

PRESS RELEASE

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## PLS' UDE 2025 enables efficient investigation of runtime errors with extended debug functions

Lauta (Germany), February 04, 2025 -The UDE® 2025 version of the Universal Debug Engine, presented by PLS Programmierbare Logik & Systeme for the first time at embedded world 2025 in Nuremberg in Hall 4, Stand 4-310, offers a whole range of new functions that make debugging and trace-based analysis of complex microcontroller applications easier for developers.

The UDE 2025 comes with a new Easy-to-work Home Screen that is extremely user friendly and helpful in everyday practice. Immediately after starting the program, users now have direct access to their most recently used debugger workspaces, sorted by time. Creating a new debugger session now also takes even less time thanks to the intuitive design.

The Execution Sequence Chart, which visualizes the chronological sequence of executed functions or operating system tasks, has been further optimized. It is now possible to search for a specific function by its name, which is especially helpful when dealing with large amounts of data recorded by trace. In addition, the navigation functions for tracing the program flow along the time axis have been expanded and improved. This means that function calls and returns can now be tracked very easily and efficiently directly via keyboard shortcuts.

The visualization of functions in the Execution Sequence Chart, the list view of the recorded program trace in the UDE Trace Window, and the call graph determined from the trace data can now be time-synchronized in UDE 2025. Developers can thus quickly switch between the individual views to efficiently and comprehensively examine the runtime behavior of the application at critical points.

For more detailed analysis of the timing behavior of real-time operating systems or AUTOSAR software, especially with timing analysis or visualization tools from third-party vendors, the UDE 2025 not only provides functions for recording traces in a user-friendly manner. It also offers convenient export functions for this data, which can then be imported into tools from Vector or INCHRON, for example, for further processing. The tool coupling for the timing analysis tool T1.timing from GLIWA is even closer. The interface to UDE

UDE 2025 is based on UDE's own software API for debug and test automation. This allows the direct integration of UDE functionalities into T1.timing, resulting in a particularly efficient and convenient workflow.

UDE's internal analysis functions for real-time operating systems have also been enhanced. Based on recorded trace data, the CPU load can now be measured statistically for the individual tasks over the entire observation time. This allows users to quickly and easily get initial indications for the optimization of real-time-critical applications.

The macro functions of the UDE 2025 also provide even greater ease of use than before. Whereas in the past only JavaScript and the outdated Visual Basic were available for macro programming, users can now also make use of the currently very popular scripting language Python.

The powerful debug and trace capabilities and the unique ease-of-use of the UDE 2025 are extremely useful for highly complex high-end microcontrollers such as the AURIX™ TC4Dx chip from Infineon, which has been available since the end of 2024, the RH850/U2C family from Renesas, the S32K31, S32K36 and i.MX RT1180 MCUs from NXP and the Stellar SR6 G6 line controller from STMicroelectronics. The UDE 2025 now also offers true multi-core debugging for the THA6 series from Tongxin Micro, China's first ASIL-D certified Arm® Cortex®-R52 with integrated Bosch Generic Timer Module (GTM).

For non-invasive system analysis and debugging of the runtime behavior of applications, the UDE 2025 offers broad support for hardware trace on microcontrollers. For example, for the AURIX™ TC4x family in particular, trace support has been extended to the PPU (Parallel Processing Unit). This allows the program flow of the accelerator core for AI applications based on the Synopsys ARC-EV core to be observed in parallel with the TriCore main cores. For the RH850/U2B MCU from Renesas, trace support now also includes the Bosch GTM integrated in this device. In addition to recording the GTM's own channel programs, signals from the GTM's extensive timer, signal processing and signal generation modules can also be recorded using Trace and visualized in the Universal Debug Engine.

A redesigned user interface has been introduced for the UDE® Memtool for programming on-chip flash or external flash memories. From now on, users will be guided step by step through the manual programming process, making the tool even easier to use than before.

The broad market launch of the UDE 2025 is planned for May this year.

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## **PLS Programmierbare Logik & Systeme GmbH**

PLS Programmierbare Logik & Systeme GmbH, based in Lauta (Germany), is the manufacturer of the debugger, test and trace framework Universal Debug Engine® (UDE®). Thanks to its innovative tools for embedded software development, PLS has developed into one of the technology leaders in this field since its foundation in 1990. The UDE combines powerful capabilities for debugging, testing and system-level analysis with efficiency and ease of use. The UAD2pro, UAD2next and UAD3+ access devices of the Universal Access Device (UAD) family complete the comprehensive debug functions of UDE and enable fast, robust and flexible communication with the target system. For further information about our company, products and services, please visit our website at [www.pls-mc.com](http://www.pls-mc.com).

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