Platform Independence
Thanks to New Standard

Standardized HIL API enables platform-independent HIL tests

Up to now, a lot of work was necessary to use existing tests on any HIL
simulator. With the new ASAM standard, HIL API, this is much easier.
The HIL API is a standardized interface to connect test automation tools
like AutomationDesk to any kind of HIL system. The result is that the test
automation software has a higher level of investment protection.

What Does HIL API Mean?

API stands for application program-
ming interface. The HIL API is a stan-
dardized interface that enables users
to access HIL simulators according to
a standardized method. Now, when
using the HIL API, they find it easier
to connect test automation tools
such as dSPACE AutomationDesk
to any kind of HIL simulator.

Why Does this Standard Exist?

The testing departments at numer-
ous OEMs and suppliers have
recently been asking dSPACE for
one single test automation tool for
accessing HIL simulators from dif-
ferent suppliers. The advantages
were obvious: Only one software
tool needs to be purchased,
test engineers only need to be trained

for one tool, and libraries are devel-
oped and maintained for just one
single tool. In addition, the soft-
ware's independence from the HIL
simulator guarantees that the soft-
ware has a high level of investment
protection.
dSPACE therefore set up a workgroup
with the goal of standardizing the
access to HIL simulators. Various OEMs,

suppliers and tool manufacturers sat together with the leading spokesman, Dr. Jobst Richert (dSPACE GmbH), to define the standard. In July 2009, ASAM (Association for Standardisation of Automation and Measuring Systems) officially adopted this standard, named as HIL API.

What Was Standardized?
Not only was the access to HIL simulators standardized, but also the access to electronic control units (ECUs). The HIL API is divided into the following areas:

to perform numerous adaptations to use the tests on a HIL simulator from another supplier. The HIL API makes the platform-independent development of tests development much easier: A HIL API-based test can be executed on another HIL system without any problems – provided that a HIL API interface was implemented for the other HIL simulator.

It makes no difference if users already have HIL simulators from different manufacturers, or simply do not want to decide on just one manufacturer.

users can benefit from the new standard's advantages right from the start. For more precise information on the release date for Automation-Desk 3.0, visit the dSPACE website.

How Does Hardware Replacement Work?
To reuse test sequences on different simulation hardware, all users have to do is to replace the underlying HIL API library. All manufacturers of simulation hardware that support the HIL API standard will provide the necessary library with the hardware. Users just have to click a button in AutomationDesk to specify which HIL API library they want to use, which will also determine the simulation hardware the tests will run on.

> With the HIL API, just a click is enough to use test sequences on different simulation hardware.

- Access to HIL simulators
- Access to ECUs during measurement and calibration
- Access to diagnostics
- Electrical failure simulation

How Do Users Benefit?
To develop ECU tests independently of HIL systems, test engineers previously needed to pay attention to defining and using abstraction layers when developing these tests. If they neglected to do so, they had

If their test automation tool already supports the HIL API, they are on the safe side and attain a high investment protection for their test software.

dSPACE will implement the HIL API for its HIL simulators and will adapt the test automation software AutomationDesk accordingly for the HIL API. Parts of the standard will be implemented as early as in the upcoming version of AutomationDesk (fall 2009). As a result, AutomationDesk

What's the Outlook?
In the future, the HIL API will be expanded in Version 2.0. For example, access to bus systems will be standardized. In addition, a further workgroup is currently working on standardizing a test exchange format. This will enable users to exchange the tests they created in AutomationDesk with other testing tools, or use tests in AutomationDesk that were created with a different tool. ∎

Using the HIL API in test automation leads to hardware independence.

AutomationDesk

3rd party HIL simulator