

## C500 Enhanced Hooks Emulation Technology™ On-Chip Debugging Hardware for High-End Emulation Support



All standard derivatives of the SIEMENS C500 family of 8-Bit CMOS controllers are featured with the new Enhanced Hooks Technology™ to facilitate full featured high-end In-Circuit Emulators, based on standard microcontroller devices.

### Features of Enhanced Hooks Technology™

- complete emulation of all operating characteristics of C500 cores
- realtime emulation for the complete clock range, e.g. SAB-C501 with 40 Mhz supported
- fully transparency for internal and external program execution
- ROM/ROM-less emulation support
- ROM emulation with code rollover
- complete emulation of future planned ROM devices
- debugging of on-chip ROM-mask programs on the target chip
- complete trace support for internal and external program execution
- hardware breakpoints supported internally and externally
- all internal SFR's accessible
- transparent program execution for embedded emulator functionalities like realtime trace, performance analysis, profiling capabilities and complex trigger conditions
- complete bondout functionality available with all standard C500 derivatives: bondouts not required any longer
- no different steppings between standard device and emulation device

The Enhanced Hooks embedded logic on the C500 cores allows real chip emulation with the functionality, equal to bondout chip based emulators at a significantly lower cost. The C500 implementation of Enhanced Hooks was a cooperative effort

- standardized interface between ICE and microcontroller core reduce costs for supporting new C500 derivatives
- emulator support nearly in-time available with the availability of new C500 derivatives

### Concept of Enhanced Hooks Emulation

- two chip system, consisting of C500 production chip and Enhanced Hooks Interface Circuit (EH-IC) provides complete functionality for transparent emulation
- Enhanced Hooks logic on C500 cores provides interface between ICE and microcontroller for emulation data exchange
- EH-IC passes data from C500 production chip (port 0, port 2, control signals) to the emulator system (emulation data) or to the target system (normal operating signals)
- remaining ports (port 1, port 3,...), which are not influenced by EH emulation, are directly connected to the target system

### Enhanced Hooks on C500 Cores

- EH-logic is integrated on all C500 production chips

between Siemens and MetaLink, who developed and patented the technology.

- C500 core can be run in normal mode or in EH-mode
- EH-mode can be entered at the end of reset sequence
- if EH-mode is activated, port 0, port 2 and some control signals have modified functionality, compared to standard mode of operation
- in EH operational mode, additional emulation data are transferred via port 0 and port 2 between emulator and production chip

### Enhanced Hooks Interface Circuit (EH-IC)

- interface circuit between C500 core, target system and ICE
- filter for emulation-data exchange between C500 core and ICE main system
- recreation of ports port 0 and port 2
- timing on recreated ports 0 and port 2 is 100% identical compared to original timing of the standard production chip
- recreation of control signals (ALE, PSEN, EA)
- recreation of special function registers (SFR's)
- accelerates the probe development task

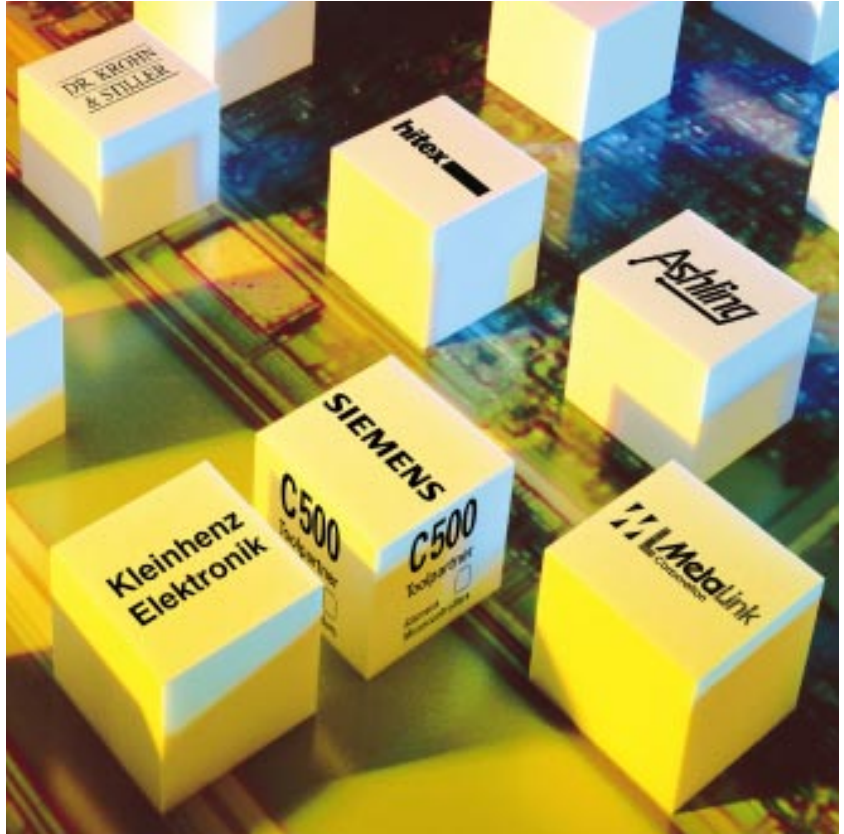
# C500

## Toolpartner

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### C500 Enhanced Hooks Emulation Configuration

