



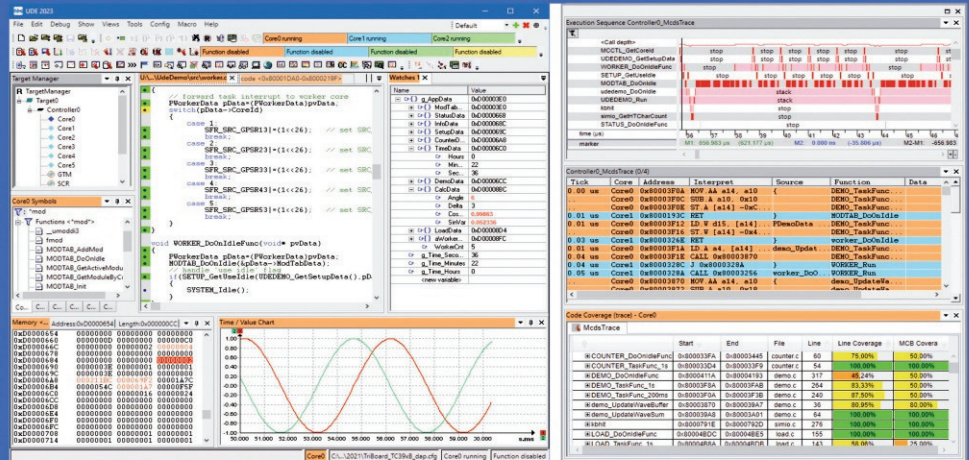
Universal Debug Engine®

Leading Edge in Debugging, Trace & Test

The Universal Debug Engine® UDE is a professional framework for debugging, trace and test of multi-core SoCs and microcontrollers. UDE combines a comprehensive feature set for HLL and assembler level debugging, run-time observation, system visualization and system-level analysis with efficiency and ease of use.

UDE 2023 Highlights

- Intuitive user interface with »Perspectives« feature
- Support for multi-screen operation
- UDE SimplyTrace for easy trace configuration
- Global time base for trace-based analysis functions
- AUTOSAR ARTI support
- Enhanced Execution Sequence Chart



Supported Microcontrollers

Infineon

AURIX TC4x, TC3xx, TC2xx, TriCore
Cortex XMC1xx, XMC4xxx
Cypress PSoC4

STMicroelectronics

Stellar E/P/G, STM32, STM32H7
Power Architecture:
SPC56, SPC57, SPC58

NXP

Cortex-A53 S32G, S32V
Cortex-R52 S32Z, S32E
Power Architecture MPC56,
MPC57, S32R
Cortex-M i.MX RT, S32K, Kinetis

Renesas

RH850, R-Car H3, RZ/T2M

Arm

Cortex-R52, Cortex-A53
Cortex-A8, Cortex-A9, Cortex-M33
Cortex-M / R / A, Armv7 / 9 / 11

Various vendors

e.g. RISC-V, Synopsys ARC
TI Jacinto, Sitara
Hilscher NETX 90
Xilinx ZYNQ7000
and more...

Multi-core debugging and trace

- Debug and trace for 32 and 64 bit MCUs
- Comfortable multi-core debugging and visualization
- Synchronous start, stop, and single step
- Flexible core groups and multi-core breakpoints
- Support for eTPU, GTM, HSM, SCR and PPU (ARC)
- Parallel capturing and visualization of multiple trace sources

Compiler, RTOS & AUTOSAR

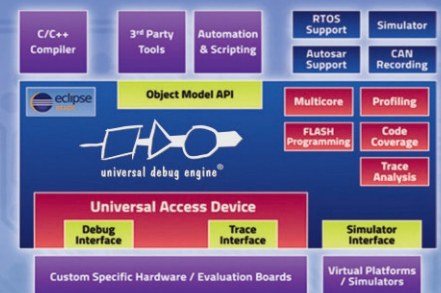
- Support for C/C++ cross compilers: HighTec, Tasking, Keil, ARM, Wind River, Green Hills, etc.
- RTOS awareness: FreeRTOS, SAFERTOS, OSEK, PXROS, PXROS-HR, CMX, µC/OSII, rcX
- AUTOSAR and ARTI support

Software API for tool automation

- Open software API
- Based on Microsoft Component Object Model (COM)
- Debug and test automation by scripting
- Support for Perl, Python, Java, VB Script, Power Shell
- Integrated Python console
- C/C++, .NET, etc.
- Tool interface for third-party tools

Trace data analysis at system level

- Visualization of task and code execution
- Code coverage without influence on runtime behavior
- Profiling provides runtime information for efficient detection of bottlenecks in applications
- UDE SimplyTrace for easy configuration of every days trace tasks
- Global time base for trace-based analysis functions
- Offline analysis of traces



Target interfaces and hosts

- Universal Access Devices UAD2^{pro}, UAD2^{next}, UAD3+
- Virtual prototypes / simulators
- Functional interfaces and protocols (CAN, XCP)
- Windows 10 / 11 (64 bit)
- Eclipse plug-in (64 bit) for UDE



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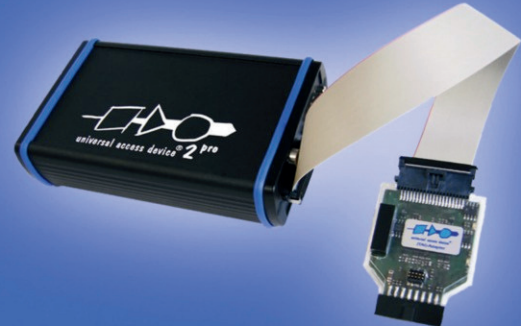
Universal Access Device

Leading Edge in Debugging, Trace & Test

The UAD Universal Access Device family completes UDE's full featured debug solution with a fast and robust access to the target systems. The flexible adapter concept of the UAD family supports a wide range of debug interfaces as well as on-chip and external trace solutions.

Smart debugging with UDE/UAD2^{pro}

- High speed USB 2.0 host interface
- Proven adapter solution for fastest and reliable target access: JTAG, DAP, SWD, OnCE, LPD, H-UDI
- Up to 50 MHz shift clock and 1.65 V - 5.5 V I/O voltage
- Electrically isolated target adapters (option)
- Combined connector for CAN and serial interface
- Support for on-chip trace buffer



Universal debug system UDE/UAD2^{next}

- High speed host interfaces: USB3, Gigabit Ethernet
- Proven adapter solution for fastest and reliable target access: JTAG, DAP, SWD, OnCE, LPD, H-UDI
- Up to 160 MHz shift clock and 1.65 V - 5.5 V I/O voltage
- ASC and CAN target interface, CAN FD available upon request
- Electrically isolated target adapters (option)
- Range Extender to bridge distances up to 2 meters between UAD2^{next} and target
- Easy extension by pluggable target specific trace modules
- AURORA serial high-speed trace with up to 1.25 Gbit/s
- Parallel trace with up to 12 bit @ 125 MHz DDR
- 512 MByte trace memory

High-end trace with UDE/UAD3+

- High speed host interfaces: USB 2.0, Gigabit Ethernet, IEEE1394b (FireWire-800)
- Fast multi-target access – up to 8 debug interfaces
- Proven adapter solution for fastest and reliable target access: JTAG, DAP, SWD, OnCE, LPD, H-UDI
- Separate debug pods for up to 5 meters distance to the target
- Up to 160 MHz shift clock and 1.65 V - 5.5 V I/O voltage
- Electrically isolated target adapters (option)
- Serial high-speed trace with max. overall bandwidth of 100 Gbit/s, up to 8 lanes @ 12.5 Gbit/s per lane
- Parallel trace with up to 20 bit @ 500 MHz
- Up to 8 GByte trace memory



PLS Programmierbare Logik & Systeme GmbH based in Germany is the manufacturer of the debugger, trace and test framework Universal Debug Engine® (UDE). Thanks to its innovative tools for embedded software development, PLS has become one of the technology leaders in this area and provides high-quality development tools to engineers worldwide since more than 30 years.



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Development Tools