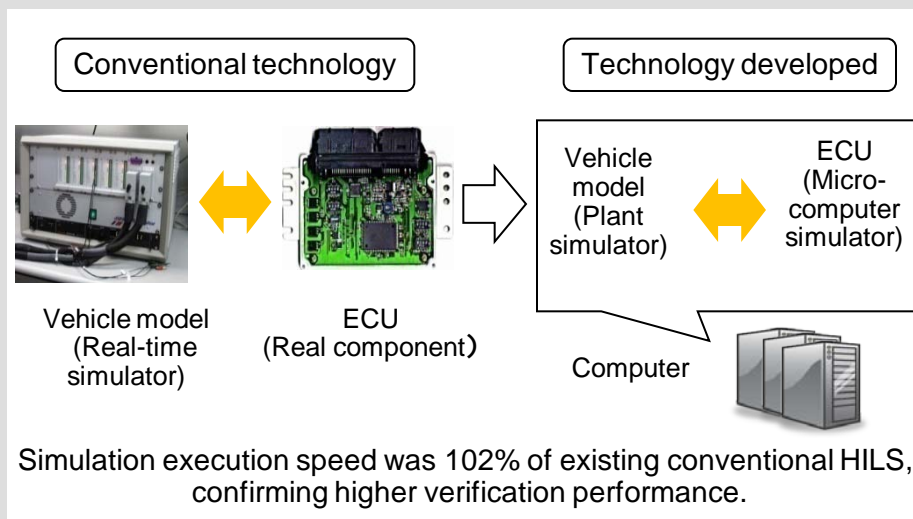


Vehicular & Transport Systems

Central Research Laboratory
Embedded Systems Research Department

Hitachi, Ltd., web site 【28th Oct 2010 News Release】 <http://www.hitachi.co.jp/New/cnews/month/2010/10/1028.html>

Virtual HILS for hardware-less tests on embedded control software for automotive systems



Hitachi, Ltd. has developed virtual hardware-in-the-loop simulation (HILS) technology to evaluate and verify the performance of embedded software such as those in electronic control units (ECU) of automotive vehicles without hardware, all on a computer.

By modeling both the ECU as well as the hardware such as engines and motors, virtual HILS allows evaluation and performance verification to be conducted in a completely virtual environment.

■ Characteristics

Technology was developed to allow the electrical signals from the ECU to run together with the digital signals from the computer conducting real-time calculations for the engine and carriage, through a high-speed communication interface allowing the development and design of embedded software to be conducted from a desktop computer without the use of real components.

■ Plan

We plan to apply this technology to product development in the Hitachi Group.

■ Conference presentation

These results were presented at the International Conference on Control, Automation and Systems 2010, which was held from 27th to 30th October, in Goyang city, Republic of Korea.

A word from the development team

In simulation area, the issue was to develop a communication model which could achieve both high speed while reproducing the accuracy of actual components. An environment was developed to verify the concept for automotive control systems. The next step will be to refine and increase its versatility for application in various product development.