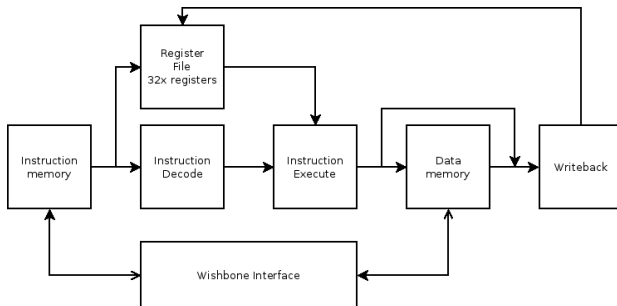


Architecture



Features

- Supports the complete 32-bit RISC-V base integer ISA (RV32I) version 2.0
- Supports machine mode as defined by the RISC-V supervisor extensions version 1.7
- Includes a hardware timer with microsecond resolution and compare interrupt
- 8 IRQ inputs that can be individually enabled
- Classic 5-stage RISC pipeline
- Instruction cache
- Wishbone interface
- Automatic test suite

Interface

The processor includes a wishbone interface conforming to the B4 revision of the wishbone specification.

Interface type	Master
Address port width	32 bits
Data port width	32 bits
Data port granularity	8 bits
Maximum operand size	32 bits
Endianness	Little
Sequence of data transfer	In-order

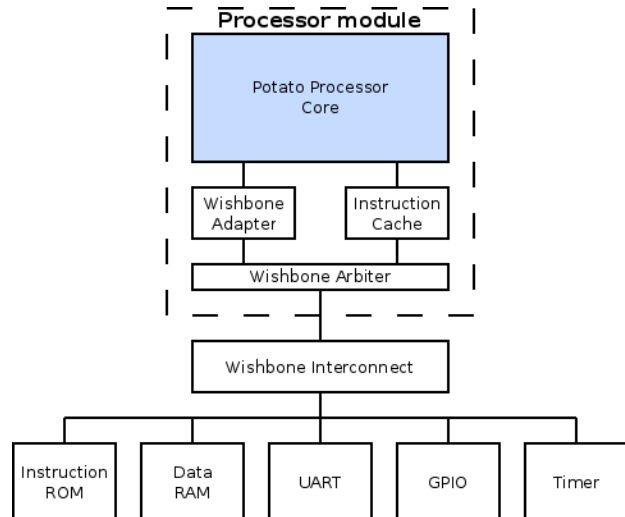
Programming

Tools for writing programmes for the RISC-V architecture are available from the RISC-V project, at:

<https://github.com/riscv/riscv-tools>

Use the `new_privileged_isa` branch to get tools that work with the current supervisor extensions.

Application



Signals

The processor is provided by a VHDL module named `pp_potato`. The signals of the module are all active high and are as follows:

Name	Width	Description
<code>clk</code>	1	Processor clock
<code>timer_clk</code>	1	10 MHz timer clock
<code>reset</code>	1	Reset signal
<code>irq</code>	8	IRQ inputs
<code>wb_adr_out</code>	32	Wishbone address
<code>wb_sel_out</code>	4	Wishbone byte select
<code>wb_cyc_out</code>	1	Wishbone cycle
<code>wb_stb_out</code>	1	Wishbone strobe
<code>wb_we_out</code>	1	Wishbone write enable
<code>wb_dat_out</code>	32	Wishbone data output
<code>wb_dat_in</code>	32	Wishbone data input
<code>wb_ack_in</code>	1	Wishbone acknowledge

Additional signals are used to implement a host-target interface used in the automatic testing environment. These signals have names starting with `fromhost` and `tohost` and should be left unconnected for normal use.

Specifications

The base RISC-V instruction set and the privileged extensions are available in the specifications published at:

<http://riscv.org/download.html>.