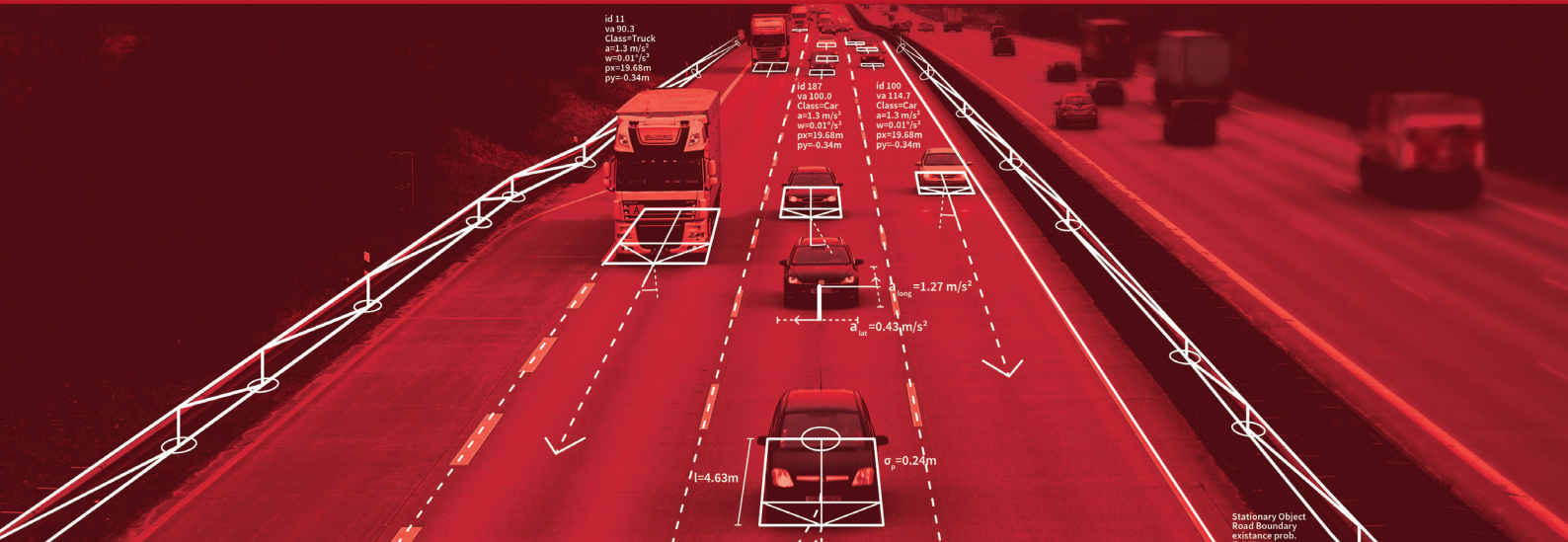


ibeo.Reference

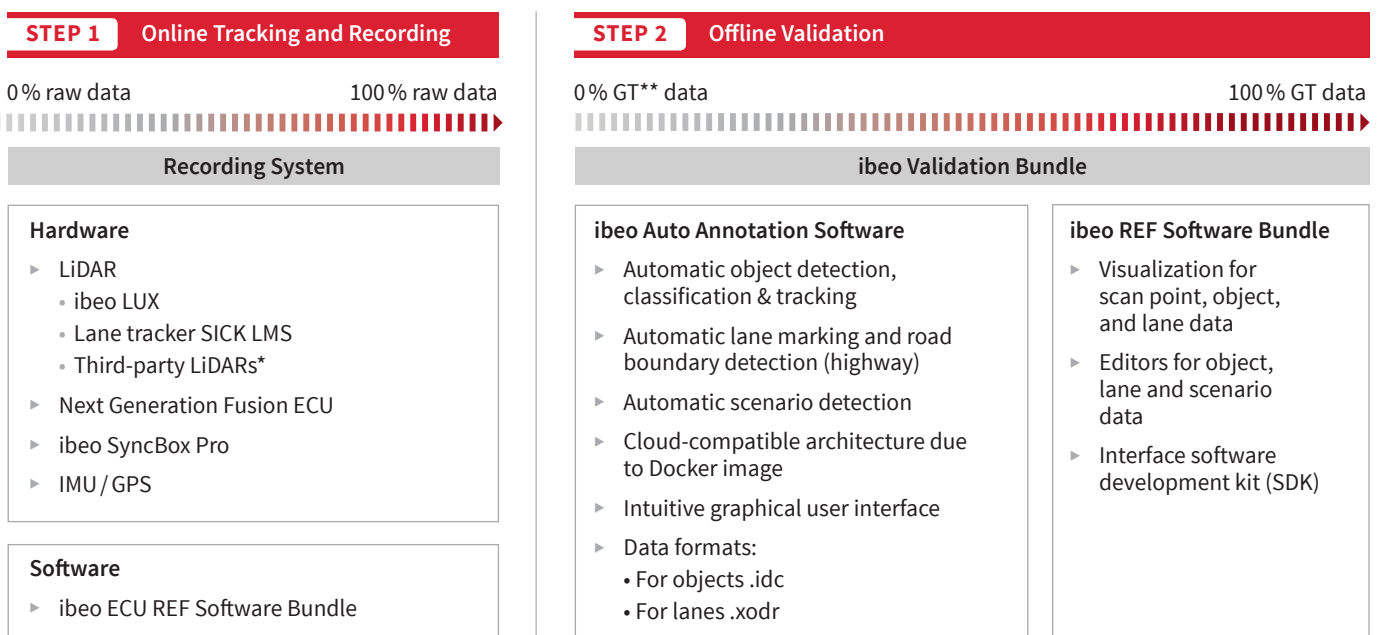
Enabler for Ground Truth Data Generation



Key Features

- ▶ Offers the complete toolchain from a single source
- ▶ Includes ibeo Auto Annotation software
 - Automatically annotates objects and lanes
 - Scalable due to cloud-compatible architecture
- ▶ Supports data of selected third-party LiDARs
- ▶ Allows for manual editing of objects and lanes
- ▶ Compatible with ibeo SyncBox Pro

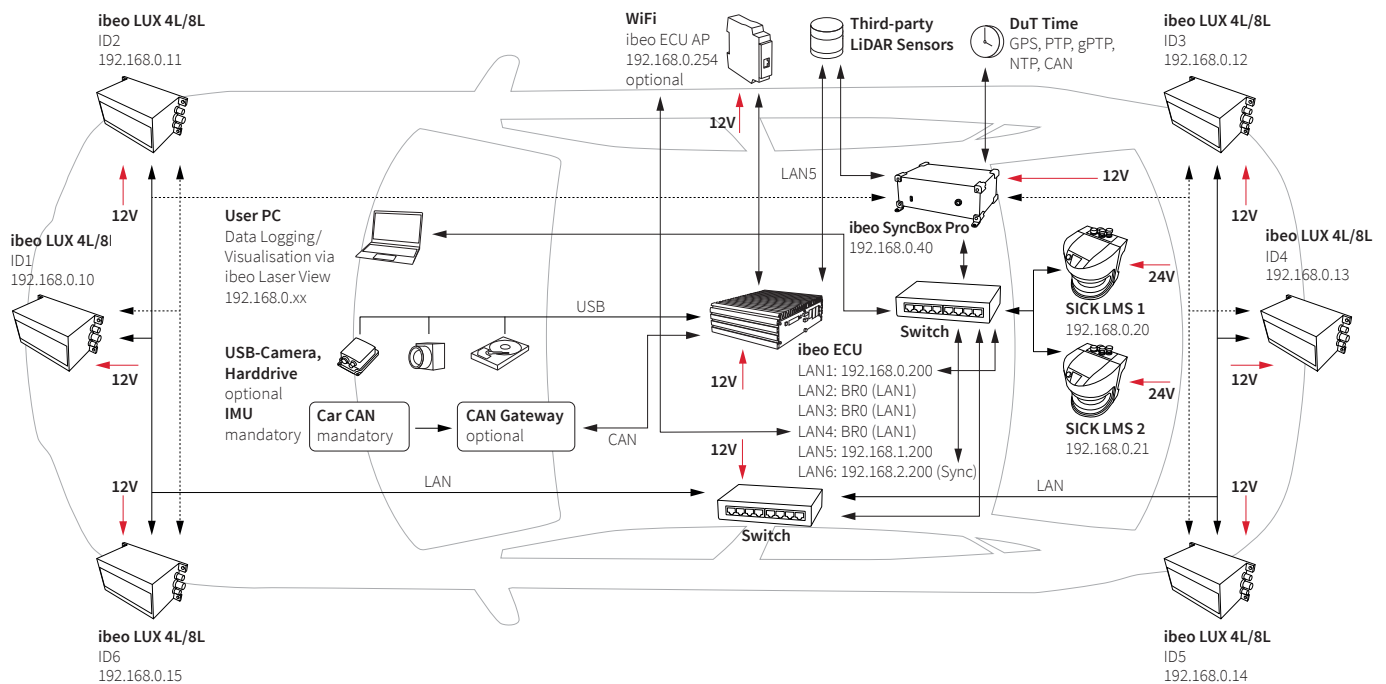
Reference Toolchain



*Selected third-party LiDAR hardware not in Ibeo's product portfolio; real-time object data not available

**GT = Ground Truth

System Architecture



The Ibeo Difference



Third-party LiDAR Data Support

- ▶ New ibeo.Reference toolchain now supports selected LiDAR devices from other suppliers
- ▶ Offers increased flexibility through support of third-party LiDAR devices (e.g., 360° LiDAR on the rooftop)
- ▶ Enables simultaneous operation of different devices to accommodate any use case



Object and Lane Editing

- ▶ Quick and intuitive tools to increase object and lane quality of the reference data manually
- ▶ Enables modification of objects and lanes, such as position, orientation, and classification
- ▶ Applies changes to the entire object track instead of frame-by-frame editing



ibeo SyncBox Pro

- ▶ Time management device that synchronizes all systems in the car to a single source of truth
- ▶ Able to function as leader clock or follower clock for each connected component or protocol
- ▶ Ensures data time quality of all systems in the car
- ▶ Supports all common time protocols (such as PPS & NMEA, gPTP/PTP, NTP, CAN) and can be configured to the use case accordingly
- ▶ Monitors synchronization status for various interfaces

This information has been put together with greatest care. However, any performance data given in this leaflet is subject to compliance with certain surrounding conditions and hence may vary from case to case. Further, we reserve the right to make changes at any time without notice. We strongly recommend (i) reconfirmation with Ibeo Automotive whether this information is still fully valid, before using it for final designs and (ii) to verify performance data taking into account the actual surrounding conditions. Ibeo Automotive takes no responsibility for any consequences due to non-compliance with these recommendations. (Subject to change without notice – 2021-03)