

Hardware Engineering and Controls

Embedded Software complexity continues its expansion into the core of automotive domain. Sophisticated functionalities, connectivity and active safety are key features of modern vehicle architecture.

Therefore, all the related testing activities play a central and significant role in the software development process. Since testing must be performed during early development stages to capture issues prior to production release, it typically has a significant impact on hardware resource availability, in terms of both target embedded controller and Hardware-in-the-loop (HIL) benches, with the related costs.

To be effective and efficient in this challenging contest, our Punch software experts introduced Virtual hardware Prototyping as innovative technology, on top of the Continuous Integration/Continuous Delivery (CI/CD), to maximize the testing capability at different levels. During the development phase, this solution helps to identify issues, both at unit testing level and at system integration level, replicating the real testing environment with virtual prototypes and consequently improving the number of testing platforms, and maximizing the related availability (HA) and stability, in a semi/full automation fashion.

The proposed solution is highly scalable, due to the efficient parallelization based on a grid of virtual nodes. The improved software quality, the cost containment, and the reduction of time to market, are just three of the tangible outcomes obtained by this adoption.