Description

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This VCI target is an hardware semaphore helper.

VCI-based systems may have some difficulties implementing proper locking of target components as this can be done on buses. As a side-effect, locks and other atomic-access-based software resources can't be used. This component solves this problem implementing the atomic-access-like features on target side.

This components has one bit of information stored on each 32-bit addressable word:

- When read, its current value is returned, and it is implicitly set to 1
- When written to, it is reset to 0.

This way:

- A spin lock is a simple loop waiting to read 0
- Releasing the lock is a simple write operation

Implementations

Caba implementation

The caba implementation is in

- source:trunk/soclib/systemc/include/caba/target/vci_locks.h
- source:trunk/soclib/systemc/src/caba/target/vci_locks.cc

Template parameters:

- The VCI parameters

Instanciation parameters

- Name
- Target's index
- Mapping Table reference

Ports

- p_vci: the VCI port
- p_resetn: Global system reset
- p_clk: Global system clock