

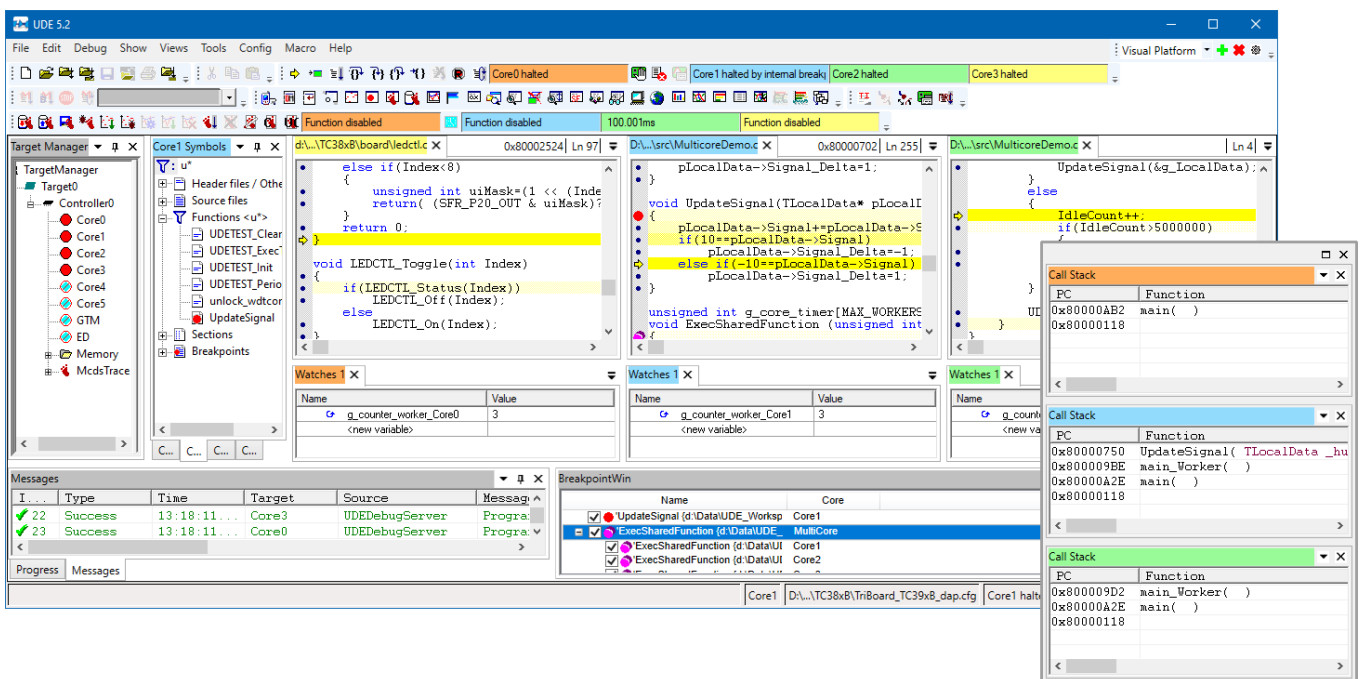
UDE Multi-Core Debugging

Synchronized Debugging of Multi-Core Applications

The Universal Debug Engine® (UDE) is a powerful development platform for debugging, testing and system analysis of microcontroller software applications. UDE enables efficient and convenient control and monitoring of multiple cores for a wide range of multi-core architectures within a single common user interface.

Easy-to-Use Debugger Framework

UDE offers a modern and user-friendly user interface that provides a system centric view rather than a core centric view of the multi-core system. The user interface allows a comprehensive and clear view of the entire system or, optionally, of selected parts.



- All cores are visible in a **single common user interface**
- Easy and fast creation of a debug session via a **guided setup process**
- **Preconfigured target configurations** for a large number of evaluation boards
- **UDE Target Manager** provides an overall view to the multi-core system as well as central functions for run-control
- **Core specific colors** for windows and toolbar controls to highlight their core association
- **Convenient window management** allows the debugger session to be adapted to the preferences of the user (e.g. docked windows, floating windows, multi-monitor operation)

Debug Synchronization

- Simultaneous stop, single step and restart of software execution running on different cores
- Utilization of on-chip debug functions for minimal latencies
- Support for homogeneous and heterogeneous multi-core systems including special cores (e.g. GTM, HSM, eTPU, and others)

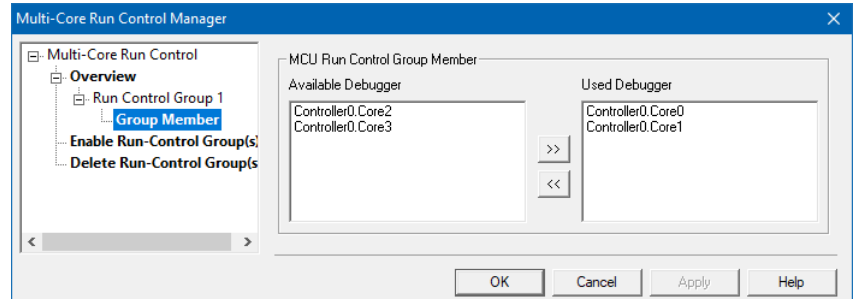
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Multi-Core Run Control

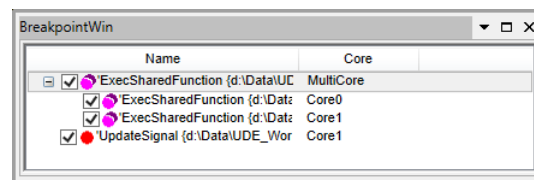
Users can configure multi-core debug synchronization very flexibly and according to their requirements. There are basically three operating modes supported by UDE for debugging multi-core applications:

- **Fully synchronized.**
Simultaneous stop, single step and restart of all cores.
- **Partially synchronized.**
Simultaneous stop, single step and restart of a group of selected cores. Independent run-control for all other cores.
- **No debug synchronization.**
Independent run-control for all cores.

UDE Multi-Core Run Control Manager enables flexible configuration and offers a user-friendly way of grouping cores in order to implement the intended synchronization mode.



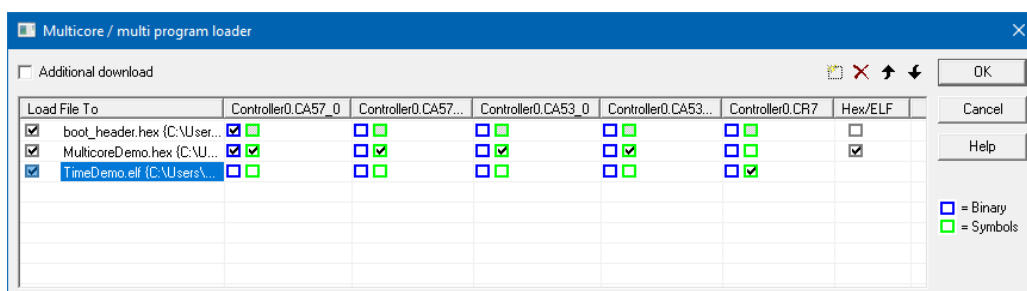
Multi-Core Breakpoints employed in shared code simplify debugging of complex applications. The Multi-Core Breakpoint always takes effect regardless of which core is currently executing the particular code.



Multi-Core / Multi-Program Loader

The UDE Multi-Core / Multi-Program Loader takes care of loading program binary files into the various cores of the multi-core system and manages the debug information that is used by the UDE.

- Support for monolithic program binaries (single ELF file) and separate ELF files per core
 - Support for various binary formats (e.g. ELF, HEX, AFX, etc.)
 - Manages architecture specific memory devices (e.g. shared program flash, core specific local memories)
- Assignment of debug information to cores



If you have any questions about our products, please feel free to contact us:

PLS Programmierbare Logik & Systeme GmbH
Technologiepark
D – 02991 Lauta
Germany

Phone: + 49 35722 384 – 0
Fax: + 49 35722 384 – 69

PLS Development Tools
19925 Stevens Creek Blvd
Cupertino, CA 95014
USA

Phone: +1 408 451 – 8408
Fax: +1 408 501 – 8808
Toll Free: +1 877 77DEBUG

Your local partner:

www.pls-mc.com
info@pls-mc.com

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