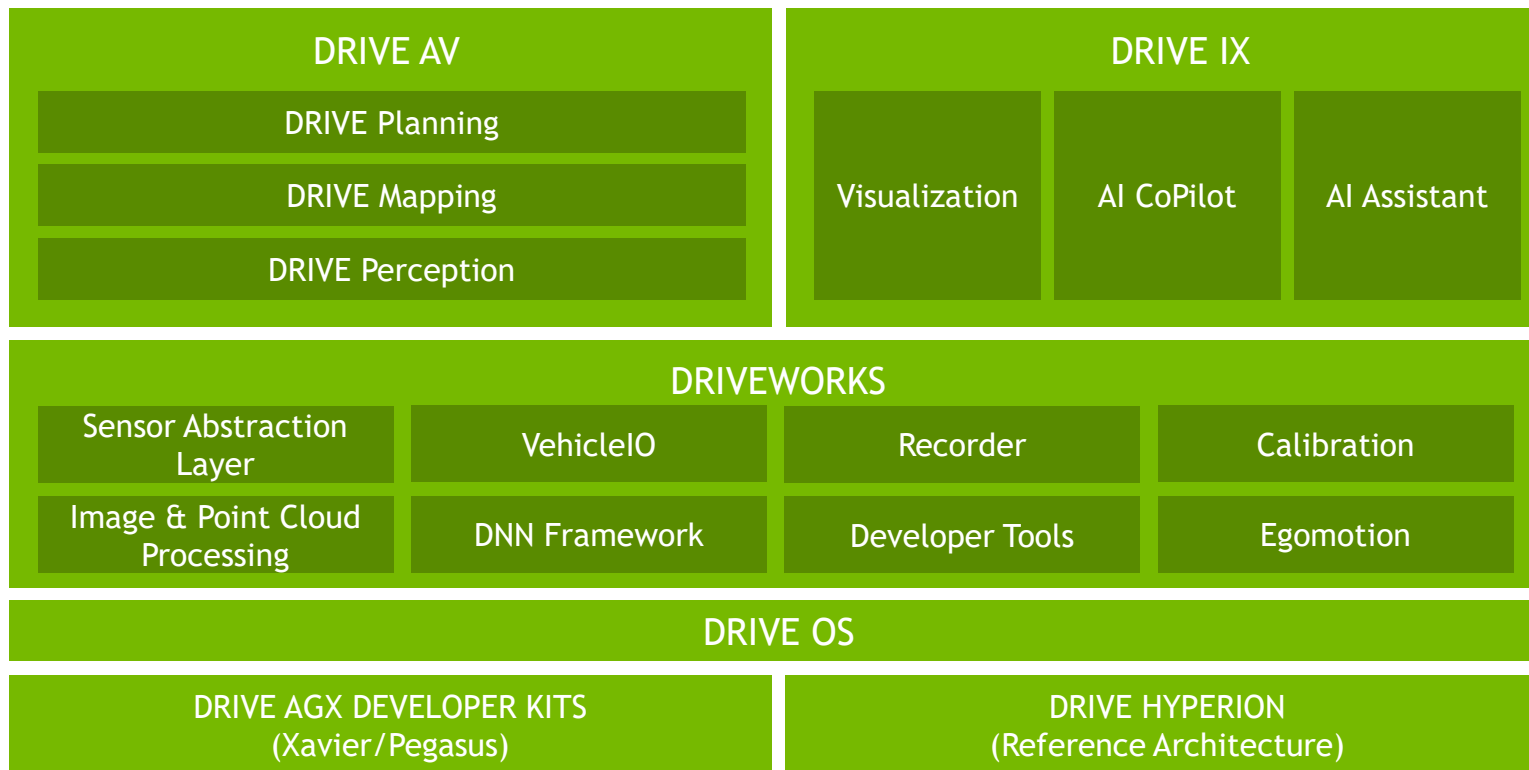
DRIVE™ AGX DEVELOPMENT PLATFORM

Compute Capability

		XAVIER	TURING GPU	AGX DUAL XAVIER	AGX PEGASUS 2X+2G
Compute	SPECint2K6 Rate	117	—	234	234
	FP32 (CUDA)	1.3 TF	8.1 TF	2.6 TF	19 TF
	Mem BW	136 GB/s	384 GB/s	272 GB/s	1040 GB/s
AI	Inferencing	30 TOPS	130 TOPS	60 TOPS	320 TOPS

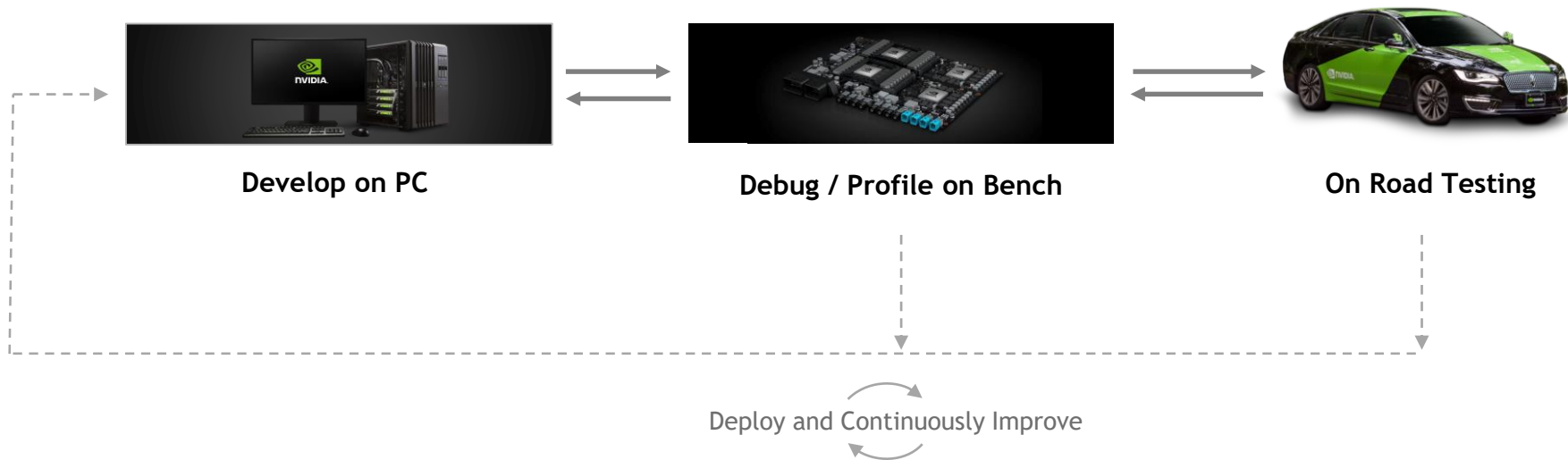
NVIDIA DRIVE™ SOFTWARE ARCHITECTURE

Open and Modular Software for AV Development



DEVELOPMENT WORKFLOW

Develop on PC | Test On Bench | Deploy to Vehicle | Repeat



FREQUENTLY ASKED QUESTIONS

(CWE 21184)

1. How do integrate my custom LiDAR/RADAR into DW to harness the DW built in capabilities and tools?
2. What is the easiest way to get started developing an AV Application with Driveworks?
3. What tools are available to accelerate development on the DRIVE platform
4. What tools are available to record data on the DRIVE platform?
5. Where do I get support if I need further assistance with DRIVE?
6. Does the platform support OpenCV/ROS/etc?
7. What external interfaces does the DRIVE AGX have?

NVIDIA DRIVEWORKS SDK

Foundation for AV SW development on NVIDIA DRIVE™



SOFTWARE MODULES

Open, modularized library of functions | Optimized for DRIVE AGX | Easy to integrate and build upon



TOOLS

Software dev tools ranging from sensor data capture to calibration and visualization



DEVELOPER SUPPORT

Sample apps | Documentation, tutorials | Active developer forum and community



PRODUCTION GRADE

Architected for automotive safety | Compliant with industry standards, (ISO 26262/21448, MISRA)

SENSOR ABSTRACTION LAYER (SAL)

Generalized sensor interfaces

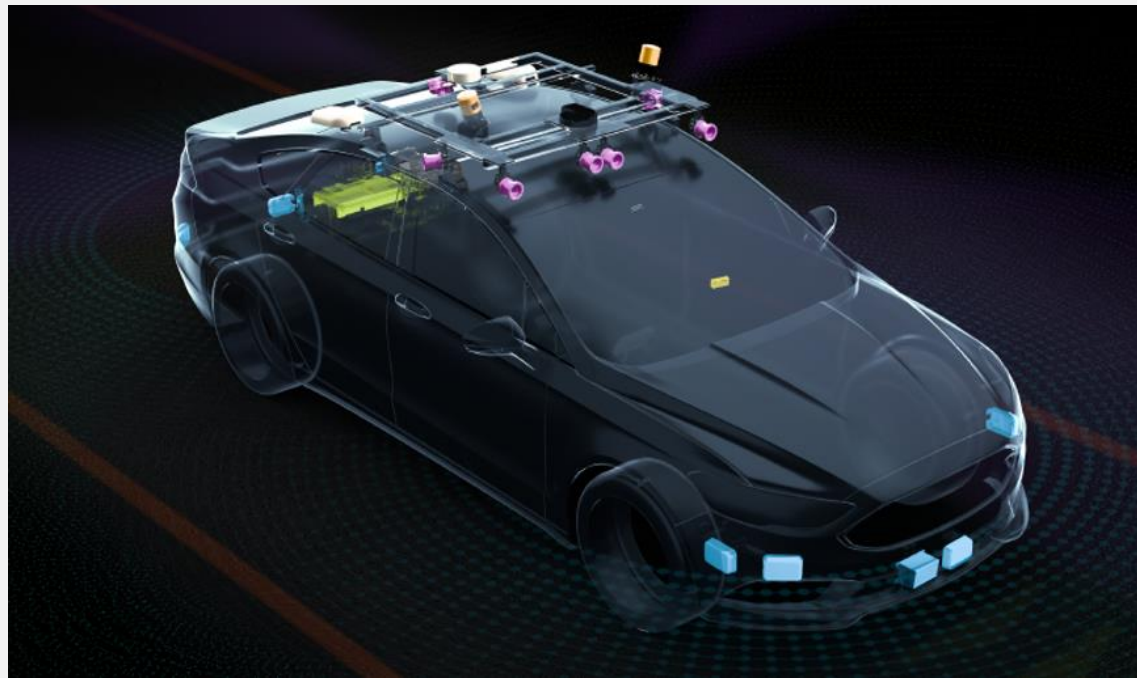
Hardware sensor abstraction

Virtual sensors (for replay)

Raw sensor serialization (for recording)

Seeking capabilities for virtual sensors

Exploitation of hardware engines for acceleration (H264/H265 codec, VIC, ISP)



Recording and Replay Tools

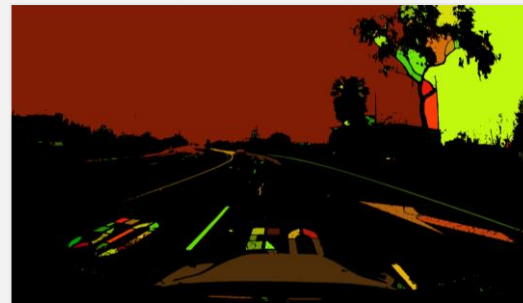
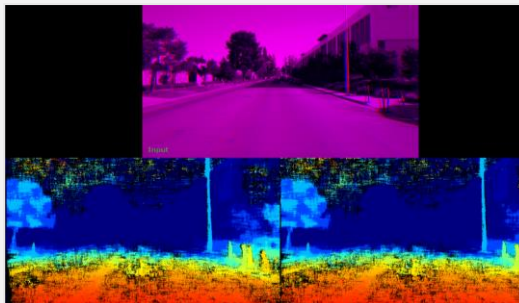
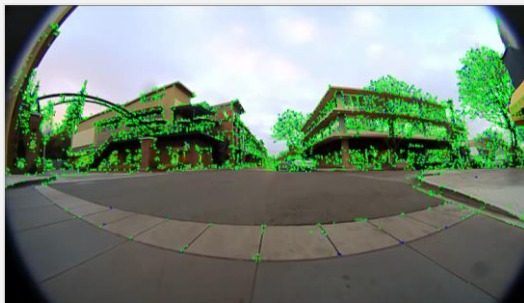
Record | Synchronize | Playback

- ▶ Sensor output saved to system's data storage devices, including SATA/USB 3.0
- ▶ Recorder performance tuned for seamless capture
- ▶ Recording Post-Processing Tools provided for convenience:
 - ▶ Verification of configuration and integrity of each recording session
 - ▶ Support for fast seeking in recorded files
 - ▶ Recording clipping, conversion, and time alignment tools

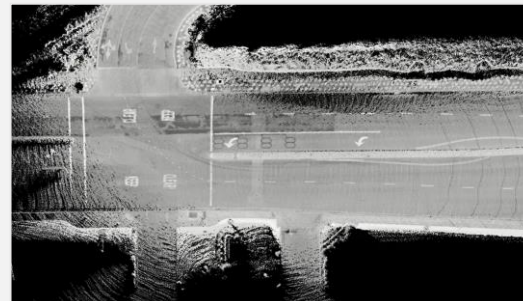
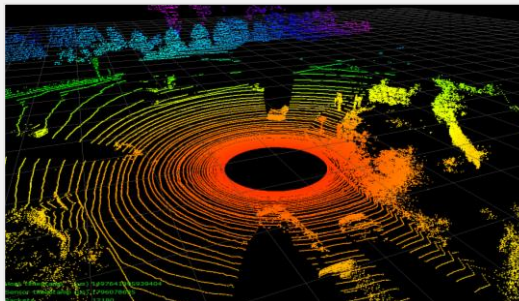
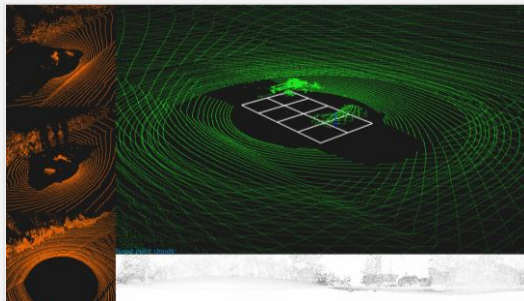
Low Level Sensor Data Processing

Accelerated Image and Point Cloud Processing Modules

IMAGE PROCESSING

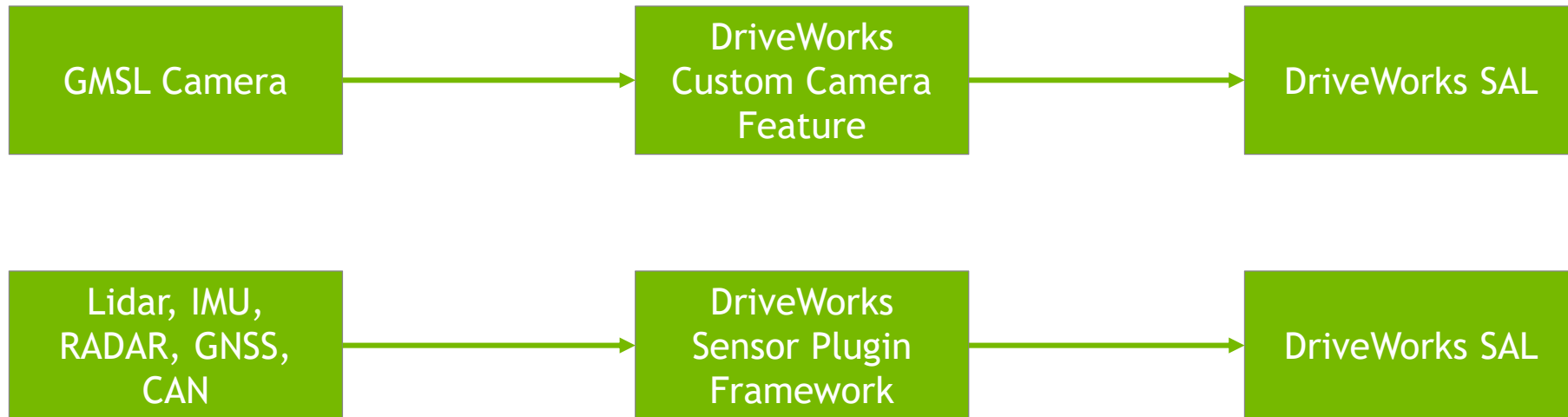


POINT CLOUD PROCESSING



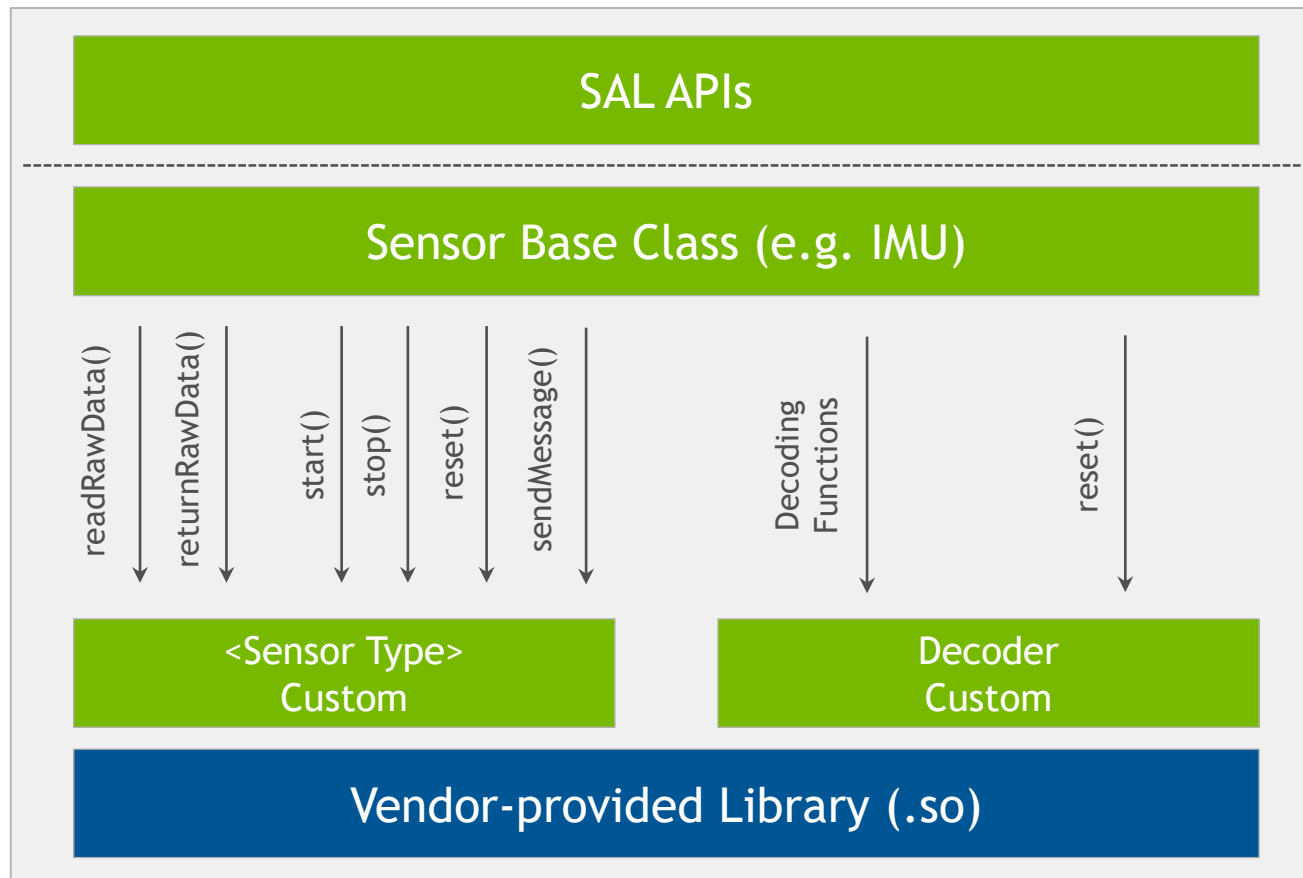
DRIVEWORKS SENSOR PLUGINS

Flexible Options for Integrating Sensors into the SAL



SENSOR PLUGINS

Integrate Sensors into the DriveWorks SAL



FURTHER RESOURCES

How do I ask for help?

<https://forums.developer.nvidia.com/c/agx-autonomous-machines/drive-agx/57>

Where can I learn how more about how to use the DRIVE AGX?

<https://developer.nvidia.com/drive/learn>

Where do I download software/documentation?

<https://developer.nvidia.com/drive>

<https://docs.nvidia.com/drive>

How can I expand my deep learning skills?

<https://www.nvidia.com/en-us/deep-learning-ai/education/>

What HW and SW component