

# UNISIM

## ppcemu-system Simulator Manual

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### 1 Simulator technical reference (generated)

This documentation has been automatically generated from the simulator UNISIM `ppcemu-system` version 1.0beta6 on Dec 12 2014.

#### 1.1 Introduction

UNISIM `ppcemu-system` is a full system simulator of a board including a MPC7447A PowerPC processor, a MPC107 chipset, and supporting Linux boot. The simulated board is very similar to a PowerMac G4 PCI machine. Computations on IEEE 754 floating point numbers are emulated using `Simfloat++`. AltiVec instructions are currently decoded but not implemented. The running PowerPC application is a PowerMac Linux Kernel and all the applications installed on the hard disk image and/or the initial RAM disk image. Software running on the simulated hardware can be debugged by connecting a GDB client to the simulator through the GDB serial remote protocol. The GDB client can be either the standard text based client (i.e. `command gdb`), a graphical front-end to GDB (e.g. `ddd`), or even Eclipse CDT..

Section 1.2 gives licensing informations about the simulator. Section 1.3 shows the set of modules and services that compose the simulator. Section 1.4 shows how to invoke the simulator at the command line prompt. Section 1.5 gives the simulator parameters. Section 1.6 gives the simulator statistic counters. Section 1.7 gives the simulator statistic formulas.

#### 1.2 Licensing

UNISIM `ppcemu-system` 1.0beta6

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#### 1.3 Simulated configuration

The UNISIM `ppcemu-system` simulator is composed of the following modules and services:

- **bus**: Front side bus
- **cpu**: PowerPC MPC7447A CPU
- **debugger**
- **erom**: Memory
- **flash**: This module implements an AM29LV800BT flash memory with the following characteristics:
  - Manufacturer ID: 0x010000
  - Device ID word #0: 0xda2202
  - Size: 4194304 bytes

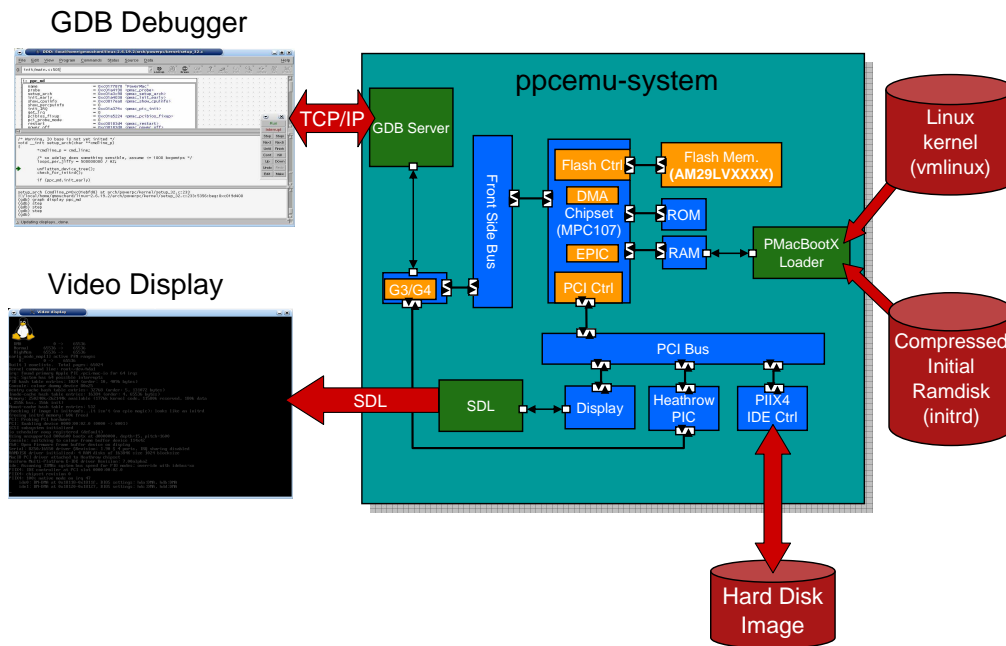


Figure 1: UNISIM ppcemu-system simulator schematic.

I/O width: 64 bits  
 Number of chips: 4 chips  
 I/O width per chip: 16 bits  
 Size per chip: 1048576 bytes  
 Number of Sectors: 19 sectors  
 8-bit mode support: yes  
 16-bit mode support: yes  
 Access time: 70 ns  
 Byte programming time: 9000 us  
 Word programming time: 110000 us  
 Sector erasing time: 700000000 us  
 Chip erasing time: 14000000000 us

- **gdb-server**: this service implements the GDB server remote serial protocol over TCP/IP. Standards GDB clients (e.g. gdb, eclipse, ddd) can connect to the simulator to debug the target application that runs within the simulator.
- **heathrow**: Heathrow Programmable Interrupt Controller (PIC)
- **host-time**: this service is an abstraction layer for the host machine time
- **i8042**: i8042 PS/2 keyboard/mouse controller
- **inline-debugger**: this service implements a built-in debugger in the terminal console
- **memory**: Memory
- **mpc107**: MPC107 chipset

- **mpc107.DMA**: MPC107 integrated Direct Memory Access (DMA) controller
- **mpc107.address\_mapper**: MPC107 Address mapper
- **mpc107.atu**: MPC107 integrated Address Translation Unit (ATU)
- **mpc107.epic**: MPC107 integrated Embedded Programmable Interrupt Controller (EPIC)
- **mpc107.pci\_controller**: MPC107 integrated PCI bus controller
- **pci-bus**: PCI bus
- **pci-display**: PCI Video frame buffer display
- **pci-ide**: PIIX4 IDE controller
- **pci-isa-bridge**: PCI-to-ISA bridge
- **pmac-linux-kernel-loader**: PowerMac Linux kernel loader
- **pmac-linux-kernel-loader.elf32-loader**: this service implements an ELF32 Loader
- **pmac-linux-kernel-loader.pmac-bootx**: This service is a PowerMac BootX loader emulator. It allows bootloading a PowerMac Linux kernel with its initial ramdisk and device tree
- **profiler**
- **sdl**: SDL (Simple DirectMedia Layer) wrapper
- **tee-memory-access-reporting**
- **tee-memory-access-reporting.tee-memory-access-reporting.control\_selector[0]**
- **tee-memory-access-reporting.tee-memory-access-reporting.control\_selector[10]**
- **tee-memory-access-reporting.tee-memory-access-reporting.control\_selector[11]**
- **tee-memory-access-reporting.tee-memory-access-reporting.control\_selector[12]**
- **tee-memory-access-reporting.tee-memory-access-reporting.control\_selector[13]**
- **tee-memory-access-reporting.tee-memory-access-reporting.control\_selector[14]**
- **tee-memory-access-reporting.tee-memory-access-reporting.control\_selector[15]**
- **tee-memory-access-reporting.tee-memory-access-reporting.control\_selector[1]**
- **tee-memory-access-reporting.tee-memory-access-reporting.control\_selector[2]**
- **tee-memory-access-reporting.tee-memory-access-reporting.control\_selector[3]**
- **tee-memory-access-reporting.tee-memory-access-reporting.control\_selector[4]**
- **tee-memory-access-reporting.tee-memory-access-reporting.control\_selector[5]**
- **tee-memory-access-reporting.tee-memory-access-reporting.control\_selector[6]**
- **tee-memory-access-reporting.tee-memory-access-reporting.control\_selector[7]**
- **tee-memory-access-reporting.tee-memory-access-reporting.control\_selector[8]**
- **tee-memory-access-reporting.tee-memory-access-reporting.control\_selector[9]**
- **time**: this service is an abstraction layer for the SystemC kernel time

## 1.4 Using the UNISIM ppccemu-system simulator

The UNISIM ppccemu-system simulator has the following command line options:

Usage: unisim-ppccemu-system-1.0beta6 [<options>] [...]

Options:

- `--set <param=value>` or `-s <param=value>`: set value of parameter 'param' to 'value'
- `--config <XML file>` or `-c <XML file>`: configures the simulator with the given XML configuration file
- `--get-config <XML file>` or `-g <XML file>`: get the simulator configuration XML file (you can use it to create your own configuration. This option can be combined with `-c` to get a new configuration file with existing variables from another file
- `--list` or `-l`: lists all available parameters, their type, and their current value
- `--warn` or `-w`: enable printing of kernel warnings
- `--doc <Latex file>` or `-d <Latex file>`: enable printing a latex documentation
- `--version` or `-v`: displays the program version information
- `--share-path <path>` or `-p <path>`: the path that should be used for the share directory (absolute path)
- `--help` or `-h`: displays this help

## 1.5 Configuration

Simulator configuration (see below) can be modified using command line Options `--set <param=value>` or `--config <config file>`.

Global	
<b>Name:</b> enable-gdb-server <b>Default:</b> true <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> Enable/Disable GDB server instantiation.	
<b>Name:</b> enable-inline-debugger <b>Default:</b> true <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> Enable/Disable inline debugger instantiation.	
<b>Name:</b> enable-press-enter-at-exit <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> Enable/Disable pressing key enter at exit.	
<b>Name:</b> estimate-power <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean

<b>Description:</b> Enable/Disable power estimators instantiation.	
<b>Name:</b> kernel_logger.file <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> Keep logger output in a file.	
<b>Name:</b> kernel_logger.filename <b>Default:</b> logger_output.txt	<b>Type:</b> parameter <b>Data type:</b> string
<b>Description:</b> Filename to keep logger output _(the option file must be activated).	
<b>Name:</b> kernel_logger.std_err <b>Default:</b> true <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> Show logger output through the standard error output.	
<b>Name:</b> kernel_logger.std_err_color <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> Colorize logger output through the standard error output _(only works if std_err is active).	
<b>Name:</b> kernel_logger.std_out <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> Show logger output through the standard output.	
<b>Name:</b> kernel_logger.std_out_color <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> Colorize logger output through the standard output _(only works if std_out is active).	
<b>Name:</b> kernel_logger.xml_file <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> Keep logger output in a file xml formatted.	
<b>Name:</b> kernel_logger.xml_file_gzipped <b>Default:</b> false	<b>Type:</b> parameter <b>Data type:</b> boolean

<b>Valid:</b> true, false	
<b>Description:</b> If the <code>xml_file</code> option is active, the output file will be compressed (a <code>.gz</code> extension will be automatically added to the <code>xml_filename</code> option).	
<b>Name:</b> <code>kernel_logger.xml_filename</code> <b>Default:</b> <code>logger_output.xml</code>	<b>Type:</b> parameter <b>Data type:</b> string
<b>Description:</b> Filename to keep logger xml output _(the option <code>xml_file</code> must be activated).	
<b>Name:</b> <code>message-spy</code> <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> Enable/Disable message spies instantiation.	
<b>bus</b>	
<b>Name:</b> <code>bus.verbose</code> <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable verbosity.	
<b>Name:</b> <code>bus.cycle-time</code> <b>Default:</b> 13333 ps	<b>Type:</b> parameter <b>Data type:</b> <code>sc_time</code>
<b>Description:</b> cycle time.	
<b>cpu</b>	
<b>Name:</b> <code>cpu.cpu-cycle-time</code> <b>Default:</b> 3333	<b>Type:</b> parameter <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> CPU cycle time in picoseconds.	
<b>Name:</b> <code>cpu.voltage</code> <b>Default:</b> 1300	<b>Type:</b> parameter <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> CPU voltage in mV.	
<b>Name:</b> <code>cpu.max-inst</code> <b>Default:</b> 18446744073709551615	<b>Type:</b> parameter <b>Data type:</b> unsigned 64-bit integer

<b>Description:</b> maximum number of instructions to simulate.	
<b>Name:</b> cpu.verbose-all <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> globally enable/disable verbosity.	
<b>Name:</b> cpu.verbose-setup <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable verbosity while setup.	
<b>Name:</b> cpu.verbose-step <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable verbosity when simulating an instruction.	
<b>Name:</b> cpu.verbose-dtlb <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable verbosity when accessing data translation lookahead buffer.	
<b>Name:</b> cpu.verbose-itlb <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable verbosity when accessing instruction translation lookahead buffer.	
<b>Name:</b> cpu.verbose-dl1 <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable verbosity when accessing L1 data cache.	
<b>Name:</b> cpu.verbose-il1 <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable verbosity when accessing L1 instruction cache.	
<b>Name:</b> cpu.verbose-l2 <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean

<b>Description:</b> enable/disable verbosity when accessing L2 unified cache.	
<b>Name:</b> cpu.verbose-load	<b>Type:</b> parameter
<b>Default:</b> false	<b>Data type:</b> boolean
<b>Valid:</b> true, false	
<b>Description:</b> enable/disable verbosity when simulating a load.	
<b>Name:</b> cpu.verbose-store	<b>Type:</b> parameter
<b>Default:</b> false	<b>Data type:</b> boolean
<b>Valid:</b> true, false	
<b>Description:</b> enable/disable verbosity when simulating a store.	
<b>Name:</b> cpu.verbose-read-memory	<b>Type:</b> parameter
<b>Default:</b> false	<b>Data type:</b> boolean
<b>Valid:</b> true, false	
<b>Description:</b> enable/disable verbosity when reading memory for a debug purpose.	
<b>Name:</b> cpu.verbose-write-memory	<b>Type:</b> parameter
<b>Default:</b> false	<b>Data type:</b> boolean
<b>Valid:</b> true, false	
<b>Description:</b> enable/disable verbosity when writing memory for a debug purpose.	
<b>Name:</b> cpu.verbose-exception	<b>Type:</b> parameter
<b>Default:</b> false	<b>Data type:</b> boolean
<b>Valid:</b> true, false	
<b>Description:</b> enable/disable verbosity when handling exceptions.	
<b>Name:</b> cpu.verbose-set-msr	<b>Type:</b> parameter
<b>Default:</b> false	<b>Data type:</b> boolean
<b>Valid:</b> true, false	
<b>Description:</b> enable/disable verbosity when setting MSR.	
<b>Name:</b> cpu.verbose-set-hid0	<b>Type:</b> parameter
<b>Default:</b> false	<b>Data type:</b> boolean
<b>Valid:</b> true, false	
<b>Description:</b> enable/disable verbosity when setting HID0.	
<b>Name:</b> cpu.verbose-set-hid1	<b>Type:</b> parameter
<b>Default:</b> false	<b>Data type:</b> boolean



<b>Valid:</b> true, false	
<b>Description:</b> enable/disable verbosity when setting HID1.	
<b>Name:</b> cpu.verbose-set-hid2	<b>Type:</b> parameter
<b>Default:</b> false	<b>Data type:</b> boolean
<b>Valid:</b> true, false	
<b>Description:</b> enable/disable verbosity when setting HID2.	
<b>Name:</b> cpu.verbose-set-l2cr	<b>Type:</b> parameter
<b>Default:</b> false	<b>Data type:</b> boolean
<b>Valid:</b> true, false	
<b>Description:</b> enable/disable verbosity when setting L2CR.	
<b>Name:</b> cpu.enable-linux-printk-snooping	<b>Type:</b> parameter
<b>Default:</b> false	<b>Data type:</b> boolean
<b>Valid:</b> true, false	
<b>Description:</b> enable/disable linux printk buffer snooping.	
<b>Name:</b> cpu.enable-linux-syscall-snooping	<b>Type:</b> parameter
<b>Default:</b> false	<b>Data type:</b> boolean
<b>Valid:</b> true, false	
<b>Description:</b> enable/disable linux syscall snooping.	
<b>Name:</b> cpu.trap-on-instruction-counter	<b>Type:</b> parameter
<b>Default:</b> 18446744073709551615	<b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> number of simulated instruction before trapping.	
<b>Name:</b> cpu.halt-on	<b>Type:</b> parameter
<b>Default:</b>	<b>Data type:</b> string
<b>Description:</b> Symbol or address where to stop simulation.	
<b>Name:</b> cpu.bus-cycle-time	<b>Type:</b> parameter
<b>Default:</b> 13333 ps	<b>Data type:</b> sc_time
<b>Description:</b> bus cycle time.	

<b>Name:</b> <code>cpu.nice-time</code> <b>Default:</b> 1 ms	<b>Type:</b> parameter <b>Data type:</b> <code>sc_time</code>
<b>Description:</b> maximum time between synchronizations.	
<b>Name:</b> <code>cpu.ipc</code> <b>Default:</b> 1	<b>Type:</b> parameter <b>Data type:</b> double precision floating-point
<b>Description:</b> targeted average instructions per second.	
<b>Name:</b> <code>cpu.enable-host-idle</code> <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> Enable/Disable host idle periods when target is idle.	
<b>debugger</b>	
<b>Name:</b> <code>debugger.verbose</code> <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> Enable/Disable verbosity.	
<b>Name:</b> <code>debugger.dwarf-to-html-output- ↔directory</code> <b>Default:</b>	<b>Type:</b> parameter <b>Data type:</b> string
<b>Description:</b> DWARF v2/v3 to HTML output directory.	
<b>Name:</b> <code>debugger.dwarf-register-number- ↔mapping-filename</code> <b>Default:</b> <code>powerpc_eabi_gcc_dwarf_register_ ↔number_mapping.xml</code>	<b>Type:</b> parameter <b>Data type:</b> string
<b>Description:</b> DWARF register number mapping filename.	
<b>Name:</b> <code>debugger.parse-dwarf</code> <b>Default:</b> true <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> Enable/Disable parsing of DWARF debugging informations.	

<b>Name:</b> debugger.debug-dwarf <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> Enable/Disable debugging of DWARF.	
<b>erom</b>	
<b>Name:</b> erom.org <b>Default:</b> 0x78000000	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> memory origin/base address.	
<b>Name:</b> erom.bytesize <b>Default:</b> 16777216	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> memory size in bytes.	
<b>Name:</b> erom.initial-byte-value <b>Default:</b> 0x00	<b>Type:</b> parameter <b>Data type:</b> unsigned 8-bit integer
<b>Name:</b> erom.verbose <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable verbosity.	
<b>Name:</b> erom.cycle-time <b>Default:</b> 13333 ps	<b>Type:</b> parameter <b>Data type:</b> sc_time
<b>Description:</b> RAM memory cycle time.	
<b>flash</b>	
<b>Name:</b> flash.verbose <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable verbosity.	
<b>Name:</b> flash.org <b>Default:</b> 0xff800000	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> flash memory base address.	

<b>Name:</b> flash.bytesize <b>Default:</b> 8388608	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> flash memory size in bytes.	
<b>Name:</b> flash.endian <b>Default:</b> big-endian <b>Valid:</b> little-endian, big-endian	<b>Type:</b> parameter <b>Data type:</b> endianness
<b>Description:</b> endianness of flash memory.	
<b>Name:</b> flash.sector-protect[0] <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable sector write protection.	
<b>Name:</b> flash.sector-protect[1] <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable sector write protection.	
<b>Name:</b> flash.sector-protect[2] <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable sector write protection.	
<b>Name:</b> flash.sector-protect[3] <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable sector write protection.	
<b>Name:</b> flash.sector-protect[4] <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable sector write protection.	
<b>Name:</b> flash.sector-protect[5] <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable sector write protection.	

<b>Name:</b> flash.sector-protect [6] <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable sector write protection.	
<b>Name:</b> flash.sector-protect [7] <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable sector write protection.	
<b>Name:</b> flash.sector-protect [8] <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable sector write protection.	
<b>Name:</b> flash.sector-protect [9] <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable sector write protection.	
<b>Name:</b> flash.sector-protect [10] <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable sector write protection.	
<b>Name:</b> flash.sector-protect [11] <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable sector write protection.	
<b>Name:</b> flash.sector-protect [12] <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable sector write protection.	
<b>Name:</b> flash.sector-protect [13] <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable sector write protection.	

<b>Name:</b> flash.sector-protect [14] <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable sector write protection.	
<b>Name:</b> flash.sector-protect [15] <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable sector write protection.	
<b>Name:</b> flash.sector-protect [16] <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable sector write protection.	
<b>Name:</b> flash.sector-protect [17] <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable sector write protection.	
<b>Name:</b> flash.sector-protect [18] <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable sector write protection.	
<b>Name:</b> flash.fsm-to-graphviz-output- ↪filename <b>Default:</b>	<b>Type:</b> parameter <b>Data type:</b> string
<b>Description:</b> FSM (finite state machine) to Graphviz output filename.	
<b>Name:</b> flash.cycle-time <b>Default:</b> 13333 ps	<b>Type:</b> parameter <b>Data type:</b> sc_time
<b>Description:</b> flash memory cycle time.	
<b>gdb-server</b>	
<b>Name:</b> gdb-server.memory-atom-size <b>Default:</b> 0x00000001	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer

<b>Description:</b> size of the smallest addressable element in memory.	
<b>Name:</b> gdb-server.tcp-port <b>Default:</b> 1234	<b>Type:</b> parameter <b>Data type:</b> signed 32-bit integer
<b>Description:</b> TCP/IP port to listen waiting for a GDB client connection.	
<b>Name:</b> gdb-server.architecture-description ↔filename <b>Default:</b> gdb_powerpc.xml	<b>Type:</b> parameter <b>Data type:</b> string
<b>Description:</b> filename of a XML description of the connected processor.	
<b>Name:</b> gdb-server.verbose <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> Enable/Disable verbosity.	
<b>heathrow</b>	
<b>Name:</b> heathrow.verbose <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable verbosity.	
<b>Name:</b> heathrow.initial-base-addr <b>Default:</b> 0xf3000000	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> initial base address of memory space.	
<b>Name:</b> heathrow.pci-device-number <b>Default:</b> 0x00000001	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> PCI device number.	
<b>Name:</b> heathrow.bus-frequency <b>Default:</b> 33	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> bus frequency in Mhz.	

<b>Name:</b> heathrow.pci-bus-frequency <b>Default:</b> 33	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> PCI bus frequency in Mhz.	
<b>i8042</b>	
<b>Name:</b> i8042.isa-bus-frequency <b>Default:</b> 8	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> ISA bus frequency in Mhz.	
<b>Name:</b> i8042.fsb-frequency <b>Default:</b> 75	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> front side bus frequency in Mhz.	
<b>Name:</b> i8042.typematic-rate <b>Default:</b> 30	<b>Type:</b> parameter <b>Data type:</b> double precision floating-point
<b>Description:</b> typematic rate (key strokes per second).	
<b>Name:</b> i8042.typematic-delay <b>Default:</b> 0.25	<b>Type:</b> parameter <b>Data type:</b> double precision floating-point
<b>Description:</b> typematic delay (key repeat delay in seconds).	
<b>Name:</b> i8042.speed-boost <b>Default:</b> 30	<b>Type:</b> parameter <b>Data type:</b> double precision floating-point
<b>Description:</b> speed-boost factor.	
<b>Name:</b> i8042.verbose <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable verbosity.	
<b>inline-debugger</b>	



<b>Name:</b> inline-debugger.memory-atom- ↪size <b>Default:</b> 0x00000001	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> size of the smallest addressable element in memory.	
<b>Name:</b> inline-debugger.search-path <b>Default:</b>	<b>Type:</b> parameter <b>Data type:</b> string
<b>Description:</b> Search path for source (separated by ';').	
<b>Name:</b> inline-debugger.init-macro <b>Default:</b>	<b>Type:</b> parameter <b>Data type:</b> string
<b>Description:</b> path to initial macro to run when debugger starts.	
<b>Name:</b> inline-debugger.output <b>Default:</b>	<b>Type:</b> parameter <b>Data type:</b> string
<b>Description:</b> path to output file where to redirect the debugger outputs.	
<b>memory</b>	
<b>Name:</b> memory.org <b>Default:</b> 0x00000000	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> memory origin/base address.	
<b>Name:</b> memory.bytesize <b>Default:</b> 536870912	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> memory size in bytes.	
<b>Name:</b> memory.initial-byte-value <b>Default:</b> 0x00	<b>Type:</b> parameter <b>Data type:</b> unsigned 8-bit integer
<b>Name:</b> memory.verbose <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable verbosity.	

<b>Name:</b> memory.cycle-time <b>Default:</b> 13333 ps	<b>Type:</b> parameter <b>Data type:</b> sc_time
<b>Description:</b> RAM memory cycle time.	
<b>mpc107</b>	
<b>Name:</b> mpc107.verbose <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable verbosity.	
<b>Name:</b> mpc107.host_mode <b>Default:</b> true <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable host mode.	
<b>Name:</b> mpc107.a_address_map <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable address map A.	
<b>Name:</b> mpc107.memory_32bit_data_bus_↔size <b>Default:</b> true <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable 32-bit data bus width.	
<b>Name:</b> mpc107.rom0_8bit_data_bus_↔size <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable rom #0 8-bit data bus width.	
<b>Name:</b> mpc107.rom1_8bit_data_bus_↔size <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable rom #1 8-bit data bus width.	
<b>Name:</b> mpc107.frequency	<b>Type:</b> parameter

<b>Default:</b> 75	<b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> frequency in Mhz.	
<b>Name:</b> mpc107.sdram_cycle_time	<b>Type:</b> parameter
<b>Default:</b> 13333	<b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> SDRAM cycle time in picoseconds.	
<b>mpc107.DMA</b>	
<b>Name:</b> mpc107.DMA.verbose	<b>Type:</b> parameter
<b>Default:</b> false	<b>Data type:</b> boolean
<b>Valid:</b> true, false	
<b>Description:</b> Enable/Disable verbosity.	
<b>mpc107.address_mapper</b>	
<b>Name:</b> mpc107.address_mapper.verbose	<b>Type:</b> parameter
<b>Default:</b> false	<b>Data type:</b> boolean
<b>Valid:</b> true, false	
<b>Description:</b> enable/disable verbosity.	
<b>mpc107.atu</b>	
<b>Name:</b> mpc107.atu.verbose	<b>Type:</b> parameter
<b>Default:</b> false	<b>Data type:</b> boolean
<b>Valid:</b> true, false	
<b>Description:</b> enable/disable verbosity.	
<b>mpc107.epic</b>	
<b>Name:</b> mpc107.epic.verbose	<b>Type:</b> parameter
<b>Default:</b> false	<b>Data type:</b> boolean
<b>Valid:</b> true, false	
<b>Description:</b> enable/disable verbosity.	
<b>mpc107.pci_controller</b>	
<b>Name:</b> mpc107.pci_controller.verbose	<b>Type:</b> parameter
<b>Default:</b> false	<b>Data type:</b> boolean
<b>Valid:</b> true, false	
<b>Description:</b> enable/disable verbosity.	

<b>pci-bus</b>	
<b>Name:</b> pci-bus.verbose <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable verbosity.	
<b>Name:</b> pci-bus.num-mappings <b>Default:</b> 10	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> total number of address mappings.	
<b>Name:</b> pci-bus.base-address[0] <b>Default:</b> 0x00000000	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: base address of mapped device.	
<b>Name:</b> pci-bus.base-address[1] <b>Default:</b> 0xf3000000	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: base address of mapped device.	
<b>Name:</b> pci-bus.base-address[2] <b>Default:</b> 0x00018100	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: base address of mapped device.	
<b>Name:</b> pci-bus.base-address[3] <b>Default:</b> 0x00018108	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: base address of mapped device.	
<b>Name:</b> pci-bus.base-address[4] <b>Default:</b> 0x00000004	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: base address of mapped device.	
<b>Name:</b> pci-bus.base-address[5] <b>Default:</b> 0x0000000c	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: base address of mapped device.	

<b>Description:</b> mapping: base address of mapped device.	
<b>Name:</b> pci-bus.base-address[6] <b>Default:</b> 0x00018118	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: base address of mapped device.	
<b>Name:</b> pci-bus.base-address[7] <b>Default:</b> 0xa0000000	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: base address of mapped device.	
<b>Name:</b> pci-bus.base-address[8] <b>Default:</b> 0x00000000	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: base address of mapped device.	
<b>Name:</b> pci-bus.base-address[9] <b>Default:</b> 0x000a0000	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: base address of mapped device.	
<b>Name:</b> pci-bus.size[0] <b>Default:</b> 1073741824	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: size in bytes of mapped device.	
<b>Name:</b> pci-bus.size[1] <b>Default:</b> 524288	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: size in bytes of mapped device.	
<b>Name:</b> pci-bus.size[2] <b>Default:</b> 8	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: size in bytes of mapped device.	
<b>Name:</b> pci-bus.size[3] <b>Default:</b> 4	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer

<b>Description:</b> mapping: size in bytes of mapped device.	
<b>Name:</b> pci-bus.size[4] <b>Default:</b> 8	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: size in bytes of mapped device.	
<b>Name:</b> pci-bus.size[5] <b>Default:</b> 4	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: size in bytes of mapped device.	
<b>Name:</b> pci-bus.size[6] <b>Default:</b> 16	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: size in bytes of mapped device.	
<b>Name:</b> pci-bus.size[7] <b>Default:</b> 8388608	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: size in bytes of mapped device.	
<b>Name:</b> pci-bus.size[8] <b>Default:</b> 65536	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: size in bytes of mapped device.	
<b>Name:</b> pci-bus.size[9] <b>Default:</b> 393216	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: size in bytes of mapped device.	
<b>Name:</b> pci-bus.device-number[0] <b>Default:</b> 0x00000000	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: device number.	
<b>Name:</b> pci-bus.device-number[1] <b>Default:</b> 0x00000001	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer

<b>Description:</b> mapping: device number.	
<b>Name:</b> pci-bus.device-number [2] <b>Default:</b> 0x00000002	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: device number.	
<b>Name:</b> pci-bus.device-number [3] <b>Default:</b> 0x00000002	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: device number.	
<b>Name:</b> pci-bus.device-number [4] <b>Default:</b> 0x00000002	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: device number.	
<b>Name:</b> pci-bus.device-number [5] <b>Default:</b> 0x00000002	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: device number.	
<b>Name:</b> pci-bus.device-number [6] <b>Default:</b> 0x00000002	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: device number.	
<b>Name:</b> pci-bus.device-number [7] <b>Default:</b> 0x00000003	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: device number.	
<b>Name:</b> pci-bus.device-number [8] <b>Default:</b> 0x00000004	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: device number.	

<b>Name:</b> pci-bus.device-number [9] <b>Default:</b> 0x00000004	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: device number.	
<b>Name:</b> pci-bus.target-port [0] <b>Default:</b> 0	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: target port number.	
<b>Name:</b> pci-bus.target-port [1] <b>Default:</b> 1	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: target port number.	
<b>Name:</b> pci-bus.target-port [2] <b>Default:</b> 2	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: target port number.	
<b>Name:</b> pci-bus.target-port [3] <b>Default:</b> 2	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: target port number.	
<b>Name:</b> pci-bus.target-port [4] <b>Default:</b> 2	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: target port number.	
<b>Name:</b> pci-bus.target-port [5] <b>Default:</b> 2	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: target port number.	
<b>Name:</b> pci-bus.target-port [6] <b>Default:</b> 2	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: target port number.	



<b>Name:</b> pci-bus.target-port [7] <b>Default:</b> 3	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: target port number.	
<b>Name:</b> pci-bus.target-port [8] <b>Default:</b> 4	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: target port number.	
<b>Name:</b> pci-bus.target-port [9] <b>Default:</b> 4	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: target port number.	
<b>Name:</b> pci-bus.register-number [0] <b>Default:</b> 0x00000010	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: BAR offset in PCI device configuration space.	
<b>Name:</b> pci-bus.register-number [1] <b>Default:</b> 0x00000010	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: BAR offset in PCI device configuration space.	
<b>Name:</b> pci-bus.register-number [2] <b>Default:</b> 0x00000010	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: BAR offset in PCI device configuration space.	
<b>Name:</b> pci-bus.register-number [3] <b>Default:</b> 0x00000014	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: BAR offset in PCI device configuration space.	
<b>Name:</b> pci-bus.register-number [4] <b>Default:</b> 0x00000018	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: BAR offset in PCI device configuration space.	

<b>Name:</b> pci-bus.register-number [5] <b>Default:</b> 0x0000001c	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: BAR offset in PCI device configuration space.	
<b>Name:</b> pci-bus.register-number [6] <b>Default:</b> 0x00000020	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: BAR offset in PCI device configuration space.	
<b>Name:</b> pci-bus.register-number [7] <b>Default:</b> 0x00000010	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: BAR offset in PCI device configuration space.	
<b>Name:</b> pci-bus.register-number [8] <b>Default:</b> 0x00000010	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: BAR offset in PCI device configuration space.	
<b>Name:</b> pci-bus.register-number [9] <b>Default:</b> 0x00000014	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> mapping: BAR offset in PCI device configuration space.	
<b>Name:</b> pci-bus.addr-type [0] <b>Default:</b> mem <b>Valid:</b> mem, i/o, cfg	<b>Type:</b> parameter <b>Data type:</b> pci space
<b>Description:</b> mapping: address space type.	
<b>Name:</b> pci-bus.addr-type [1] <b>Default:</b> mem <b>Valid:</b> mem, i/o, cfg	<b>Type:</b> parameter <b>Data type:</b> pci space
<b>Description:</b> mapping: address space type.	
<b>Name:</b> pci-bus.addr-type [2] <b>Default:</b> i/o <b>Valid:</b> mem, i/o, cfg	<b>Type:</b> parameter <b>Data type:</b> pci space
<b>Description:</b> mapping: address space type.	

<b>Name:</b> pci-bus.addr-type[3] <b>Default:</b> i/o <b>Valid:</b> mem, i/o, cfg	<b>Type:</b> parameter <b>Data type:</b> pci space
<b>Description:</b> mapping: address space type.	
<b>Name:</b> pci-bus.addr-type[4] <b>Default:</b> i/o <b>Valid:</b> mem, i/o, cfg	<b>Type:</b> parameter <b>Data type:</b> pci space
<b>Description:</b> mapping: address space type.	
<b>Name:</b> pci-bus.addr-type[5] <b>Default:</b> i/o <b>Valid:</b> mem, i/o, cfg	<b>Type:</b> parameter <b>Data type:</b> pci space
<b>Description:</b> mapping: address space type.	
<b>Name:</b> pci-bus.addr-type[6] <b>Default:</b> i/o <b>Valid:</b> mem, i/o, cfg	<b>Type:</b> parameter <b>Data type:</b> pci space
<b>Description:</b> mapping: address space type.	
<b>Name:</b> pci-bus.addr-type[7] <b>Default:</b> mem <b>Valid:</b> mem, i/o, cfg	<b>Type:</b> parameter <b>Data type:</b> pci space
<b>Description:</b> mapping: address space type.	
<b>Name:</b> pci-bus.addr-type[8] <b>Default:</b> i/o <b>Valid:</b> mem, i/o, cfg	<b>Type:</b> parameter <b>Data type:</b> pci space
<b>Description:</b> mapping: address space type.	
<b>Name:</b> pci-bus.addr-type[9] <b>Default:</b> mem <b>Valid:</b> mem, i/o, cfg	<b>Type:</b> parameter <b>Data type:</b> pci space
<b>Description:</b> mapping: address space type.	
<b>Name:</b> pci-bus.frequency <b>Default:</b> 33	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> frequency in Mhz.	

<b>pci-display</b>	
<b>Name:</b> pci-display.verbose <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable verbosity.	
<b>Name:</b> pci-display.width <b>Default:</b> 640	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> screen width in pixels.	
<b>Name:</b> pci-display.height <b>Default:</b> 480	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> screen height in pixels.	
<b>Name:</b> pci-display.depth <b>Default:</b> 15	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> screen depth in bits per pixel.	
<b>Name:</b> pci-display.bytesize <b>Default:</b> 8388608	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> frame buffer size in bytes.	
<b>Name:</b> pci-display.initial-base-addr <b>Default:</b> 0xa0000000	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> initial base address of memory space.	
<b>Name:</b> pci-display.pci-device-number <b>Default:</b> 0x00000003	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> PCI device number.	
<b>Name:</b> pci-display.pci-bus-frequency <b>Default:</b> 0x00000021	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer

<b>Description:</b> PCI bus frequency.	
<b>pci-ide</b>	
<b>Name:</b> pci-ide.verbose <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Name:</b> pci-ide.base-address[0] <b>Default:</b> 0x00018101	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> initial base address of memory space.	
<b>Name:</b> pci-ide.base-address[1] <b>Default:</b> 0x00018109	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> initial base address of memory space.	
<b>Name:</b> pci-ide.base-address[2] <b>Default:</b> 0x00000005	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> initial base address of memory space.	
<b>Name:</b> pci-ide.base-address[3] <b>Default:</b> 0x0000000d	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> initial base address of memory space.	
<b>Name:</b> pci-ide.base-address[4] <b>Default:</b> 0x00018119	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> initial base address of memory space.	
<b>Name:</b> pci-ide.size[0] <b>Default:</b> 0x00000008	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> size in bytes of memory space.	
<b>Name:</b> pci-ide.size[1] <b>Default:</b> 0x00000004	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> size in bytes of memory space.	

<b>Name:</b> pci-ide.size[2] <b>Default:</b> 0x00000008	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> size in bytes of memory space.	
<b>Name:</b> pci-ide.size[3] <b>Default:</b> 0x00000004	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> size in bytes of memory space.	
<b>Name:</b> pci-ide.size[4] <b>Default:</b> 0x00000010	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> size in bytes of memory space.	
<b>Name:</b> pci-ide.register-number[0] <b>Default:</b> 0x00000010	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> BAR offset in PCI configuration space.	
<b>Name:</b> pci-ide.register-number[1] <b>Default:</b> 0x00000014	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> BAR offset in PCI configuration space.	
<b>Name:</b> pci-ide.register-number[2] <b>Default:</b> 0x00000018	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> BAR offset in PCI configuration space.	
<b>Name:</b> pci-ide.register-number[3] <b>Default:</b> 0x0000001c	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> BAR offset in PCI configuration space.	
<b>Name:</b> pci-ide.register-number[4] <b>Default:</b> 0x00000020	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> BAR offset in PCI configuration space.	

<b>Name:</b> pci-ide.device-number <b>Default:</b> 0x00000002	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> PCI device number.	
<b>Name:</b> pci-ide.disk-image[0] <b>Default:</b>	<b>Type:</b> parameter <b>Data type:</b> string
<b>Description:</b> Raw disk image filename.	
<b>Name:</b> pci-ide.disk-image[1] <b>Default:</b>	<b>Type:</b> parameter <b>Data type:</b> string
<b>Description:</b> Raw disk image filename.	
<b>Name:</b> pci-ide.disk-image[2] <b>Default:</b>	<b>Type:</b> parameter <b>Data type:</b> string
<b>Description:</b> Raw disk image filename.	
<b>Name:</b> pci-ide.disk-channel[0] <b>Default:</b> 0x00000000	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> disk channel.	
<b>Name:</b> pci-ide.disk-channel[1] <b>Default:</b> 0x00000000	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> disk channel.	
<b>Name:</b> pci-ide.disk-channel[2] <b>Default:</b> 0x00000000	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> disk channel.	
<b>Name:</b> pci-ide.disk-num[0] <b>Default:</b> 0x00000000	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> disk number (0=master 1=slave).	

<b>Name:</b> pci-ide.disk-num[1] <b>Default:</b> 0x00000000	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> disk number (0=master 1=slave).	
<b>Name:</b> pci-ide.disk-num[2] <b>Default:</b> 0x00000000	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> disk number (0=master 1=slave).	
<b>pci-isa-bridge</b>	
<b>Name:</b> pci-isa-bridge.verbose <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable verbosity.	
<b>Name:</b> pci-isa-bridge.initial-base- ↔addr <b>Default:</b> 0x000a0000	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> initial base address of memory space.	
<b>Name:</b> pci-isa-bridge.initial-io- ↔base-addr <b>Default:</b> 0x00000000	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> initial base address of I/O space.	
<b>Name:</b> pci-isa-bridge.pci-device- ↔number <b>Default:</b> 0x00000004	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> PCI device number.	
<b>Name:</b> pci-isa-bridge.isa-bus-frequency <b>Default:</b> 8	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> ISA bus frequency in Mhz.	
<b>Name:</b> pci-isa-bridge.pci-bus-frequency	<b>Type:</b> parameter



<b>Default:</b> 33	<b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> PCI bus frequency in Mhz.	
<b>pmac-linux-kernel-loader.elf32-loader</b>	
<b>Name:</b> pmac-linux-kernel-loader.elf32- ↪loader.filename	<b>Type:</b> parameter
<b>Default:</b> vmlinux	<b>Data type:</b> string
<b>Description:</b> the ELF filename to load into memory.	
<b>Name:</b> pmac-linux-kernel-loader.elf32- ↪loader.base-addr	<b>Type:</b> parameter
<b>Default:</b> 0x00400000	<b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> if force-base-addr is true force base address for a unique program segment, otherwise ignored.	
<b>Name:</b> pmac-linux-kernel-loader.elf32- ↪loader.force-base-addr	<b>Type:</b> parameter
<b>Default:</b> true	<b>Data type:</b> boolean
<b>Valid:</b> true, false	
<b>Description:</b> if true force base address for a unique program segment.	
<b>Name:</b> pmac-linux-kernel-loader.elf32- ↪loader.force-use-virtual-address	<b>Type:</b> parameter
<b>Default:</b> true	<b>Data type:</b> boolean
<b>Valid:</b> true, false	
<b>Description:</b> force use of virtual addresses instead of physical addresses (default false).	
<b>Name:</b> pmac-linux-kernel-loader.elf32- ↪loader.initialize-extra-segment- ↪bytes	<b>Type:</b> parameter
<b>Default:</b> true	<b>Data type:</b> boolean
<b>Valid:</b> true, false	
<b>Description:</b> whether to initialize extra bytes in segments (p_filesz < p_memsz) to zero (true for standard ELF files).	
<b>Name:</b> pmac-linux-kernel-loader.elf32- ↪loader.dump-headers	<b>Type:</b> parameter
<b>Default:</b> false	<b>Data type:</b> boolean

<p><b>Valid:</b> true, false</p> <p><b>Description:</b> dump headers while loading ELF file.</p>
<p><b>Name:</b> pmac-linux-kernel-loader.elf32- <b>Type:</b> parameter ↔loader.verbose</p> <p><b>Default:</b> false <b>Data type:</b> boolean</p> <p><b>Valid:</b> true, false</p> <p><b>Description:</b> enable/disable verbosity.</p>
<p><b>Name:</b> pmac-linux-kernel-loader.elf32- <b>Type:</b> parameter ↔loader.dwarf-to-html-output- ↔directory</p> <p><b>Default:</b> <b>Data type:</b> string</p> <p><b>Description:</b> DWARF v2/v3 to HTML output directory.</p>
<p><b>Name:</b> pmac-linux-kernel-loader.elf32- <b>Type:</b> parameter ↔loader.dwarf-to-xml-output- ↔filename</p> <p><b>Default:</b> <b>Data type:</b> string</p> <p><b>Description:</b> DWARF v2/v3 to XML output filename.</p>
<p><b>Name:</b> pmac-linux-kernel-loader.elf32- <b>Type:</b> parameter ↔loader.dwarf-register-number- ↔mapping-filename</p> <p><b>Default:</b> <b>Data type:</b> string</p> <p><b>Description:</b> DWARF register number mapping filename.</p>
<p><b>Name:</b> pmac-linux-kernel-loader.elf32- <b>Type:</b> parameter ↔loader.parse-dwarf</p> <p><b>Default:</b> false <b>Data type:</b> boolean</p> <p><b>Valid:</b> true, false</p> <p><b>Description:</b> Enable/Disable parsing of DWARF debugging informations.</p>
<p><b>Name:</b> pmac-linux-kernel-loader.elf32- <b>Type:</b> parameter ↔loader.debug-dwarf</p> <p><b>Default:</b> false <b>Data type:</b> boolean</p> <p><b>Valid:</b> true, false</p>

<b>Description:</b> Enable/Disable debugging of DWARF.	
<b>pmac-linux-kernel-loader.pmac-bootx</b>	
<b>Name:</b> pmac-linux-kernel-loader.pmac- ↔bootx.device-tree-filename	<b>Type:</b> parameter
<b>Default:</b> device_tree_pmac_g4.xml	<b>Data type:</b> string
<b>Description:</b> device tree file name of simulated PowerMac machine.	
<b>Name:</b> pmac-linux-kernel-loader.pmac- ↔bootx.kernel-params	<b>Type:</b> parameter
<b>Default:</b> /dev/ram0 rw	<b>Data type:</b> string
<b>Description:</b> Linux kernel parameters.	
<b>Name:</b> pmac-linux-kernel-loader.pmac- ↔bootx.ramdisk-filename	<b>Type:</b> parameter
<b>Default:</b> initrd.img	<b>Data type:</b> string
<b>Description:</b> initial ramdisk filename (either compressed with gzip or uncompressed).	
<b>Name:</b> pmac-linux-kernel-loader.pmac- ↔bootx.screen-width	<b>Type:</b> parameter
<b>Default:</b> 0x00000280	<b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> screen width in pixels.	
<b>Name:</b> pmac-linux-kernel-loader.pmac- ↔bootx.screen-height	<b>Type:</b> parameter
<b>Default:</b> 0x000001e0	<b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> screen height in pixels.	
<b>Name:</b> pmac-linux-kernel-loader.pmac- ↔bootx.verbose	<b>Type:</b> parameter
<b>Default:</b> false	<b>Data type:</b> boolean
<b>Valid:</b> true, false	
<b>Description:</b> enable/disable verbosity.	
<b>profiler</b>	
<b>Name:</b> profiler.min-data-read-prof- ↔addr	<b>Type:</b> parameter

<b>Default:</b> 0x00000000	<b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> Minimum address for data read profiling.	
<b>Name:</b> profiler.max-data-read-prof- ↔addr	<b>Type:</b> parameter
<b>Default:</b> 0xffffffff	<b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> Maximum address for data read profiling.	
<b>Name:</b> profiler.min-data-write-prof- ↔addr	<b>Type:</b> parameter
<b>Default:</b> 0x00000000	<b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> Minimum address for data write profiling.	
<b>Name:</b> profiler.max-data-write-prof- ↔addr	<b>Type:</b> parameter
<b>Default:</b> 0xffffffff	<b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> Maximum address for data write profiling.	
<b>Name:</b> profiler.min-insn-fetch-prof- ↔addr	<b>Type:</b> parameter
<b>Default:</b> 0x00000000	<b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> Minimum address for instruction fetch profiling.	
<b>Name:</b> profiler.max-insn-fetch-prof- ↔addr	<b>Type:</b> parameter
<b>Default:</b> 0xffffffff	<b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> Maximum address for instruction fetch profiling.	
<b>Name:</b> profiler.min-insn-exec-prof- ↔addr	<b>Type:</b> parameter
<b>Default:</b> 0x00000000	<b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> Minimum address for instruction execution profiling.	

<b>Name:</b> profiler.max-insn-exec-prof- ↳addr <b>Default:</b> 0xffffffff	<b>Type:</b> parameter  <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> Maximum address for instruction execution profiling.	
<b>Name:</b> profiler.enable-data-read- ↳prof <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter  <b>Data type:</b> boolean
<b>Description:</b> Enable/Disable data read profiling.	
<b>Name:</b> profiler.enable-data-write- ↳prof <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter  <b>Data type:</b> boolean
<b>Description:</b> Enable/Disable data write profiling.	
<b>Name:</b> profiler.enable-insn-fetch- ↳prof <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter  <b>Data type:</b> boolean
<b>Description:</b> Enable/Disable instruction fetch profiling.	
<b>Name:</b> profiler.enable-insn-exec- ↳prof <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter  <b>Data type:</b> boolean
<b>Description:</b> Enable/Disable instruction execution profiling.	
<b>Name:</b> profiler.verbose <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> Enable/Disable verbosity.	
<b>sdl</b>	
<b>Name:</b> sdl.verbose-setup <b>Default:</b> false <b>Valid:</b> true, false	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Description:</b> enable/disable verbosity while setup.	

<b>Name:</b> sdl.verbose-run <b>Default:</b> false <b>Valid:</b> true, false  <b>Description:</b> enable/disable verbosity while simulation.	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Name:</b> sdl.refresh-period <b>Default:</b> 40  <b>Description:</b> screen refresh period in milliseconds.	<b>Type:</b> parameter <b>Data type:</b> unsigned 32-bit integer
<b>Name:</b> sdl.bmp-out-filename <b>Default:</b>  <b>Description:</b> if not empty implicitly enable screen capture and specify prefix of captured bitmaps (Windows DIB .bmp format).	<b>Type:</b> parameter <b>Data type:</b> string
<b>Name:</b> sdl.keymap-filename <b>Default:</b> pc_linux_fr_keymap.xml  <b>Description:</b> host keymap filename.	<b>Type:</b> parameter <b>Data type:</b> string
<b>Name:</b> sdl.host-key-name <b>Default:</b> rctrl  <b>Description:</b> host key to toggle mouse and keyboard grab.	<b>Type:</b> parameter <b>Data type:</b> string
<b>Name:</b> sdl.force-refresh <b>Default:</b> false <b>Valid:</b> true, false  <b>Description:</b> force screen refresh every refresh period.	<b>Type:</b> parameter <b>Data type:</b> boolean
<b>Name:</b> sdl.work-around-sdl-mouse- ↔motion-coordinates-bug <b>Default:</b> false <b>Valid:</b> true, false  <b>Description:</b> enable/disable work around SDL mouse motion coordinates bug.	<b>Type:</b> parameter <b>Data type:</b> boolean

## 1.6 Statistics

Simulation statistic counters are listed below:

<b>cpu</b>	
<b>Name:</b> cpu.instruction-counter	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer

<b>Description:</b> number of simulated instructions.	
<b>Name:</b> <code>cpu.timer-cycle</code>	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> number of simulated timer cycles.	
<b>Name:</b> <code>cpu.num-il1-accesses</code>	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> number of accesses to L1 instruction cache.	
<b>Name:</b> <code>cpu.num-il1-misses</code>	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> number of misses to L1 instruction cache.	
<b>Name:</b> <code>cpu.num-dl1-accesses</code>	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> number of accesses to L1 data cache.	
<b>Name:</b> <code>cpu.num-dl1-misses</code>	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> number of misses to L1 data cache.	
<b>Name:</b> <code>cpu.num-l2-accesses</code>	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> number of accesses to unified L2 cache.	
<b>Name:</b> <code>cpu.num-l2-misses</code>	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> number of misses to unified L2 cache.	

<b>Name:</b> <code>cpu.num-ibat-accesses</code>	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> number of accesses to IBATs.	
<b>Name:</b> <code>cpu.num-ibat-misses</code>	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> number of misses to IBATs.	
<b>Name:</b> <code>cpu.num-dbat-accesses</code>	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> number of accesses to DBATs.	
<b>Name:</b> <code>cpu.num-dbat-misses</code>	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> number of misses to DBATs.	
<b>Name:</b> <code>cpu.num-itlb-accesses</code>	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> number of accesses to ITLB.	
<b>Name:</b> <code>cpu.num-itlb-misses</code>	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> number of misses to ITLB.	
<b>Name:</b> <code>cpu.num-dtlb-accesses</code>	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> number of accesses to DTLB.	
<b>Name:</b> <code>cpu.num-dtlb-misses</code>	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> number of misses to DTLB.	



<b>Name:</b> <code>cpu.num-interrupts</code>	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> Number of interrupts.	
<b>Name:</b> <code>cpu.num-system-reset-interrupts</code>	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> Number of system reset interrupts.	
<b>Name:</b> <code>cpu.num-machine-check-interrupts</code>	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> Number of machine check interrupts.	
<b>Name:</b> <code>cpu.num-data-storage-interrupts</code>	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> Number of data storage interrupts.	
<b>Name:</b> <code>cpu.num-instruction-storage-interrupts</code>	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> Number of instruction storage interrupts.	
<b>Name:</b> <code>cpu.num-external-interrupts</code>	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> Number of external interrupts.	
<b>Name:</b> <code>cpu.num-alignment-interrupts</code>	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> Number of alignment interrupts.	
<b>Name:</b> <code>cpu.num-program-interrupts</code>	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer

<b>Description:</b> Number of program interrupts.	
<b>Name:</b> cpu.num-floating-point-unavailable-interrupts	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> Number of floating-point unavailable interrupts.	
<b>Name:</b> cpu.num-decrementer-interrupts	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> Number of decrementer interrupts.	
<b>Name:</b> cpu.num-system-call-interrupts	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> Number of system call interrupts.	
<b>Name:</b> cpu.num-trace-interrupts	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> Number of trace interrupts.	
<b>Name:</b> cpu.num-performance-monitor-interrupts	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> Number of performance monitor interrupts.	
<b>Name:</b> cpu.num-instruction-address-breakpoint-interrupts	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> Number of instruction address breakpoint interrupts.	
<b>Name:</b> cpu.num-system-management-interrupts	<b>Type:</b> statistic <b>Data type:</b> unsigned 64-bit integer
<b>Description:</b> Number of system management interrupts.	

<b>Name:</b> <code>cpu.num-itlb-miss-interrupts</code>	<b>Type:</b> <code>statistic</code> <b>Data type:</b> <code>unsigned 64-bit integer</code>
<b>Description:</b> Number of ITLB miss interrupts.	
<b>Name:</b> <code>cpu.num-dtlb-miss-on-load-↔interrupts</code>	<b>Type:</b> <code>statistic</code> <b>Data type:</b> <code>unsigned 64-bit integer</code>
<b>Description:</b> Number of DTLB Miss-On-Load interrupts.	
<b>Name:</b> <code>cpu.num-dtlb-miss-on-store-↔interrupts</code>	<b>Type:</b> <code>statistic</code> <b>Data type:</b> <code>unsigned 64-bit integer</code>
<b>Description:</b> Number of DTLB Miss-On-Store interrupts.	
<b>Name:</b> <code>cpu.num-altivec-unavailable-↔interrupts</code>	<b>Type:</b> <code>statistic</code> <b>Data type:</b> <code>unsigned 64-bit integer</code>
<b>Description:</b> Number of altivec unavailable interrupts.	
<b>Name:</b> <code>cpu.num-altivec-assist</code>	<b>Type:</b> <code>statistic</code> <b>Data type:</b> <code>unsigned 64-bit integer</code>
<b>Description:</b> Number of altivec assist interrupts.	
<b>Name:</b> <code>cpu.run-time</code>	<b>Type:</b> <code>statistic</code> <b>Data type:</b> <code>sc_time</code>
<b>Description:</b> run time.	
<b>Name:</b> <code>cpu.idle-time</code>	<b>Type:</b> <code>statistic</code> <b>Data type:</b> <code>sc_time</code>
<b>Description:</b> idle time.	
<b>erom</b>	
<b>Name:</b> <code>erom.memory-usage</code>	<b>Type:</b> <code>statistic</code>

<b>Data type:</b> unsigned 32-bit integer	
<b>Description:</b> target memory usage in bytes (page granularity of 1048576 bytes).	
<b>memory</b>	
<b>Name:</b> memory.memory-usage	<b>Type:</b> statistic <b>Data type:</b> unsigned 32-bit integer
<b>Description:</b> target memory usage in bytes (page granularity of 1048576 bytes).	

## 1.7 Formulas

Simulation statistic formulas are listed below:

<b>cpu</b>		
<b>Name:</b> cpu.il1-miss-rate <b>Formula:</b> $\text{cpu.num-il1-misses} / \text{cpu.}\langle\rightarrow\text{num-il1-accesses}$	<b>Type:</b> formula <b>Data type:</b> floating-point	double precision
<b>Name:</b> cpu.dl1-miss-rate <b>Formula:</b> $\text{cpu.num-dl1-misses} / \text{cpu.}\langle\rightarrow\text{num-dl1-accesses}$	<b>Type:</b> formula <b>Data type:</b> floating-point	double precision
<b>Name:</b> cpu.l2-miss-rate <b>Formula:</b> $\text{cpu.num-l2-misses} / \text{cpu.}\langle\rightarrow\text{num-l2-accesses}$	<b>Type:</b> formula <b>Data type:</b> floating-point	double precision
<b>Name:</b> cpu.ibat-miss-rate <b>Formula:</b> $\text{cpu.num-ibat-misses} / \text{cpu.}\langle\rightarrow\text{num-ibat-accesses}$	<b>Type:</b> formula <b>Data type:</b> floating-point	double precision
<b>Name:</b> cpu.dbat-miss-rate <b>Formula:</b> $\text{cpu.num-dbat-misses} / \text{cpu.}\langle\rightarrow\text{num-dbat-accesses}$	<b>Type:</b> formula <b>Data type:</b> floating-point	double precision
<b>Name:</b> cpu.itlb-miss-rate <b>Formula:</b> $\text{cpu.num-itlb-misses} / \text{cpu.}\langle\rightarrow\text{num-itlb-accesses}$	<b>Type:</b> formula <b>Data type:</b> floating-point	double precision
<b>Name:</b> cpu.dtlb-miss-rate <b>Formula:</b> $\text{cpu.num-dtlb-misses} / \text{cpu.}\langle\rightarrow\text{num-dtlb-accesses}$	<b>Type:</b> formula <b>Data type:</b> floating-point	double precision
<b>Name:</b> cpu.idle-rate <b>Formula:</b> $\text{cpu.idle-time} / \text{cpu.run-}\langle\rightarrow\text{time}$	<b>Type:</b> formula <b>Data type:</b> floating-point	double precision

**Description:**

idle rate.

**Name:** `cpu.load-rate`**Type:** `formula`**Formula:** `1 - cpu.idle-time / cpu.  
↔run-time`**Data type:** `double precision  
floating-point`**Description:**

load rate.