

Processor Functional Description

This component is an ISS (Instruction Set Simulator), which can be wrapped in a CABA or TLM-T [Wrapper](#).

It implements all instructions defined in the MIPS32 architecture specification, with the following limitations:

- The floating point instructions are not supported
- The virtual memory instructions are not supported, as an external TLB (SoCLib generic MMU) is implemented in the VciVcacheWrapper? component.

Both little-endian and big-endian implementations are available.

Component definition & implementation

- source:trunk/soclib/soclib/lib/mips32/metadata/mips32.sd
- source:trunk/soclib/soclib/lib/mips32/include/mips32.h
- source:trunk/soclib/soclib/lib/mips32/src/mips32.cpp
- source:trunk/soclib/soclib/lib/mips32/src/mips32_cp0.cpp
- source:trunk/soclib/soclib/lib/mips32/src/mips32_hazard.cpp
- source:trunk/soclib/soclib/lib/mips32/src/mips32_instructions.cpp
- source:trunk/soclib/soclib/lib/mips32/src/mips32_load_store.cpp
- source:trunk/soclib/soclib/lib/mips32/src/mips32_run.cpp
- source:trunk/soclib/soclib/lib/mips32/src/mips32_special.cpp
- source:trunk/soclib/soclib/lib/mips32/src/mips32_special2.cpp
- source:trunk/soclib/soclib/lib/mips32/src/mips32_special3.cpp

Template parameters

This component has no template parameters.

Constructor parameters

Visible registers

The following internal registers define the processor internal state, and can be inspected:

- r_pc : Program counter
- m_ins : Instruction register
- r_gpr[i] : General registers ($0 < i < 32$)
- r_hi & r_lo : Intermediate registers for multiply / divide instructions
- r_cp0[i] : Coprocessor 0 registers ($0 \leq i < 32$). Implemented values:
 - ◆ 8: BAR : Bad address register
 - ◆ 12: SR : Status register
 - ◆ 13: CR : Cause register
 - ◆ 14: EPC : Exception PC register
 - ◆ 15: INFOS : CPU identification number on bits [9:0]

Interrupts

Mips defines 6 interrupts lines. ~~The lowest number has the hiest priority.~~ The handling and prioritization of the interrupts is deferred to software.

Ports

None, it is to the wrapper to provide them.