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AUTOMOTIVE NEWS

DEAR READERS,

This year my review is a pretty short one: "Together, we have moved a great deal." And from our discussions with you we know that you too see your collaboration with Softing Automotive as being successful.

Movement is certainly the best way of describing the future development of our industry. The megatrends, "digitalization", "Car2x", "E-drive" and "autonomous driving" are directly affecting Softing's core areas of expertise, diagnostics, measuring and testing. This is true for example of the hardware interfaces of measurement technology and communication platforms, which are meeting the coming challenges with new buses and protocols. The applications based on these must cover advanced analysis requirements and a larger data volume. We feel that being able to access functions remotely is an essential part of this: For you this means a significant increase in efficiency; for us a particular challenge in terms of architecture and security.

Within the company, 2017 will see us concerning ourselves in particular with the integration of functionalities that to date have been developed and marketed separately. This applies both to the communication solutions and diagnostics. So you can start looking forward to comprehensive solutions in which – as Aristoteles once said – the whole really is more than the sum of its parts.

It only remains for me to wish you and us continued success in 2017.

**Yours
Markus Steffelbauer**
Head of Product Management

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DATES 2017

May 30 – June 1, 2017 | Nuremberg, Germany
Sensor + Test

June 20 – 22, 2017 | Stuttgart, Germany
Testing Expo Europe

June 27 – 28, 2017 | Ludwigsburg, Germany
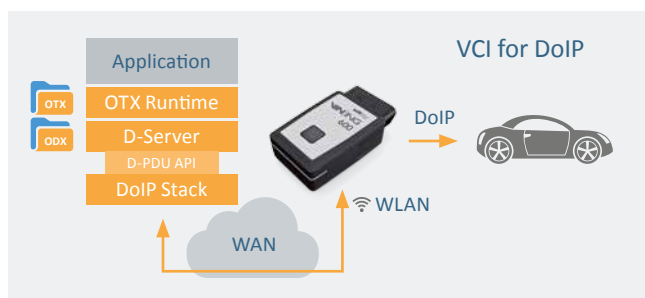**Progress in Automotive Electronics**

September 18 – 20, 2017 | Chicago, USA
SAE Comvec

September 19 – 21, 2017 | Shanghai, China
Testing Expo China

October 24 – 26, 2017 | Novi, USA
Testing Expo North America

SOTA over DoIP

Diagnostics over Internet Protocol (DoIP) is increasingly finding its way into modern vehicle architectures. The Ethernet-based communication protocol is a prerequisite for highly efficient vehicle access by the diverse range of applications in vehicle diagnostics and measurement data recording. An example of this is the software solution CAR ASYST APP for accessing Audi vehicle data.

Software Over The Air (SOTA) is becoming increasingly important for software updates for ECUs over a remote connection. As data communication primarily takes place in one direction here, a diagnostic system based on standards can be separated below the D-PDU API. Programming uses the MVCI D-Server and OTX Runtime. Once the DoIP protocol is started on the workstation, communication to the vehicle takes place via a Vehicle Communication Interface (VCI). Local mobile application cases can be covered by converting from WLAN to Ethernet in the VCI. Alternatively, a Wide Area Network (WAN) can be set up with access via hotspots and GSM. End-to-end encryption is possible thanks to security methods well established in IT.

▲ *Fig.: Diagnostic system for remote access*

ⓘ For more information:
https://automotive.softing.com/en/VINING-600

DIAGNOSTICS

SOFTING TDX – MODULAR KIT FOR REALIZING SERVICE TESTER APPLICATIONS

Softing TDX is a modular service kit based on the ISO standards ISO13209 (for OTX), ISO22901 (for ODX) and ISO22900 (for the MCD-3D basic diagnostic system). A modular service tester framework is available via system components. This is comprised of the components Softing TDX.studio and Softing TDX.workshop.

Softing TDX.studio is used for configuration and contains several tools for the creation of the communication authoring (ODX), the diagnostic sequences (OTX) and the service tester configuration. DTS Venice, a tried and tested Softing tool in the industry, is used in Softing TDX.studio to create, test the consistency of and manage ODX authoring. The GUI editor and the OTX-Wizard are available for specifying the OTX sequences. The GUI editor supports the convenient creation of interactive graphical interfaces with different objects (widgets) such as buttons, graphs and measuring instruments. OTX-Wizard is an OTX code generator for the simple creation of diagnostic sequences without in-depth programming knowledge. Different components from Softing or from proprietary libraries are easy to compile into a diagnostic sequence and are configured using the OTX-Wizard. If required, the generated OTX sequence can then be adapted and extended in Expert mode.

Softing TDX.workshop supports the running of diagnostic sequences or individual diagnostic services in the runtime environment OTX Runtime on the diagnostic server (ISO MVCI). The vehicle is connected to the diagnostic server via the standardized D-PDU-API interface and the VCI vehicle interface.

While the diagnostic sequences are running, the service tester application uses standardized OTX extensions to access individual interfaces, e.g. diagnostics, HMI or E/A. This ensures that the service tester always behaves in the same way even when using a different OTX runtime environment or HMI library and that it remains independent from the basic technology.

Over the API interface of RTX Runtime and the diagnostic server ISO MVCI, the implemented diagnostic sequences are also available to customized applications (user apps) if these are also required on the service diagnostic system.

▲ *Fig.: Softing TDX.studio and Softing TDX.workshop*

For more information:
https://automotive.softing.com/en/TDX

OTX RUNTIME – SOFTING'S HIGH-PERFORMANCE SOLUTION FOR DIAGNOSTIC SEQUENCES

NEW
- 64-bit support
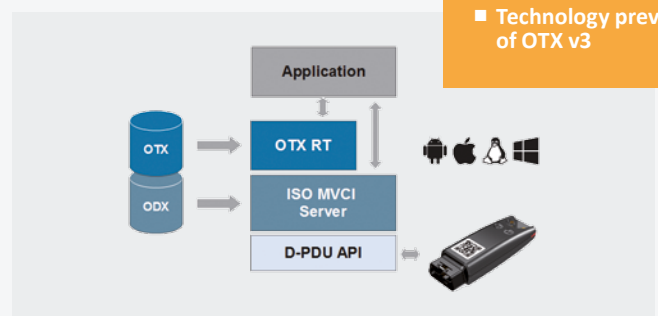- Technology preview of OTX v3

The OTX standard in accordance with ISO 13209 offers particular advantages thanks to its reliability and its independence from frequently changing IT industry standards. It enables the simple specification of test and flash sequences for ECUs.

OTX Runtime from Softing ensures that OTX sequences run both efficiently and smoothly. The runtime environment is integrated completely in the entire Softing tool landscape. Special extensions such as I/O Control simplify the use of the standard. Full access to the OTX-API facilitates the simple connection of proprietary applications.

Softing's OTX Runtime is being extended all the time. This means the new version now also supports 64-bit systems. And as this version was developed with a view to the technology preview for the new ISO OTX standard likely to be issued this year, you are already perfectly equipped for the future.

▲ *Fig.: Softing's OTX Runtime as an integral part of the entire diagnostic solution*

For more information:
https://automotive.softing.com/en/OTX

DIAGNOSTICS 4.0 – INCREASE IN COST EFFECTIVENESS AND QUALITY

The possibility of running applications regardless of position in the cloud and the performance of modern data networks are the basis of the next level of diagnostics: Diagnostics 4.0.

There is a general distinction between two complementary solution approaches: In remote diagnostics the familiar connection between the tester and the communication interface (the cable or WLAN route) is replaced by an IP network. This can, for example, be a local area network (LAN) via which the test engineer accesses, for example, a stationary test bench from his/her desk. But using a wide area network (WAN) is also possible. Here the access to vehicle data is mobile and global, for example during road tests.

In the case of cloud diagnostics, the diagnostic application runs independently in the network and automatically accesses all vehicles specified. The type of diagnostics as well as the vehicles to be diagnosed are loaded into the cloud using campaigns. The results are evaluated online, in real time or stored.

Softing is currently working on both diagnostic solutions: remote diagnostics for a considerable increase in efficiency for our customers and cloud diagnostics for a new quality of diagnostics.

▲ Fig.: DoIP and the right VCI – starting point for Diagnostics 4.0

For more information:
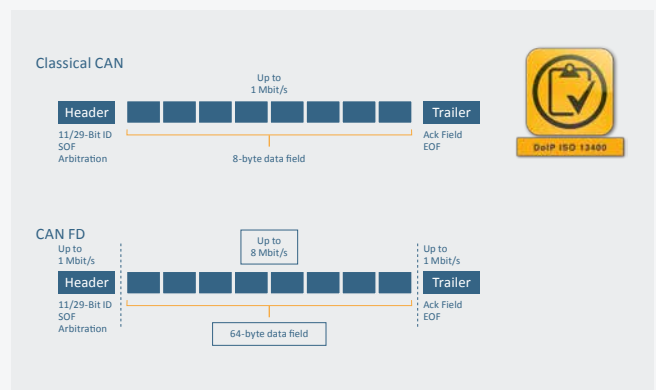https://automotive.softing.com/en/VINING-2000

SOFTING DTS – RELIABLE DIAGNOSTIC COMMUNICATION FOR YOUR VEHICLE DIAGNOSTICS

Large quantities of data and the enormous speed of diagnostic communication in vehicles are the current challenges in the automotive sector. But CAN with Flexible Data-Rate (CAN FD) is responding to this challenge by making void the restricting limits of the CAN bus in the future as far as the data rate is concerned. Furthermore, the Automotive Ethernet and Diagnostics over Internet Protocol (DoIP) are creating completely new ways of accessing vehicles.

Softing guarantees these important developments will be taken into account in the functionality of the Diagnostic Tool Set (DTS). This means future-proof, reliable diagnostics continue to be available. The smart diagnostic engine (sDE) plays a key role here as an efficient base system for diagnostics. On this basis, both queries to the vehicle and the replies can be made available for all kinds of applications in an intelligent way.

And this intelligence is not just limited to the base system. In fact it will also be integrated in the engineering tester application DTS Monaco. After long years of development and stabilization of the entire system during the course of standardization, completely new approaches are now being supported. Close integration into new operating system generations is planned for the future. This will result in the Diagnostic Tool Set looking more clearly integrated into these systems.

The next major milestone is planned for 2018. Naturally we will keep you informed of all developments in the coming editions of our newsletter.

▲ Fig.: MVCI D-Server on the VING|ING 2000

For more information:
https://automotive.softing.com/en/CAN-FD
https://automotive.softing.com/en/DoIP

MEASUREMENT TECHNOLOGY

PERFORMANCE, PERFORMANCE, PERFORMANCE

Ever faster bus systems, increasing numbers of channels, higher sampling rates – data hunger in vehicle testing is insatiable. And it goes without saying that all information has to be acquired with chronological synchronism and processed in real time.

The resulting need for bandwidth and computing power is satisfied with Softing's new vehicle PC with its state-of-the-art Intel i7 processor. Conventional PC hardware can also be used in the future for special applications. A PCIe plug-in card enables broadband connections with 1.25 GBit/s between the data acquisition and logging system.

And who benefits from this quantum leap in performance? In a networked world, it is in fact particularly the interfaces such as for example EtherCAT, Ethernet and USB. But also digital data sources such as cameras and wheel torque transducers look forward to a more efficient backend. And physics is also a winner: The latest measurement amplifier from Softing Measurement Technology now works with 1 MSPS – naturally per measurement channel.

Once the flow of data is banished to the SSD, Softing helps with efficient further processing. An MDF4-Viewer as well as efficient database connections, for example, are available for this purpose.

▲ Fig.: EtherCAT, Gigabit Ethernet and USB 3.0
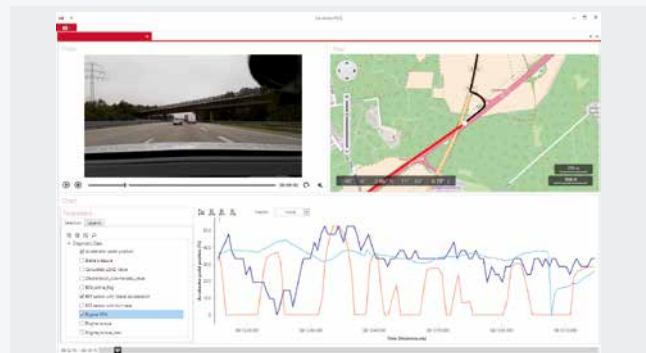
> For more information:
> **https://automotive.softing.com/en/MT**

CAR ASYST

CA ANALYTICS

CA ANALYTICS is a component of the CAR ASYST solution. As an easy-to-use, local PC application, it offers a clear overview of all vehicle data acquired with the mobile CAR ASYST APP. The innovative advantages of the new Audi electronic architecture can thus be used for convenient analysis directly on the PC. It is presently possible to evaluate the vehicle data of the current Audi models. As new Audi models become available in the future, the vehicle range of CAR ASYST and CA ANALYTICS is extended accordingly.

CA ANALYTICS supports service and repair shop technicians at Audi in error analysis. Alongside the acquired vehicle ECU data, GPS route information and video data are also available. For development engineers, CA ANALYTICS is the ideal tool for evaluating test drives and on-road tests.

▲ Fig.: CA ANALYTICS – synchronized views

> For more information:
> **https://car-asyst.com/en/CA-ANALYTICS**

NEW MEMBERS OF THE VIN|ING FAMILY

After the successful market launch of the first two interfaces VIN|ING 600 and VIN|ING 1000 of the new VIN|ING product family, the next communication platforms are now waiting in the wings.

VIN|ING 2000 is the successor to the tried and tested HSC diagnostic interface and covers new requirements of the vehicle industry with its extensive modifications. With its compact design and the realization of WLAN, LAN and USB as interfaces to the host system as well as CAN, K-line and Ethernet to the vehicle, the Vehicle Communication Interface (VCI) is particularly well suited for future-proof manufacturing and after-sales service applications.

Highly integrated components and a modular software architecture make it possible to run an MVCI diagnostic server and process the stored ODX data on the interface. This makes remote access to vehicles possible for tester systems in multiple mobile applications. The independent processing of OTX sequences on the VCI without a connection to a host system facilitates the execution of diagnostic tasks. This makes it possible to realize applications, such as independent programming solutions, actuator diagnostics and other control tasks, simply and at an acceptable price.
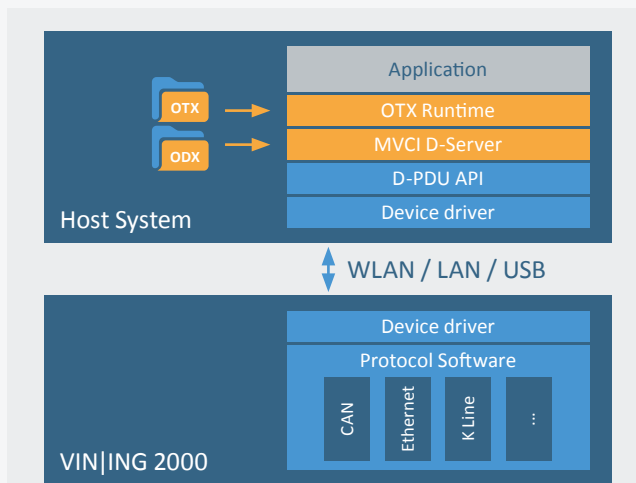
A further interface, the modular communication platform VIN|ING 3000, is currently being developed. The main board is equipped with a powerful SoC (System on Chip) and a large programmable FPGA module. By using up to six different slide-in modules, the perfect VCI can be put together very flexibly to suit the individual application case. This supports all standard vehicle interfaces such as Classical CAN, CAN FD, K-line, LIN, SENT, FlexRay and BroadR-Reach. Corresponding slide-in modules for the up to 24 separate physical interfaces can be selected and combined virtually any way required.
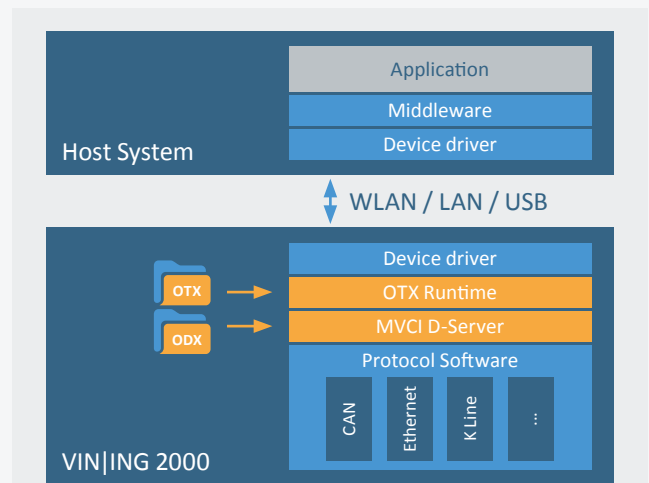
Coupled with the new VCI Communication Framework (VCF) from Softing, VIN|ING 3000 and VIN|ING 6000 are perfectly suited for data logging, bus analysis and residual bus simulation. These applications can be run in parallel to diagnostic communication on a standardized runtime system. The non-platform-specific VCF implementation enables the software to be used on the operating systems Windows, Linux, iOS and Android.

For more information:
https://automotive.softing.com/en/VINING-2000

▲ *Fig.: MVCI D-Server on the host system*

▲ *Fig.: MVCI D-Server on the VING|ING 2000*

REALIZATION OF INDIVIDUAL TEST BENCHES

Softing's extensive experience offers the basis for the realization of a wide range of systems and test possibilities ranging from flexible lab systems to fully automatic test systems. Thanks to an individual electromechanical setup and the use of standard hardware and software components, we realize the perfect solution for you with relatively minimal effort. Using NI Labview guarantees a high degree of flexibility and extendibility. And this helps us to implement your solution with your individual customized adaptations at top speed.

▲ Fig.: Component test bench for power-window motors

Characteristics of the Softing test benches

- Easy-to-use graphical interfaces
- Creation, editing and saving of engine profiles
- Editing and saving of test parameters
- Acquisition of measured variables such as voltages, currents, temperatures, torques and number of revolutions
- Graphical representation of measurement data progression during testing
- Implementation of various tests with one installation
- Creation and running of different load profiles
- Storage of the test results in accordance with customer specifications (e.g. CSV file, PDF file, etc.)

ⓘ For more information:
https://automotive.softing.com/en/Test_Units

Expertise with training sessions and seminars

You want to know all about vehicle diagnostics, flash programming, OTX, ODX and ECU communication fast – without having to spend lots of time studying relatively "dry" standards about vehicle protocols?

Our training team will provide you with the necessary knowledge and bring you up to date with all the latest technological details. We have put our knowledge and long years of experience into a compact and modular training program. The program consists of practice-oriented user workshops as well as in-depth theoretical seminars and are available in both English and German. We would be happy to tailor our training sessions to suit your individual requirements.

ⓘ For more information:
https://automotive.softing.com/en/Training

VISIT US AT

 www.automotive.softing.com

 www.twitter.com/softingAE

 www.youtube.com/SoftingAutomotive

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