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Simcenter Prescan

Providing a physics-based simulation platform for ADAS and automated driving

Benefits
- Provides a physics-based simulation platform for ADAS and automated driving
- Delivers fully quantified and controlled testing conditions
- Enables user to perform design iterations quickly and cost effectively
- Reduces amount of work required to bring an ADAS and automated driving system to market

Summary
Simcenter Prescan™ software provides a physics-based simulation platform to prototype, test and validate your new advanced driver assistance system (ADAS). In contrast to real-world circumstances, conditions in Simcenter Prescan can always be fully quantified and controlled. Design iterations can be performed in a quick and cost-effective way by simply modifying the system's parameters and running the simulation again. Therefore, by using Simcenter Prescan you can significantly reduce the amount of work needed to bring an ADAS to the market. Simcenter Prescan delivers robust initial designs in the concept phase, rapid optimization in the development phase and a fast launch in the confirmation phase.

Application fields
- Autonomous emergency braking
- Adaptive cruise control
- Lane keeping assistance
- Lane change assistance
- Pedestrian detection
- Traffic sign recognition
- Parking assistance
- Connected driving (V2x)
- Automated driving
- Model-in-the-loop (MiL), software-in-the-loop (SiL), driver-in-the-loop (DiL), hardware-in-the-loop (HiL) and vehicle-in-the-loop (ViL)

Platform for virtual ADAS development
The platform for virtual ADAS development has advanced sensor simulation, flexible traffic and world modeling, automated execution of Monte Carlo studies and test automation programs.

Simcenter Prescan is fully open to third-party interfaces and supports industry standards like OpenDRIVE and OpenSCENARIO. For test automation, Siemens offers a verification and validation framework that can accommodate large-scale simulations, which includes Simcenter Prescan for simulation, Polarion™ software for Automotive for requirements management and HEEDS™ software for test orchestration. Third-party test automation can also be used.

Automated driving
Automated driving features include sensor fusion for cameras, radar, lidar (light detection and ranging), V2x, radio, map data, intelligent traffic and combining HIL and real-world testing.

Connected driving
Connected driving includes virtual design of connected vehicle systems and dedicated short range communications (DSRC) antenna models with

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message sets, such as the SAE J2735 and European Telecommunications Standards Institute (ETSI) standards, and HIL testing of radio units and application electronic control units (ECUs).

Protocol testing
Protocol testing features standard scenario databases for: European New Car Assessment Program (NCAP), National Highway Traffic Administration (NHTSA), International Organization for Standardization (ISO), United Nations Economic Commission for Europe (UNECE) and General German Automobile Association (ADAC).

Real-world testing
Real-world testing has night driving with realistic light sources and reflection models, and adverse weather with varying intensities of fog, rain and snow.

Hardware-in-the-loop
HiL includes real-time ECU testing for ADAS and automated driving, and evaluation of the ECU system with synthetic sensor signals.

Driver-in-the-Loop
DiL has driving simulators for ADAS and human machine interface (HMI), and real-time sensor simulation with flexible scenario definitions.

Automated scenario creation from test drive data
The automated scenario creation from test drive data includes automated conversion of IBEO Automotive Systems laser scanner data to Simcenter Prescan scenarios, and automated creation of Simcenter Prescan scenarios from your labeled test drive data.