embotech *

SAFE AND CERTIFIABLE AUTONOMOUS DRIVING DEMO

HIL Simulation of Level 4 autonomous driving with certifiable safety features. A collaboration between Embotech AG, NXP and dSPACE.

Level 4 autonomy requires that the vehicle is always able to perform a safe maneuver in the absence of a human driver. Our solution and demonstration involve a full redundancy system for both software and hardware. The high-performance motion planner, PRODRIVER® is executed in the NXP LS2048A. The trajectories generated by PRODRIVER® are sent to PROTECT®, which validates them. In parallel, trajectories are also computed by a backup PRODRIVER®, running a minimal set of functionalities in the fully independent S32G processor.

Should PROTECT® detect an issue with the nominal trajectory (e.g. does not pass a safety test), PROTECT® will switch to safety mode and send the trajectories generated by the backup PRODRIVER® which will perform a safety stop in an emergency lane as soon as it is safe and possible to do so.

PRODRIVER® performing L4 autonomous driving in a mix environment (highway, rural, urban).

Backup PRODRIVER® performs a reduced level of functionalities with the goal of a safe stop in the emergency lane, should an error be detected by PROTECT® during normal driving.