

Report-5

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Use rubby in Gem5

1. we use rubby to run the branch with cache.

2. Use this command for run rubby:

```
build/ALPHA/gem5.opt configs/example/fs.py --rubby --l1i_size=2kB --l1d_size=1kB  
--l1i_assoc=2 --l1d_assoc=2 --l2_assoc=4 --l2_size=8kB --num-l2caches=16 -n 16 --  
num-dirs=16 --topology=Mesh_XY --mesh-rows=4 --cpu-type=TimingSimpleCPU
```

3. Answer:

----- Begin Simulation Statistics -----

final_tick	32755727995500	# Number of ticks from beginning of simulation (restored from checkpoints and never reset)
host_inst_rate (inst/s)	212063	# Simulator instruction rate
host_mem_usage host memory used	1262268	# Number of bytes of
host_op_rate micro ops) rate (op/s)	212063	# Simulator op (including
host_seconds host	20265.93	# Real time elapsed on the
host_tick_rate (ticks/s)	1616295356	# Simulator tick rate
sim_freq ticks	1000000000000	# Frequency of simulated
sim_insts simulated	4297655713	# Number of instructions
sim_ops micro ops) simulated	4297655713	# Number of ops (including
sim_seconds simulated	32.755728	# Number of seconds
sim_ticks simulated	32755727995500	# Number of ticks
system.cpu.Branches fetched	547769943	# Number of branches
system.cpu.committedInsts instructions committed	4297655713	# Number of

system.cpu.committedOps (including micro ops) committed	4297655713	# Number of ops
system.cpu.dtb.data_accesses	1125530860	# DTB accesses
system.cpu.dtb.data_acv	0	# DTB access violations
system.cpu.dtb.data_hits	1125507164	# DTB hits
system.cpu.dtb.data_misses	23696	# DTB misses
system.cpu.dtb.fetch_accesses	0	# ITB accesses
system.cpu.dtb.fetch_acv	0	# ITB acv
system.cpu.dtb.fetch_hits	0	# ITB hits
system.cpu.dtb.fetch_misses	0	# ITB misses
system.cpu.dtb.read_accesses	919357413	# DTB read
accesses		
system.cpu.dtb.read_acv	0	# DTB read access
violations		
system.cpu.dtb.read_hits	919341118	# DTB read hits
system.cpu.dtb.read_misses	16295	# DTB read misses
system.cpu.dtb.write_accesses	206173447	# DTB write
accesses		
system.cpu.dtb.write_acv	0	# DTB write access
violations		
system.cpu.dtb.write_hits	206166046	# DTB write hits
system.cpu.dtb.write_misses	7401	# DTB write misses
system.cpu.idle_fraction	0.000000	# Percentage of idle
cycles		
system.cpu.itb.data_accesses	0	# DTB accesses
system.cpu.itb.data_acv	0	# DTB access violations
system.cpu.itb.data_hits	0	# DTB hits
system.cpu.itb.data_misses	0	# DTB misses
system.cpu.itb.fetch_accesses	4297679454	# ITB accesses
system.cpu.itb.fetch_acv	0	# ITB acv
system.cpu.itb.fetch_hits	4297679409	# ITB hits
system.cpu.itb.fetch_misses	45	# ITB misses
system.cpu.itb.read_accesses	0	# DTB read accesses
system.cpu.itb.read_acv	0	# DTB read access
violations		
system.cpu.itb.read_hits	0	# DTB read hits
system.cpu.itb.read_misses	0	# DTB read misses
system.cpu.itb.write_accesses	0	# DTB write accesses
system.cpu.itb.write_acv	0	# DTB write access
violations		
system.cpu.itb.write_hits	0	# DTB write hits
system.cpu.itb.write_misses	0	# DTB write misses
system.cpu.not_idle_fraction	1.000000	# Percentage of non-
idle cycles		

system.cpu.numCycles cycles simulated	65511455991	# number of cpu
system.cpu.numWorkItemsCompleted items this cpu completed	0	# number of work
system.cpu.numWorkItemsStarted items this cpu started	0	# number of work
system.cpu.num_busy_cycles of busy cycles	65511455990.998001	# Number
system.cpu.num_conditional_control_insts instructions that are conditional controls	466435113	# number of
system.cpu.num_fp_alu_accesses float alu accesses	1463866422	# Number of
system.cpu.num_fp_insts instructions	1463866422	# number of float
system.cpu.num_fp_register_reads times the floating registers were read	1960764606	# number of
system.cpu.num_fp_register_writes times the floating registers were written	1350308664	# number of
system.cpu.num_func_calls function call or return occurred	29720310	# number of times a
system.cpu.num_idle_cycles cycles	0.002000	# Number of idle
system.cpu.num_int_alu_accesses integer alu accesses	3177594591	# Number of
system.cpu.num_int_insts instructions	3177594591	# number of integer
system.cpu.num_int_register_reads times the integer registers were read	4259086606	# number of
system.cpu.num_int_register_writes times the integer registers were written	2168009366	# number of
system.cpu.num_load_insts instructions	919357413	# Number of load
system.cpu.num_mem_refs memory refs	1125530860	# number of
system.cpu.num_store_insts instructions	206173447	# Number of store
system.cpu.num_vec_alu_accesses alu accesses	0	# Number of vector
system.cpu.num_vec_insts instructions	0	# number of vector
system.cpu.num_vec_register_reads vector registers were read	0	# number of times the
system.cpu.num_vec_register_writes vector registers were written	0	# number of times the

system.cpu.op_class::No_OpClass executed instruction	40258538	0.94%	0.94% # Class of
system.cpu.op_class::IntAlu executed instruction	2099591144	48.85%	49.79% # Class of
system.cpu.op_class::IntMult executed instruction	3945352	0.09%	49.88% # Class of
system.cpu.op_class::IntDiv executed instruction	0	0.00%	49.88% # Class of
system.cpu.op_class::FloatAdd executed instruction	615847451	14.33%	64.21% # Class of
system.cpu.op_class::FloatCmp executed instruction	102426638	2.38%	66.60% # Class of
system.cpu.op_class::FloatCvt executed instruction	783766	0.02%	66.61% # Class of
system.cpu.op_class::FloatMult executed instruction	307613249	7.16%	73.77% # Class of
system.cpu.op_class::FloatMultAcc executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::FloatDiv executed instruction	14296	0.00%	73.77% # Class of
system.cpu.op_class::FloatMisc executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::FloatSqrt executed instruction	257	0.00%	73.77% # Class of
system.cpu.op_class::SimdAdd executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdAddAcc executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdAlu executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdCmp executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdCvt executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdMisc executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdMult executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdMultAcc executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdShift executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdShiftAcc executed instruction	0	0.00%	73.77% # Class of

system.cpu.op_class::SimdDiv executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdSqrt executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdFloatAdd executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdFloatAlu executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdFloatCmp executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdFloatCvt executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdFloatDiv executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdFloatMisc executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdFloatMult executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdFloatMultAcc executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdFloatSqrt executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdReduceAdd executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdReduceAlu executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdReduceCmp executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdFloatReduceAdd executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdFloatReduceCmp executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdAes executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdAesMix executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdSha1Hash executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdSha1Hash2 executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdSha256Hash executed instruction	0	0.00%	73.77% # Class of
system.cpu.op_class::SimdSha256Hash2 executed instruction	0	0.00%	73.77% # Class of

system.cpu.op_class::SimdShaSigma2 executed instruction	0	0.00%	73.77%	# Class of
system.cpu.op_class::SimdShaSigma3 executed instruction	0	0.00%	73.77%	# Class of
system.cpu.op_class::SimdPredAlu executed instruction	0	0.00%	73.77%	# Class of
system.cpu.op_class::MemRead executed instruction	494965373	11.52%	85.29%	# Class of
system.cpu.op_class::MemWrite executed instruction	195052580	4.54%	89.83%	# Class of
system.cpu.op_class::FloatMemRead of executed instruction	426059896	9.91%	99.74%	# Class
system.cpu.op_class::FloatMemWrite of executed instruction	11120869	0.26%	100.00%	# Class
system.cpu.op_class::IprAccess executed instruction	0	0.00%	100.00%	# Class of
system.cpu.op_class::InstPrefetch executed instruction	0	0.00%	100.00%	# Class of
system.cpu.op_class::total instruction	4297679409			# Class of executed
system.cpu.workload.numSyscalls calls	1055			# Number of system
system.ruby.Directory.incomplete_times_seqr	518791292			
system.ruby.Directory.miss_latency_hist_seqr.first_response_to_completion::bucket_size	16			
system.ruby.Directory.miss_latency_hist_seqr.first_response_to_completion::max_bucket	159			
system.ruby.Directory.miss_latency_hist_seqr.first_response_to_completion::samples	1			
system.ruby.Directory.miss_latency_hist_seqr.first_response_to_completion::mean	141			
system.ruby.Directory.miss_latency_hist_seqr.first_response_to_completion::gmean	141.000000			
system.ruby.Directory.miss_latency_hist_seqr.first_response_to_completion::stdev	nan			
system.ruby.Directory.miss_latency_hist_seqr.first_response_to_completion	0			
0.00% 0.00%	0	0.00%	0.00%	0
0.00% 0.00%	0	0.00%	0.00%	0
0.00% 0.00%	0	0.00%	0.00%	0
0.00% 0.00%	0	0.00%	0.00%	1
0 0.00% 100.00%				
system.ruby.Directory.miss_latency_hist_seqr.first_response_to_completion::total	1			
system.ruby.Directory.miss_latency_hist_seqr.forward_to_first_response::bucket_size	1			

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system.ruby.Directory.miss_latency_hist_seqr.forward_to_first_response::max_bucket
t          9
system.ruby.Directory.miss_latency_hist_seqr.forward_to_first_response::samples
1
system.ruby.Directory.miss_latency_hist_seqr.forward_to_first_response::stdev
nan
system.ruby.Directory.miss_latency_hist_seqr.forward_to_first_response |          1
100.00%  100.00% |          0  0.00%  100.00% |          0  0.00%  100.00% |
0  0.00%  100.00% |          0  0.00%  100.00% |          0  0.00%  100.00% |
0  0.00%  100.00% |          0  0.00%  100.00% |          0  0.00%  100.00% |
0  0.00%  100.00%
system.ruby.Directory.miss_latency_hist_seqr.forward_to_first_response::total
1
system.ruby.Directory.miss_latency_hist_seqr.initial_to_forward::bucket_size
1
system.ruby.Directory.miss_latency_hist_seqr.initial_to_forward::max_bucket
9
system.ruby.Directory.miss_latency_hist_seqr.initial_to_forward::samples          1
system.ruby.Directory.miss_latency_hist_seqr.initial_to_forward::stdev          nan
system.ruby.Directory.miss_latency_hist_seqr.initial_to_forward |          1  100.00%
100.00% |          0  0.00%  100.00% |          0  0.00%  100.00% |          0
0.00%  100.00% |          0  0.00%  100.00% |          0  0.00%  100.00% |
0  0.00%  100.00% |          0  0.00%  100.00% |          0  0.00%  100.00% |
0  0.00%  100.00%
system.ruby.Directory.miss_latency_hist_seqr.initial_to_forward::total          1
system.ruby.Directory.miss_latency_hist_seqr.issue_to_initial_request::bucket_size
1
system.ruby.Directory.miss_latency_hist_seqr.issue_to_initial_request::max_bucket
9
system.ruby.Directory.miss_latency_hist_seqr.issue_to_initial_request::samples
1
system.ruby.Directory.miss_latency_hist_seqr.issue_to_initial_request::stdev
nan
system.ruby.Directory.miss_latency_hist_seqr.issue_to_initial_request |          1
100.00%  100.00% |          0  0.00%  100.00% |          0  0.00%  100.00% |
0  0.00%  100.00% |          0  0.00%  100.00% |          0  0.00%  100.00% |
0  0.00%  100.00% |          0  0.00%  100.00% |          0  0.00%  100.00% |
0  0.00%  100.00%
system.ruby.Directory.miss_latency_hist_seqr.issue_to_initial_request::total          1
system.ruby.Directory.miss_mach_latency_hist_seqr::bucket_size          16
system.ruby.Directory.miss_mach_latency_hist_seqr::max_bucket          159
system.ruby.Directory.miss_mach_latency_hist_seqr::samples  518791293
system.ruby.Directory.miss_mach_latency_hist_seqr::mean  0.000000
system.ruby.Directory.miss_mach_latency_hist_seqr::stdev  0.006190

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system.ruby.Directory.miss_mach_latency_hist_seqr | 518791292 100.00%
100.00% |      0  0.00% 100.00% |      0  0.00% 100.00% |      0
0.00% 100.00% |      0  0.00% 100.00% |      0  0.00% 100.00% |
0  0.00% 100.00% |      0  0.00% 100.00% |      1  0.00% 100.00% |
0  0.00% 100.00%
system.ruby.Directory.miss_mach_latency_hist_seqr::total 518791293
system.ruby.Directory_Controller.GETX 518791293 0.00% 0.00%
system.ruby.Directory_Controller.I.GETX 518791293 0.00% 0.00%
system.ruby.Directory_Controller.IM.Memory_Data 518791293 0.00%
0.00%
system.ruby.Directory_Controller.M.PUTX 518791277 0.00% 0.00%
system.ruby.Directory_Controller.MI.Memory_Ack 518791277 0.00%
0.00%
system.ruby.Directory_Controller.Memory_Ack 518791277 0.00% 0.00%
system.ruby.Directory_Controller.Memory_Data 518791293 0.00% 0.00%
system.ruby.Directory_Controller.PUTX 518791277 0.00% 0.00%
system.ruby.IFETCH.Directory.miss_type_mach_latency_hist_seqr::bucket_size
16
system.ruby.IFETCH.Directory.miss_type_mach_latency_hist_seqr::max_bucket
159
system.ruby.IFETCH.Directory.miss_type_mach_latency_hist_seqr::samples
208180386
system.ruby.IFETCH.Directory.miss_type_mach_latency_hist_seqr::mean
0.000001
system.ruby.IFETCH.Directory.miss_type_mach_latency_hist_seqr::stdev
0.009772
system.ruby.IFETCH.Directory.miss_type_mach_latency_hist_seqr | 208180385
100.00% 100.00% |      0  0.00% 100.00% |      0  0.00% 100.00% |
0  0.00% 100.00% |      0  0.00% 100.00% |      0  0.00% 100.00% |
0  0.00% 100.00% |      0  0.00% 100.00% |      1  0.00% 100.00% |
0  0.00% 100.00%
system.ruby.IFETCH.Directory.miss_type_mach_latency_hist_seqr::total
208180386
system.ruby.IFETCH.hit_latency_hist_seqr::bucket_size 1
system.ruby.IFETCH.hit_latency_hist_seqr::max_bucket 9
system.ruby.IFETCH.hit_latency_hist_seqr::samples 4089499023
system.ruby.IFETCH.hit_latency_hist_seqr | 4089499023 100.00% 100.00% |
0  0.00% 100.00% |      0  0.00% 100.00% |      0  0.00% 100.00% |
0  0.00% 100.00% |      0  0.00% 100.00% |      0  0.00% 100.00% |
0  0.00% 100.00% |      0  0.00% 100.00% |      0  0.00% 100.00%
system.ruby.IFETCH.hit_latency_hist_seqr::total 4089499023
system.ruby.IFETCH.latency_hist_seqr::bucket_size 16
system.ruby.IFETCH.latency_hist_seqr::max_bucket 159
system.ruby.IFETCH.latency_hist_seqr::samples 4297679409
system.ruby.IFETCH.latency_hist_seqr::mean 0.000000

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system.ruby.IFETCH.latency_hist_seqr::stdev    0.002151
system.ruby.IFETCH.latency_hist_seqr | 4297679408 100.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00% | 1 0.00% 100.00% | 0 0.00% 100.00%
system.ruby.IFETCH.latency_hist_seqr::total 4297679409
system.ruby.IFETCH.miss_latency_hist_seqr::bucket_size 16
system.ruby.IFETCH.miss_latency_hist_seqr::max_bucket 159
system.ruby.IFETCH.miss_latency_hist_seqr::samples 208180386
system.ruby.IFETCH.miss_latency_hist_seqr::mean 0.000001
system.ruby.IFETCH.miss_latency_hist_seqr::stdev 0.009772
system.ruby.IFETCH.miss_latency_hist_seqr | 208180385 100.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00% | 1 0.00% 100.00% | 0 0.00% 100.00%
system.ruby.IFETCH.miss_latency_hist_seqr::total 208180386
system.ruby.L1Cache_Controller.Data 518791293 0.00% 0.00%
system.ruby.L1Cache_Controller.I.Ifetch 208180386 0.00% 0.00%
system.ruby.L1Cache_Controller.I.Load 264724734 0.00% 0.00%
system.ruby.L1Cache_Controller.I.Store 45886173 0.00% 0.00%
system.ruby.L1Cache_Controller.IM.Data 45886173 0.00% 0.00%
system.ruby.L1Cache_Controller.IS.Data 472905120 0.00% 0.00%
system.ruby.L1Cache_Controller.Ifetch 2712113 0.00% 0.00%
system.ruby.L1Cache_Controller.Load 917673262 0.00% 0.00%
system.ruby.L1Cache_Controller.M.Ifetch 18446744073504083968 0.00%
0.00%
system.ruby.L1Cache_Controller.M.Load 652948528 0.00% 0.00%
system.ruby.L1Cache_Controller.M.Replacement 518791277 0.00% 0.00%
system.ruby.L1Cache_Controller.M.Store 161947729 0.00% 0.00%
system.ruby.L1Cache_Controller.MI.Writeback_Ack 518791277 0.00%
0.00%
system.ruby.L1Cache_Controller.Replacement 518791277 0.00% 0.00%
system.ruby.L1Cache_Controller.Store 207833902 0.00% 0.00%
system.ruby.L1Cache_Controller.Writeback_Ack 518791277 0.00% 0.00%
system.ruby.LD.Directory.miss_type_mach_latency_hist_seqr::bucket_size 1
system.ruby.LD.Directory.miss_type_mach_latency_hist_seqr::max_bucket 9
system.ruby.LD.Directory.miss_type_mach_latency_hist_seqr::samples 264724734
system.ruby.LD.Directory.miss_type_mach_latency_hist_seqr | 264724734
100.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00%
system.ruby.LD.Directory.miss_type_mach_latency_hist_seqr::total 264724734
system.ruby.LD.hit_latency_hist_seqr::bucket_size 1
system.ruby.LD.hit_latency_hist_seqr::max_bucket 9

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system.ruby.LD.hit_latency_hist_seqr::samples 652948528
system.ruby.LD.hit_latency_hist_seqr | 652948528 100.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00%
system.ruby.LD.hit_latency_hist_seqr::total 652948528
system.ruby.LD.latency_hist_seqr::bucket_size 1
system.ruby.LD.latency_hist_seqr::max_bucket 9
system.ruby.LD.latency_hist_seqr::samples 917673262
system.ruby.LD.latency_hist_seqr | 917673262 100.00% 100.00% | 0
0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00%
system.ruby.LD.latency_hist_seqr::total 917673262
system.ruby.LD.miss_latency_hist_seqr::bucket_size 1
system.ruby.LD.miss_latency_hist_seqr::max_bucket 9
system.ruby.LD.miss_latency_hist_seqr::samples 264724734
system.ruby.LD.miss_latency_hist_seqr | 264724734 100.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00%
system.ruby.LD.miss_latency_hist_seqr::total 264724734
system.ruby.Load_Linked.Directory.miss_type_mach_latency_hist_seqr::bucket_size
1
system.ruby.Load_Linked.Directory.miss_type_mach_latency_hist_seqr::max_bucket
9
system.ruby.Load_Linked.Directory.miss_type_mach_latency_hist_seqr::samples
2849
system.ruby.Load_Linked.Directory.miss_type_mach_latency_hist_seqr | 2849
100.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00%
system.ruby.Load_Linked.Directory.miss_type_mach_latency_hist_seqr::total
2849
system.ruby.Load_Linked.hit_latency_hist_seqr::bucket_size 1
system.ruby.Load_Linked.hit_latency_hist_seqr::max_bucket 9
system.ruby.Load_Linked.hit_latency_hist_seqr::samples 1665007
system.ruby.Load_Linked.hit_latency_hist_seqr | 1665007 100.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00%
system.ruby.Load_Linked.hit_latency_hist_seqr::total 1665007
system.ruby.Load_Linked.latency_hist_seqr::bucket_size 1
system.ruby.Load_Linked.latency_hist_seqr::max_bucket 9

```

```

system.ruby.Load_Linked.latency_hist_seqr::samples 1667856
system.ruby.Load_Linked.latency_hist_seqr | 1667856 100.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
system.ruby.Load_Linked.latency_hist_seqr::total 1667856
system.ruby.Load_Linked.miss_latency_hist_seqr::bucket_size 1
system.ruby.Load_Linked.miss_latency_hist_seqr::max_bucket 9
system.ruby.Load_Linked.miss_latency_hist_seqr::samples 2849
system.ruby.Load_Linked.miss_latency_hist_seqr | 2849 100.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
system.ruby.Load_Linked.miss_latency_hist_seqr::total 2849
system.ruby.ST.Directory.miss_type_mach_latency_hist_seqr::bucket_size 1
system.ruby.ST.Directory.miss_type_mach_latency_hist_seqr::max_bucket 9
system.ruby.ST.Directory.miss_type_mach_latency_hist_seqr::samples 45883324
system.ruby.ST.Directory.miss_type_mach_latency_hist_seqr | 45883324
100.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00%
system.ruby.ST.Directory.miss_type_mach_latency_hist_seqr::total 45883324
system.ruby.ST.hit_latency_hist_seqr::bucket_size 1
system.ruby.ST.hit_latency_hist_seqr::max_bucket 9
system.ruby.ST.hit_latency_hist_seqr::samples 158614866
system.ruby.ST.hit_latency_hist_seqr | 158614866 100.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
system.ruby.ST.hit_latency_hist_seqr::total 158614866
system.ruby.ST.latency_hist_seqr::bucket_size 1
system.ruby.ST.latency_hist_seqr::max_bucket 9
system.ruby.ST.latency_hist_seqr::samples 204498190
system.ruby.ST.latency_hist_seqr | 204498190 100.00% 100.00% | 0
0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
system.ruby.ST.latency_hist_seqr::total 204498190
system.ruby.ST.miss_latency_hist_seqr::bucket_size 1
system.ruby.ST.miss_latency_hist_seqr::max_bucket 9
system.ruby.ST.miss_latency_hist_seqr::samples 45883324
system.ruby.ST.miss_latency_hist_seqr | 45883324 100.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |

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0  0.00%  100.00% |      0  0.00%  100.00% |      0  0.00%  100.00% |
0  0.00%  100.00% |      0  0.00%  100.00% |      0  0.00%  100.00%
system.ruby.ST.miss_latency_hist_seqr::total  45883324
system.ruby.Store_Conditional.hit_latency_hist_seqr::bucket_size      1
system.ruby.Store_Conditional.hit_latency_hist_seqr::max_bucket      9
system.ruby.Store_Conditional.hit_latency_hist_seqr::samples  1667856
system.ruby.Store_Conditional.hit_latency_hist_seqr |  1667856  100.00%
100.00% |      0  0.00%  100.00% |      0  0.00%  100.00% |      0
0.00%  100.00% |      0  0.00%  100.00% |      0  0.00%  100.00% |
0  0.00%  100.00% |      0  0.00%  100.00% |      0  0.00%  100.00% |
0  0.00%  100.00%
system.ruby.Store_Conditional.hit_latency_hist_seqr::total  1667856
system.ruby.Store_Conditional.latency_hist_seqr::bucket_size      1
system.ruby.Store_Conditional.latency_hist_seqr::max_bucket      9
system.ruby.Store_Conditional.latency_hist_seqr::samples  1667856
system.ruby.Store_Conditional.latency_hist_seqr |  1667856  100.00%  100.00%
|      0  0.00%  100.00% |      0  0.00%  100.00% |      0  0.00%
100.00% |      0  0.00%  100.00% |      0  0.00%  100.00% |      0
0.00%  100.00% |      0  0.00%  100.00% |      0  0.00%  100.00% |
0  0.00%  100.00%
system.ruby.Store_Conditional.latency_hist_seqr::total  1667856
system.ruby.delayHist::bucket_size      1      # delay histogram for
all message
system.ruby.delayHist::max_bucket      9      # delay histogram for
all message
system.ruby.delayHist::samples      1037582570      # delay histogram
for all message
system.ruby.delayHist      | 1037582570  100.00%  100.00% |      0
0.00%  100.00% |      0  0.00%  100.00% |      0  0.00%  100.00% |
0  0.00%  100.00% |      0  0.00%  100.00% |      0  0.00%  100.00% |
0  0.00%  100.00% |      0  0.00%  100.00% |      0  0.00%  100.00%
# delay histogram for all message
system.ruby.delayHist::total      1037582570      # delay histogram for
all message
system.ruby.delayVCHist.vnet_1::bucket_size      1      # delay
histogram for vnet_1
system.ruby.delayVCHist.vnet_1::max_bucket      9      # delay
histogram for vnet_1
system.ruby.delayVCHist.vnet_1::samples  518791293      # delay
histogram for vnet_1
system.ruby.delayVCHist.vnet_1      | 518791293  100.00%  100.00% |      0
0.00%  100.00% |      0  0.00%  100.00% |      0  0.00%  100.00% |
0  0.00%  100.00% |      0  0.00%  100.00% |      0  0.00%  100.00% |
0  0.00%  100.00% |      0  0.00%  100.00% |      0  0.00%  100.00%
# delay histogram for vnet_1

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system.ruby.delayVCHist.vnet_1::total      518791293          # delay
histogram for vnet_1
system.ruby.delayVCHist.vnet_2::bucket_size      1          # delay
histogram for vnet_2
system.ruby.delayVCHist.vnet_2::max_bucket      9          # delay
histogram for vnet_2
system.ruby.delayVCHist.vnet_2::samples      518791277          # delay
histogram for vnet_2
system.ruby.delayVCHist.vnet_2      | 518791277 100.00% 100.00% |      0
0.00% 100.00% |      0 0.00% 100.00% |      0 0.00% 100.00% |
0 0.00% 100.00% |      0 0.00% 100.00% |      0 0.00% 100.00% |
0 0.00% 100.00% |      0 0.00% 100.00% |      0 0.00% 100.00%
# delay histogram for vnet_2
system.ruby.delayVCHist.vnet_2::total      518791277          # delay
histogram for vnet_2
system.ruby.dir_cntrl0.forwardFromDir.avg_buf_msgs      0.007919          #
Average number of messages in buffer
system.ruby.dir_cntrl0.forwardFromDir.avg_stall_time      499.999990          #
Average number of cycles messages are stalled in this MB
system.ruby.dir_cntrl0.requestToDir.avg_buf_msgs      0.015838          #
Average number of messages in buffer
system.ruby.dir_cntrl0.requestToDir.avg_stall_time      5936.647202          #
Average number of cycles messages are stalled in this MB
system.ruby.dir_cntrl0.responseFromDir.avg_buf_msgs      0.007919          #
Average number of messages in buffer
system.ruby.dir_cntrl0.responseFromDir.avg_stall_time      499.999999          #
Average number of cycles messages are stalled in this MB
system.ruby.dir_cntrl0.responseFromMemory.avg_buf_msgs      0.018445
# Average number of messages in buffer
system.ruby.dir_cntrl0.responseFromMemory.avg_stall_time      499.999999
# Average number of cycles messages are stalled in this MB
system.ruby.hit_latency_hist_seqr::bucket_size      1
system.ruby.hit_latency_hist_seqr::max_bucket      9
system.ruby.hit_latency_hist_seqr::samples      4904395280
system.ruby.hit_latency_hist_seqr      | 4904395280 100.00% 100.00% |      0
0.00% 100.00% |      0 0.00% 100.00% |      0 0.00% 100.00% |
0 0.00% 100.00% |      0 0.00% 100.00% |      0 0.00% 100.00% |
0 0.00% 100.00% |      0 0.00% 100.00% |      0 0.00% 100.00%
system.ruby.hit_latency_hist_seqr::total      4904395280
system.ruby.l1_cntrl0.cacheMemory.demand_accesses      5423186573          #
Number of cache demand accesses
system.ruby.l1_cntrl0.cacheMemory.demand_hits      4904395280          #
Number of cache demand hits
system.ruby.l1_cntrl0.cacheMemory.demand_misses      518791293          #
Number of cache demand misses

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system.ruby.l1_cntrl0.forwardToCache.avg_buf_msgs    0.007919      #
Average number of messages in buffer
system.ruby.l1_cntrl0.forwardToCache.avg_stall_time  3499.999932    #
Average number of cycles messages are stalled in this MB
system.ruby.l1_cntrl0.mandatoryQueue.avg_buf_msgs    0.082782      #
Average number of messages in buffer
system.ruby.l1_cntrl0.mandatoryQueue.avg_stall_time  500.000000    #
Average number of cycles messages are stalled in this MB
system.ruby.l1_cntrl0.requestFromCache.avg_buf_msgs  0.031676      #
Average number of messages in buffer
system.ruby.l1_cntrl0.requestFromCache.avg_stall_time 1000.000000
# Average number of cycles messages are stalled in this MB
system.ruby.l1_cntrl0.responseToCache.avg_buf_msgs   0.007919      #
Average number of messages in buffer
system.ruby.l1_cntrl0.responseToCache.avg_stall_time 3499.999992    #
Average number of cycles messages are stalled in this MB
system.ruby.latency_hist_seqr::bucket_size          16
system.ruby.latency_hist_seqr::max_bucket            159
system.ruby.latency_hist_seqr::samples              5423186573
system.ruby.latency_hist_seqr::mean                 0.000000
system.ruby.latency_hist_seqr::stdev                0.001915
system.ruby.latency_hist_seqr                       | 5423186572 100.00% 100.00% |      0
0.00% 100.00% |      0 0.00% 100.00% |      0 0.00% 100.00% |
0 0.00% 100.00% |      0 0.00% 100.00% |      0 0.00% 100.00% |
0 0.00% 100.00% |      1 0.00% 100.00% |      0 0.00% 100.00%
system.ruby.latency_hist_seqr::total                5423186573
system.ruby.miss_latency_hist_seqr::bucket_size      16
system.ruby.miss_latency_hist_seqr::max_bucket       159
system.ruby.miss_latency_hist_seqr::samples          518791293
system.ruby.miss_latency_hist_seqr::mean             0.000000
system.ruby.miss_latency_hist_seqr::stdev            0.006190
system.ruby.miss_latency_hist_seqr                   | 518791292 100.00% 100.00% |
0 0.00% 100.00% |      0 0.00% 100.00% |      0 0.00% 100.00% |
0 0.00% 100.00% |      0 0.00% 100.00% |      0 0.00% 100.00% |
0 0.00% 100.00% |      1 0.00% 100.00% |      0 0.00% 100.00%
system.ruby.miss_latency_hist_seqr::total            518791293
system.ruby.network.int_link_buffers02.avg_buf_msgs  0.015838      #
Average number of messages in buffer
system.ruby.network.int_link_buffers02.avg_stall_time 3936.647203    #
Average number of cycles messages are stalled in this MB
system.ruby.network.int_link_buffers08.avg_buf_msgs   0.007919      #
Average number of messages in buffer
system.ruby.network.int_link_buffers08.avg_stall_time 1499.999971    #
Average number of cycles messages are stalled in this MB

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system.ruby.network.int_link_buffers09.avg_buf_msgs	0.007919	#
Average number of messages in buffer		
system.ruby.network.int_link_buffers09.avg_stall_time	1499.999997	#
Average number of cycles messages are stalled in this MB		
system.ruby.network.int_link_buffers13.avg_buf_msgs	0.007919	#
Average number of messages in buffer		
system.ruby.network.int_link_buffers13.avg_stall_time	2499.999952	#
Average number of cycles messages are stalled in this MB		
system.ruby.network.int_link_buffers14.avg_buf_msgs	0.007919	#
Average number of messages in buffer		
system.ruby.network.int_link_buffers14.avg_stall_time	2499.999995	#
Average number of cycles messages are stalled in this MB		
system.ruby.network.int_link_buffers17.avg_buf_msgs	0.015838	#
Average number of messages in buffer		
system.ruby.network.int_link_buffers17.avg_stall_time	4936.647203	#
Average number of cycles messages are stalled in this MB		
system.ruby.network.msg_byte.Control	12450991032	
system.ruby.network.msg_byte.Data	112058915832	
system.ruby.network.msg_byte.Response_Data	112058919288	
system.ruby.network.msg_byte.Writeback_Control	12450990648	
system.ruby.network.msg_count.Control	1556373879	
system.ruby.network.msg_count.Data	1556373831	
system.ruby.network.msg_count.Response_Data	1556373879	
system.ruby.network.msg_count.Writeback_Control	1556373831	
system.ruby.network.routers0.msg_bytes.Control::2	4150330344	
system.ruby.network.routers0.msg_bytes.Data::2	37352971944	
system.ruby.network.routers0.msg_bytes.Response_Data::4	37352973096	
system.ruby.network.routers0.msg_bytes.Writeback_Control::3	4150330216	
system.ruby.network.routers0.msg_count.Control::2	518791293	
system.ruby.network.routers0.msg_count.Data::2	518791277	
system.ruby.network.routers0.msg_count.Response_Data::4	518791293	
system.ruby.network.routers0.msg_count.Writeback_Control::3	518791277	
system.ruby.network.routers0.percent_links_utilized	3.959546	
system.ruby.network.routers0.port_buffers03.avg_buf_msgs	0.007919	
# Average number of messages in buffer		
system.ruby.network.routers0.port_buffers03.avg_stall_time	2999.999942	
# Average number of cycles messages are stalled in this MB		
system.ruby.network.routers0.port_buffers04.avg_buf_msgs	0.007919	
# Average number of messages in buffer		
system.ruby.network.routers0.port_buffers04.avg_stall_time	2999.999994	
# Average number of cycles messages are stalled in this MB		
system.ruby.network.routers0.port_buffers07.avg_buf_msgs	0.047515	
# Average number of messages in buffer		
system.ruby.network.routers0.port_buffers07.avg_stall_time	3436.647203	
# Average number of cycles messages are stalled in this MB		

system.ruby.network.routers0.throttle0.link_utilization 3.959546
system.ruby.network.routers0.throttle0.msg_bytes.Response_Data::4 37352973096
system.ruby.network.routers0.throttle0.msg_bytes.Writeback_Control::3
4150330216
system.ruby.network.routers0.throttle0.msg_count.Response_Data::4 518791293
system.ruby.network.routers0.throttle0.msg_count.Writeback_Control::3
518791277
system.ruby.network.routers0.throttle1.link_utilization 3.959546
system.ruby.network.routers0.throttle1.msg_bytes.Control::2 4150330344
system.ruby.network.routers0.throttle1.msg_bytes.Data::2 37352971944
system.ruby.network.routers0.throttle1.msg_count.Control::2 518791293
system.ruby.network.routers0.throttle1.msg_count.Data::2 518791277
system.ruby.network.routers1.msg_bytes.Control::2 4150330344
system.ruby.network.routers1.msg_bytes.Data::2 37352971944
system.ruby.network.routers1.msg_bytes.Response_Data::4 37352973096
system.ruby.network.routers1.msg_bytes.Writeback_Control::3 4150330216
system.ruby.network.routers1.msg_count.Control::2 518791293
system.ruby.network.routers1.msg_count.Data::2 518791277
system.ruby.network.routers1.msg_count.Response_Data::4 518791293
system.ruby.network.routers1.msg_count.Writeback_Control::3 518791277
system.ruby.network.routers1.percent_links_utilized 3.959546
system.ruby.network.routers1.port_buffers02.avg_buf_msgs 0.015838
Average number of messages in buffer
system.ruby.network.routers1.port_buffers02.avg_stall_time 5436.647181
Average number of cycles messages are stalled in this MB
system.ruby.network.routers1.port_buffers06.avg_buf_msgs 0.007919
Average number of messages in buffer
system.ruby.network.routers1.port_buffers06.avg_stall_time 999.999981
Average number of cycles messages are stalled in this MB
system.ruby.network.routers1.port_buffers07.avg_buf_msgs 0.007919
Average number of messages in buffer
system.ruby.network.routers1.port_buffers07.avg_stall_time 999.999998
Average number of cycles messages are stalled in this MB
system.ruby.network.routers1.throttle0.link_utilization 3.959546
system.ruby.network.routers1.throttle0.msg_bytes.Control::2 4150330344
system.ruby.network.routers1.throttle0.msg_bytes.Data::2 37352971944
system.ruby.network.routers1.throttle0.msg_count.Control::2 518791293
system.ruby.network.routers1.throttle0.msg_count.Data::2 518791277
system.ruby.network.routers1.throttle1.link_utilization 3.959546
system.ruby.network.routers1.throttle1.msg_bytes.Response_Data::4 37352973096
system.ruby.network.routers1.throttle1.msg_bytes.Writeback_Control::3
4150330216
system.ruby.network.routers1.throttle1.msg_count.Response_Data::4 518791293
system.ruby.network.routers1.throttle1.msg_count.Writeback_Control::3
518791277


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system.ruby.network.routers2.msg_bytes.Control::2 4150330344
system.ruby.network.routers2.msg_bytes.Data::2 37352971944
system.ruby.network.routers2.msg_bytes.Response_Data::4 37352973096
system.ruby.network.routers2.msg_bytes.Writeback_Control::3 4150330216
system.ruby.network.routers2.msg_count.Control::2 518791293
system.ruby.network.routers2.msg_count.Data::2 518791277
system.ruby.network.routers2.msg_count.Response_Data::4 518791293
system.ruby.network.routers2.msg_count.Writeback_Control::3 518791277
system.ruby.network.routers2.percent_links_utilized 3.959546
system.ruby.network.routers2.port_buffers03.avg_buf_msgs 0.007919
# Average number of messages in buffer
system.ruby.network.routers2.port_buffers03.avg_stall_time 1999.999961
# Average number of cycles messages are stalled in this MB
system.ruby.network.routers2.port_buffers04.avg_buf_msgs 0.007919
# Average number of messages in buffer
system.ruby.network.routers2.port_buffers04.avg_stall_time 1999.999996
# Average number of cycles messages are stalled in this MB
system.ruby.network.routers2.port_buffers07.avg_buf_msgs 0.015838
# Average number of messages in buffer
system.ruby.network.routers2.port_buffers07.avg_stall_time 4436.647204
# Average number of cycles messages are stalled in this MB
system.ruby.network.routers2.throttle0.link_utilization 3.959546
system.ruby.network.routers2.throttle0.msg_bytes.Response_Data::4 37352973096
system.ruby.network.routers2.throttle0.msg_bytes.Writeback_Control::3
4150330216
system.ruby.network.routers2.throttle0.msg_count.Response_Data::4 518791293
system.ruby.network.routers2.throttle0.msg_count.Writeback_Control::3
518791277
system.ruby.network.routers2.throttle1.link_utilization 3.959546
system.ruby.network.routers2.throttle1.msg_bytes.Control::2 4150330344
system.ruby.network.routers2.throttle1.msg_bytes.Data::2 37352971944
system.ruby.network.routers2.throttle1.msg_count.Control::2 518791293
system.ruby.network.routers2.throttle1.msg_count.Data::2 518791277
system.ruby.outstanding_req_hist_seqr::bucket_size 1
system.ruby.outstanding_req_hist_seqr::max_bucket 9
system.ruby.outstanding_req_hist_seqr::samples 5423186573
system.ruby.outstanding_req_hist_seqr::mean 1
system.ruby.outstanding_req_hist_seqr::gmean 1
system.ruby.outstanding_req_hist_seqr | 0 0.00% 0.00% | 5423186573
100.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00% |
0 0.00% 100.00% | 0 0.00% 100.00% | 0 0.00% 100.00%
system.ruby.outstanding_req_hist_seqr::total 5423186573
system.sys_port_proxy.pwrStateResidencyTicks::UNDEFINED 32755727995500
# Cumulative time (in ticks) in various power states

```

```

system.ruby.pwrStateResidencyTicks::UNDEFINED 32755727995500
# Cumulative time (in ticks) in various power states
system.ruby.network.pwrStateResidencyTicks::UNDEFINED 32755727995500
# Cumulative time (in ticks) in various power states
system.ruby.network.routers0.pwrStateResidencyTicks::UNDEFINED
32755727995500 # Cumulative time (in ticks) in various power states
system.ruby.network.routers1.pwrStateResidencyTicks::UNDEFINED
32755727995500 # Cumulative time (in ticks) in various power states
system.ruby.network.routers2.pwrStateResidencyTicks::UNDEFINED
32755727995500 # Cumulative time (in ticks) in various power states
system.ruby.memctrl_clk_domain.clock 1500 # Clock period in
ticks
system.ruby.l1_cntrl0.pwrStateResidencyTicks::UNDEFINED 32755727995500
# Cumulative time (in ticks) in various power states
system.ruby.l1_cntrl0.sequencer.pwrStateResidencyTicks::UNDEFINED
32755727995500 # Cumulative time (in ticks) in various power states
system.ruby.clk_domain.clock 500 # Clock period in ticks
system.ruby.dir_cntrl0.pwrStateResidencyTicks::UNDEFINED 32755727995500
# Cumulative time (in ticks) in various power states
system.voltage_domain.voltage 1 # Voltage in Volts
system.clk_domain.clock 1000 # Clock period in ticks
system.cpu_voltage_domain.voltage 1 # Voltage in Volts
system.mem_ctrls.pwrStateResidencyTicks::UNDEFINED 32755727995500
# Cumulative time (in ticks) in various power states
system.mem_ctrls.bytes_read::.ruby.dir_cntrl0 33202642752 # Number
of bytes read from this memory
system.mem_ctrls.bytes_read::total 33202642752 # Number of
bytes read from this memory
system.mem_ctrls.bytes_written::.ruby.dir_cntrl0 33202641728 #
Number of bytes written to this memory
system.mem_ctrls.bytes_written::total 33202641728 # Number of
bytes written to this memory
system.mem_ctrls.num_reads::.ruby.dir_cntrl0 518791293 # Number
of read requests responded to by this memory
system.mem_ctrls.num_reads::total 518791293 # Number of read
requests responded to by this memory
system.mem_ctrls.num_writes::.ruby.dir_cntrl0 518791277 # Number
of write requests responded to by this memory
system.mem_ctrls.num_writes::total 518791277 # Number of
write requests responded to by this memory
system.mem_ctrls.bw_read::.ruby.dir_cntrl0 1013643866 # Total read
bandwidth from this memory (bytes/s)
system.mem_ctrls.bw_read::total 1013643866 # Total read
bandwidth from this memory (bytes/s)

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system.mem_ctrls.bw_write::ruby.dir_cntrl0	1013643835	# Write
bandwidth from this memory (bytes/s)		
system.mem_ctrls.bw_write::total	1013643835	# Write
bandwidth from this memory (bytes/s)		
system.mem_ctrls.bw_total::ruby.dir_cntrl0	2027287700	# Total
bandwidth to/from this memory (bytes/s)		
system.mem_ctrls.bw_total::total	2027287700	# Total bandwidth
to/from this memory (bytes/s)		
system.mem_ctrls.avgPriority_.ruby.dir_cntrl0::samples	843962836.00	
# Average QoS priority value for accepted requests		
system.mem_ctrls.priorityMinLatency	0.000000018750	# per QoS
priority minimum request to response latency (s)		
system.mem_ctrls.priorityMaxLatency	0.000261842500	# per QoS
priority maximum request to response latency (s)		
system.mem_ctrls.numReadWriteTurnArounds	27409815	# Number
of turnarounds from READ to WRITE		
system.mem_ctrls.numWriteReadTurnArounds	27409815	# Number
of turnarounds from WRITE to READ		
system.mem_ctrls.numStayReadState	1298414016	# Number of
times bus staying in READ state		
system.mem_ctrls.numStayWriteState	414552943	# Number of
times bus staying in WRITE state		
system.mem_ctrls.readReqs	518791293	# Number of read
requests accepted		
system.mem_ctrls.writeReqs	518791277	# Number of write
requests accepted		
system.mem_ctrls.readBursts	518791293	# Number of
DRAM read bursts, including those serviced by the write queue		
system.mem_ctrls.writeBursts	518791277	# Number of
DRAM write bursts, including those merged in the write queue		
system.mem_ctrls.servicedByWrQ	116432006	# Number of
DRAM read bursts serviced by the write queue		
system.mem_ctrls.mergedWrBursts	77187728	# Number of
DRAM write bursts merged with an existing one		
system.mem_ctrls.neitherReadNorWriteReqs	0	# Number of
requests that are neither read nor write		
system.mem_ctrls.perBankRdBursts::0	6737847	# Per bank write
bursts		
system.mem_ctrls.perBankRdBursts::1	6995117	# Per bank write
bursts		
system.mem_ctrls.perBankRdBursts::2	61648267	# Per bank
write bursts		
system.mem_ctrls.perBankRdBursts::3	26392793	# Per bank
write bursts		

system.mem_ctrls.perBankRdBursts::4 write bursts	17374374	# Per bank
system.mem_ctrls.perBankRdBursts::5 write bursts	12983902	# Per bank
system.mem_ctrls.perBankRdBursts::6 write bursts	18322456	# Per bank
system.mem_ctrls.perBankRdBursts::7 bursts	9752369	# Per bank write
system.mem_ctrls.perBankRdBursts::8 write bursts	11597717	# Per bank
system.mem_ctrls.perBankRdBursts::9 write bursts	42578408	# Per bank
system.mem_ctrls.perBankRdBursts::10 write bursts	56992222	# Per bank
system.mem_ctrls.perBankRdBursts::11 write bursts	25829059	# Per bank
system.mem_ctrls.perBankRdBursts::12 write bursts	21712742	# Per bank
system.mem_ctrls.perBankRdBursts::13 write bursts	38332267	# Per bank
system.mem_ctrls.perBankRdBursts::14 write bursts	30917080	# Per bank
system.mem_ctrls.perBankRdBursts::15 write bursts	14192667	# Per bank
system.mem_ctrls.perBankWrBursts::0 bursts	6863713	# Per bank write
system.mem_ctrls.perBankWrBursts::1 bursts	7000579	# Per bank write
system.mem_ctrls.perBankWrBursts::2 write bursts	77272409	# Per bank
system.mem_ctrls.perBankWrBursts::3 write bursts	32192461	# Per bank
system.mem_ctrls.perBankWrBursts::4 write bursts	18325875	# Per bank
system.mem_ctrls.perBankWrBursts::5 write bursts	14792766	# Per bank
system.mem_ctrls.perBankWrBursts::6 write bursts	22955985	# Per bank
system.mem_ctrls.perBankWrBursts::7 bursts	9913081	# Per bank write
system.mem_ctrls.perBankWrBursts::8 write bursts	14781461	# Per bank
system.mem_ctrls.perBankWrBursts::9 write bursts	43780504	# Per bank

system.mem_ctrls.perBankWrBursts::10 write bursts	59445621	# Per bank
system.mem_ctrls.perBankWrBursts::11 write bursts	27118068	# Per bank
system.mem_ctrls.perBankWrBursts::12 write bursts	21778884	# Per bank
system.mem_ctrls.perBankWrBursts::13 write bursts	38742695	# Per bank
system.mem_ctrls.perBankWrBursts::14 write bursts	32188381	# Per bank
system.mem_ctrls.perBankWrBursts::15 write bursts	14451044	# Per bank
system.mem_ctrls.avgRdQLen length when enqueueing	1.00	# Average read queue
system.mem_ctrls.avgWrQLen queue length when enqueueing	26.09	# Average write
system.mem_ctrls.totQLat queueing	5044106041000	# Total ticks spent
system.mem_ctrls.totBusLat spent in databus transfers	2011796435000	# Total ticks
system.mem_ctrls.totMemAccLat spent from burst creation until serviced by the DRAM	12588342672250	# Total ticks
system.mem_ctrls.avgQLat delay per DRAM burst	12536.32	# Average queueing
system.mem_ctrls.avgBusLat latency per DRAM burst	5000.00	# Average bus
system.mem_ctrls.avgMemAccLat memory access latency per DRAM burst	31286.32	# Average
system.mem_ctrls.numRdRetry read queue was full causing retry	0	# Number of times
system.mem_ctrls.numWrRetry write queue was full causing retry	0	# Number of times
system.mem_ctrls.readRowHits buffer hits during reads	325845964	# Number of row
system.mem_ctrls.writeRowHits buffer hits during writes	402984828	# Number of row
system.mem_ctrls.readRowHitRate rate for reads	80.98	# Row buffer hit
system.mem_ctrls.writeRowHitRate rate for writes	91.25	# Row buffer hit
system.mem_ctrls.readPktSize::0 (log2)	0	# Read request sizes
system.mem_ctrls.readPktSize::1 (log2)	0	# Read request sizes

system.mem_ctrls.readPktSize::2 (log2)	0	# Read request sizes
system.mem_ctrls.readPktSize::3 (log2)	0	# Read request sizes
system.mem_ctrls.readPktSize::4 (log2)	0	# Read request sizes
system.mem_ctrls.readPktSize::5 (log2)	0	# Read request sizes
system.mem_ctrls.readPktSize::6 sizes (log2)	518791293	# Read request
system.mem_ctrls.writePktSize::0 (log2)	0	# Write request sizes
system.mem_ctrls.writePktSize::1 (log2)	0	# Write request sizes
system.mem_ctrls.writePktSize::2 (log2)	0	# Write request sizes
system.mem_ctrls.writePktSize::3 (log2)	0	# Write request sizes
system.mem_ctrls.writePktSize::4 (log2)	0	# Write request sizes
system.mem_ctrls.writePktSize::5 (log2)	0	# Write request sizes
system.mem_ctrls.writePktSize::6 sizes (log2)	518791277	# Write request
system.mem_ctrls.rdQLenPdf::0 queue length does an incoming req see	402359287	# What read
system.mem_ctrls.rdQLenPdf::1 length does an incoming req see	0	# What read queue
system.mem_ctrls.rdQLenPdf::2 length does an incoming req see	0	# What read queue
system.mem_ctrls.rdQLenPdf::3 length does an incoming req see	0	# What read queue
system.mem_ctrls.rdQLenPdf::4 length does an incoming req see	0	# What read queue
system.mem_ctrls.rdQLenPdf::5 length does an incoming req see	0	# What read queue
system.mem_ctrls.rdQLenPdf::6 length does an incoming req see	0	# What read queue
system.mem_ctrls.rdQLenPdf::7 length does an incoming req see	0	# What read queue
system.mem_ctrls.rdQLenPdf::8 length does an incoming req see	0	# What read queue
system.mem_ctrls.rdQLenPdf::9 length does an incoming req see	0	# What read queue

system.mem_ctrls.rdQLenPdf::10	0	# What read queue
length does an incoming req see		
system.mem_ctrls.rdQLenPdf::11	0	# What read queue
length does an incoming req see		
system.mem_ctrls.rdQLenPdf::12	0	# What read queue
length does an incoming req see		
system.mem_ctrls.rdQLenPdf::13	0	# What read queue
length does an incoming req see		
system.mem_ctrls.rdQLenPdf::14	0	# What read queue
length does an incoming req see		
system.mem_ctrls.rdQLenPdf::15	0	# What read queue
length does an incoming req see		
system.mem_ctrls.rdQLenPdf::16	0	# What read queue
length does an incoming req see		
system.mem_ctrls.rdQLenPdf::17	0	# What read queue
length does an incoming req see		
system.mem_ctrls.rdQLenPdf::18	0	# What read queue
length does an incoming req see		
system.mem_ctrls.rdQLenPdf::19	0	# What read queue
length does an incoming req see		
system.mem_ctrls.rdQLenPdf::20	0	# What read queue
length does an incoming req see		
system.mem_ctrls.rdQLenPdf::21	0	# What read queue
length does an incoming req see		
system.mem_ctrls.rdQLenPdf::22	0	# What read queue
length does an incoming req see		
system.mem_ctrls.rdQLenPdf::23	0	# What read queue
length does an incoming req see		
system.mem_ctrls.rdQLenPdf::24	0	# What read queue
length does an incoming req see		
system.mem_ctrls.rdQLenPdf::25	0	# What read queue
length does an incoming req see		
system.mem_ctrls.rdQLenPdf::26	0	# What read queue
length does an incoming req see		
system.mem_ctrls.rdQLenPdf::27	0	# What read queue
length does an incoming req see		
system.mem_ctrls.rdQLenPdf::28	0	# What read queue
length does an incoming req see		
system.mem_ctrls.rdQLenPdf::29	0	# What read queue
length does an incoming req see		
system.mem_ctrls.rdQLenPdf::30	0	# What read queue
length does an incoming req see		
system.mem_ctrls.rdQLenPdf::31	0	# What read queue
length does an incoming req see		

system.mem_ctrls.wrQLenPdf::0 length does an incoming req see	1	# What write queue
system.mem_ctrls.wrQLenPdf::1 length does an incoming req see	1	# What write queue
system.mem_ctrls.wrQLenPdf::2 length does an incoming req see	1	# What write queue
system.mem_ctrls.wrQLenPdf::3 length does an incoming req see	1	# What write queue
system.mem_ctrls.wrQLenPdf::4 length does an incoming req see	1	# What write queue
system.mem_ctrls.wrQLenPdf::5 length does an incoming req see	1	# What write queue
system.mem_ctrls.wrQLenPdf::6 length does an incoming req see	1	# What write queue
system.mem_ctrls.wrQLenPdf::7 length does an incoming req see	1	# What write queue
system.mem_ctrls.wrQLenPdf::8 length does an incoming req see	1	# What write queue
system.mem_ctrls.wrQLenPdf::9 length does an incoming req see	1	# What write queue
system.mem_ctrls.wrQLenPdf::10 length does an incoming req see	1	# What write queue
system.mem_ctrls.wrQLenPdf::11 length does an incoming req see	1	# What write queue
system.mem_ctrls.wrQLenPdf::12 length does an incoming req see	1	# What write queue
system.mem_ctrls.wrQLenPdf::13 length does an incoming req see	1	# What write queue
system.mem_ctrls.wrQLenPdf::14 length does an incoming req see	1	# What write queue
system.mem_ctrls.wrQLenPdf::15 queue length does an incoming req see	668130	# What write
system.mem_ctrls.wrQLenPdf::16 queue length does an incoming req see	1010561	# What write
system.mem_ctrls.wrQLenPdf::17 queue length does an incoming req see	24269416	# What write
system.mem_ctrls.wrQLenPdf::18 queue length does an incoming req see	27556432	# What write
system.mem_ctrls.wrQLenPdf::19 queue length does an incoming req see	27788129	# What write
system.mem_ctrls.wrQLenPdf::20 queue length does an incoming req see	27753795	# What write
system.mem_ctrls.wrQLenPdf::21 queue length does an incoming req see	28221997	# What write

system.mem_ctrls.wrQLenPdf::22 queue length does an incoming req see	28936210	# What write
system.mem_ctrls.wrQLenPdf::23 queue length does an incoming req see	28502272	# What write
system.mem_ctrls.wrQLenPdf::24 queue length does an incoming req see	27480952	# What write
system.mem_ctrls.wrQLenPdf::25 queue length does an incoming req see	27448777	# What write
system.mem_ctrls.wrQLenPdf::26 queue length does an incoming req see	27421053	# What write
system.mem_ctrls.wrQLenPdf::27 queue length does an incoming req see	27414768	# What write
system.mem_ctrls.wrQLenPdf::28 queue length does an incoming req see	27412321	# What write
system.mem_ctrls.wrQLenPdf::29 queue length does an incoming req see	27411468	# What write
system.mem_ctrls.wrQLenPdf::30 queue length does an incoming req see	27410649	# What write
system.mem_ctrls.wrQLenPdf::31 queue length does an incoming req see	27410234	# What write
system.mem_ctrls.wrQLenPdf::32 queue length does an incoming req see	27409905	# What write
system.mem_ctrls.wrQLenPdf::33 length does an incoming req see	49890	# What write queue
system.mem_ctrls.wrQLenPdf::34 length does an incoming req see	15343	# What write queue
system.mem_ctrls.wrQLenPdf::35 length does an incoming req see	6414	# What write queue
system.mem_ctrls.wrQLenPdf::36 length does an incoming req see	2995	# What write queue
system.mem_ctrls.wrQLenPdf::37 length does an incoming req see	1219	# What write queue
system.mem_ctrls.wrQLenPdf::38 length does an incoming req see	436	# What write queue
system.mem_ctrls.wrQLenPdf::39 length does an incoming req see	138	# What write queue
system.mem_ctrls.wrQLenPdf::40 length does an incoming req see	30	# What write queue
system.mem_ctrls.wrQLenPdf::41 length does an incoming req see	0	# What write queue
system.mem_ctrls.wrQLenPdf::42 length does an incoming req see	0	# What write queue
system.mem_ctrls.wrQLenPdf::43 length does an incoming req see	0	# What write queue

system.mem_ctrls.wrQLenPdf::44 length does an incoming req see	0	# What write queue
system.mem_ctrls.wrQLenPdf::45 length does an incoming req see	0	# What write queue
system.mem_ctrls.wrQLenPdf::46 length does an incoming req see	0	# What write queue
system.mem_ctrls.wrQLenPdf::47 length does an incoming req see	0	# What write queue
system.mem_ctrls.wrQLenPdf::48 length does an incoming req see	0	# What write queue
system.mem_ctrls.wrQLenPdf::49 length does an incoming req see	0	# What write queue
system.mem_ctrls.wrQLenPdf::50 length does an incoming req see	0	# What write queue
system.mem_ctrls.wrQLenPdf::51 length does an incoming req see	0	# What write queue
system.mem_ctrls.wrQLenPdf::52 length does an incoming req see	0	# What write queue
system.mem_ctrls.wrQLenPdf::53 length does an incoming req see	0	# What write queue
system.mem_ctrls.wrQLenPdf::54 length does an incoming req see	0	# What write queue
system.mem_ctrls.wrQLenPdf::55 length does an incoming req see	0	# What write queue
system.mem_ctrls.wrQLenPdf::56 length does an incoming req see	0	# What write queue
system.mem_ctrls.wrQLenPdf::57 length does an incoming req see	0	# What write queue
system.mem_ctrls.wrQLenPdf::58 length does an incoming req see	0	# What write queue
system.mem_ctrls.wrQLenPdf::59 length does an incoming req see	0	# What write queue
system.mem_ctrls.wrQLenPdf::60 length does an incoming req see	0	# What write queue
system.mem_ctrls.wrQLenPdf::61 length does an incoming req see	0	# What write queue
system.mem_ctrls.wrQLenPdf::62 length does an incoming req see	0	# What write queue
system.mem_ctrls.wrQLenPdf::63 length does an incoming req see	0	# What write queue
system.mem_ctrls.bytesPerActivate::samples accessed per row activation	115132015	# Bytes
system.mem_ctrls.bytesPerActivate::mean accessed per row activation	469.145086	# Bytes

system.mem_ctrls.bytesPerActivate::gmean	292.694687			# Bytes
accessed per row activation				
system.mem_ctrls.bytesPerActivate::stdev	388.323387			# Bytes
accessed per row activation				
system.mem_ctrls.bytesPerActivate::0-127	23484577	20.40%	20.40%	# Bytes
accessed per row activation				
system.mem_ctrls.bytesPerActivate::128-255	26770552	23.25%	43.65%	#
Bytes accessed per row activation				
system.mem_ctrls.bytesPerActivate::256-383	10442803	9.07%	52.72%	#
Bytes accessed per row activation				
system.mem_ctrls.bytesPerActivate::384-511	7306093	6.35%	59.07%	#
Bytes accessed per row activation				
system.mem_ctrls.bytesPerActivate::512-639	6293117	5.47%	64.53%	#
Bytes accessed per row activation				
system.mem_ctrls.bytesPerActivate::640-767	4505160	3.91%	68.45%	#
Bytes accessed per row activation				
system.mem_ctrls.bytesPerActivate::768-895	3809701	3.31%	71.75%	#
Bytes accessed per row activation				
system.mem_ctrls.bytesPerActivate::896-1023	2899515	2.52%	74.27%	#
Bytes accessed per row activation				
system.mem_ctrls.bytesPerActivate::1024-1151	29620497	25.73%	100.00%	#
Bytes accessed per row activation				
system.mem_ctrls.bytesPerActivate::total	115132015			# Bytes
accessed per row activation				
system.mem_ctrls.rdPerTurnAround::samples	27409815			# Reads
before turning the bus around for writes				
system.mem_ctrls.rdPerTurnAround::mean	14.679387			# Reads
before turning the bus around for writes				
system.mem_ctrls.rdPerTurnAround::gmean	14.527402			# Reads
before turning the bus around for writes				
system.mem_ctrls.rdPerTurnAround::stdev	2.027077			# Reads before
turning the bus around for writes				
system.mem_ctrls.rdPerTurnAround::0-1	1	0.00%	0.00%	# Reads
before turning the bus around for writes				
system.mem_ctrls.rdPerTurnAround::2-3	182	0.00%	0.00%	# Reads
before turning the bus around for writes				
system.mem_ctrls.rdPerTurnAround::4-5	6036	0.02%	0.02%	# Reads
before turning the bus around for writes				
system.mem_ctrls.rdPerTurnAround::6-7	96202	0.35%	0.37%	# Reads
before turning the bus around for writes				
system.mem_ctrls.rdPerTurnAround::8-9	358529	1.31%	1.68%	# Reads
before turning the bus around for writes				
system.mem_ctrls.rdPerTurnAround::10-11	1181390	4.31%	5.99%	# Reads
before turning the bus around for writes				

system.mem_ctrls.rdPerTurnAround::12-13 Reads before turning the bus around for writes	4867934	17.76%	23.75% #
system.mem_ctrls.rdPerTurnAround::14-15 Reads before turning the bus around for writes	11033277	40.25%	64.00% #
system.mem_ctrls.rdPerTurnAround::16-17 Reads before turning the bus around for writes	8388915	30.61%	94.61% #
system.mem_ctrls.rdPerTurnAround::18-19 Reads before turning the bus around for writes	1151388	4.20%	98.81% #
system.mem_ctrls.rdPerTurnAround::20-21 before turning the bus around for writes	257948	0.94%	99.75% # Reads
system.mem_ctrls.rdPerTurnAround::22-23 before turning the bus around for writes	56093	0.20%	99.96% # Reads
system.mem_ctrls.rdPerTurnAround::24-25 before turning the bus around for writes	10660	0.04%	100.00% # Reads
system.mem_ctrls.rdPerTurnAround::26-27 before turning the bus around for writes	1243	0.00%	100.00% # Reads
system.mem_ctrls.rdPerTurnAround::28-29 before turning the bus around for writes	16	0.00%	100.00% # Reads
system.mem_ctrls.rdPerTurnAround::44-45 before turning the bus around for writes	1	0.00%	100.00% # Reads
system.mem_ctrls.rdPerTurnAround::total turning the bus around for writes	27409815		# Reads before
system.mem_ctrls.wrPerTurnAround::samples before turning the bus around for reads	27409815		# Writes
system.mem_ctrls.wrPerTurnAround::mean before turning the bus around for reads	16.111146		# Writes
system.mem_ctrls.wrPerTurnAround::gmean before turning the bus around for reads	16.102259		# Writes
system.mem_ctrls.wrPerTurnAround::stdev before turning the bus around for reads	0.568589		# Writes
system.mem_ctrls.wrPerTurnAround::16 Writes before turning the bus around for reads	26178132	95.51%	95.51% #
system.mem_ctrls.wrPerTurnAround::17 before turning the bus around for reads	329658	1.20%	96.71% # Writes
system.mem_ctrls.wrPerTurnAround::18 before turning the bus around for reads	300578	1.10%	97.81% # Writes
system.mem_ctrls.wrPerTurnAround::19 before turning the bus around for reads	322486	1.18%	98.98% # Writes
system.mem_ctrls.wrPerTurnAround::20 before turning the bus around for reads	249993	0.91%	99.89% # Writes
system.mem_ctrls.wrPerTurnAround::21 before turning the bus around for reads	26696	0.10%	99.99% # Writes
system.mem_ctrls.wrPerTurnAround::22 before turning the bus around for reads	1669	0.01%	100.00% # Writes

system.mem_ctrls.wrPerTurnAround::23 before turning the bus around for reads	328	0.00%	100.00% # Writes
system.mem_ctrls.wrPerTurnAround::24 before turning the bus around for reads	135	0.00%	100.00% # Writes
system.mem_ctrls.wrPerTurnAround::25 before turning the bus around for reads	65	0.00%	100.00% # Writes
system.mem_ctrls.wrPerTurnAround::26 before turning the bus around for reads	48	0.00%	100.00% # Writes
system.mem_ctrls.wrPerTurnAround::27 before turning the bus around for reads	18	0.00%	100.00% # Writes
system.mem_ctrls.wrPerTurnAround::28 before turning the bus around for reads	8	0.00%	100.00% # Writes
system.mem_ctrls.wrPerTurnAround::30 before turning the bus around for reads	1	0.00%	100.00% # Writes
system.mem_ctrls.wrPerTurnAround::total before turning the bus around for reads	27409815		# Writes
system.mem_ctrls.bytesReadDRAM number of bytes read from DRAM	25750994368		# Total
system.mem_ctrls.bytesReadWrQ of bytes read from write queue	7451648384		# Total number
system.mem_ctrls.bytesWritten bytes written to DRAM	28262625728		# Total number of
system.mem_ctrls.bytesReadSys bytes from the system interface side	33202642752		# Total read
system.mem_ctrls.bytesWrittenSys bytes from the system interface side	33202641728		# Total written
system.mem_ctrls.avgRdBW read bandwidth in MiByte/s	786.15		# Average DRAM
system.mem_ctrls.avgWrBW write bandwidth in MiByte/s	862.83		# Average achieved
system.mem_ctrls.avgRdBWSys read bandwidth in MiByte/s	1013.64		# Average system
system.mem_ctrls.avgWrBWSys write bandwidth in MiByte/s	1013.64		# Average system
system.mem_ctrls.peakBW bandwidth in MiByte/s	12800.00		# Theoretical peak
system.mem_ctrls.busUtil percentage	12.88		# Data bus utilization in
system.mem_ctrls.busUtilRead in percentage for reads	6.14		# Data bus utilization
system.mem_ctrls.busUtilWrite in percentage for writes	6.74		# Data bus utilization
system.mem_ctrls.totGap between requests	32755727943000		# Total gap

system.mem_ctrls.avgGap	31569.27	# Average gap between requests
system.mem_ctrls.masterReadBytes::.ruby.dir_cntrl0	25750994368	# Per-master bytes read from memory
system.mem_ctrls.masterWriteBytes::.ruby.dir_cntrl0	28262625728	# Per-master bytes write to memory
system.mem_ctrls.masterReadRate::.ruby.dir_cntrl0	786152405.818539142609	# Per-master bytes read from memory rate (Bytes/sec)
system.mem_ctrls.masterWriteRate::.ruby.dir_cntrl0	862830028.747421860695	# Per-master bytes write to memory rate (Bytes/sec)
system.mem_ctrls.masterReadAccesses::.ruby.dir_cntrl0	518791293	# Per-master read serviced memory accesses
system.mem_ctrls.masterWriteAccesses::.ruby.dir_cntrl0	518791277	# Per-master write serviced memory accesses
system.mem_ctrls.masterReadTotalLat::.ruby.dir_cntrl0	12588342672250	# Per-master read total memory access latency
system.mem_ctrls.masterWriteTotalLat::.ruby.dir_cntrl0	810395425627250	# Per-master write total memory access latency
system.mem_ctrls.masterReadAvgLat::.ruby.dir_cntrl0	24264.75	# Per-master read average memory access latency
system.mem_ctrls.masterWriteAvgLat::.ruby.dir_cntrl0	1562083.75	# Per-master write average memory access latency
system.mem_ctrls.pageHitRate	86.36	# Row buffer hit rate, read and write combined
system.mem_ctrls.rank1.actEnergy	397775626080	# Energy for activate commands per rank (pJ)
system.mem_ctrls.rank1.preEnergy	211422747855	# Energy for precharge commands per rank (pJ)
system.mem_ctrls.rank1.readEnergy	1728966436680	# Energy for read commands per rank (pJ)
system.mem_ctrls.rank1.writeEnergy	1316936354760	# Energy for write commands per rank (pJ)
system.mem_ctrls.rank1.refreshEnergy	2585709347520.000488	# Energy for refresh commands per rank (pJ)
system.mem_ctrls.rank1.actBackEnergy	14592356348610	# Energy for active background per rank (pJ)
system.mem_ctrls.rank1.preBackEnergy	289899467520	# Energy for precharge background per rank (pJ)
system.mem_ctrls.rank1.actPowerDownEnergy	0	# Energy for active power-down per rank (pJ)
system.mem_ctrls.rank1.prePowerDownEnergy	0	# Energy for precharge power-down per rank (pJ)
system.mem_ctrls.rank1.selfRefreshEnergy	0	# Energy for self refresh per rank (pJ)

system.mem_ctrls.rank1.totalEnergy	21123066329025	# Total
energy per rank (pJ)		
system.mem_ctrls.rank1.averagePower	644.866337	# Core power
per rank (mW)		
system.mem_ctrls.rank1.totalIdleTime	0	# Total Idle time Per
DRAM Rank		
system.mem_ctrls.rank1.memoryStateTime::IDLE	627279080000	#
Time in different power states		
system.mem_ctrls.rank1.memoryStateTime::REF	1093785680000	#
Time in different power states		
system.mem_ctrls.rank1.memoryStateTime::SREF	0	# Time in
different power states		
system.mem_ctrls.rank1.memoryStateTime::PRE_PDN	0	# Time
in different power states		
system.mem_ctrls.rank1.memoryStateTime::ACT	31034663235500	#
Time in different power states		
system.mem_ctrls.rank1.memoryStateTime::ACT_PDN	0	#
Time in different power states		
system.mem_ctrls.rank0.actEnergy	424267011000	# Energy for
activate commands per rank (pJ)		
system.mem_ctrls.rank0.preEnergy	225503249070	# Energy for
precharge commands per rank (pJ)		
system.mem_ctrls.rank0.readEnergy	1143878872500	# Energy for
read commands per rank (pJ)		
system.mem_ctrls.rank0.writeEnergy	988234056180	# Energy for
write commands per rank (pJ)		
system.mem_ctrls.rank0.refreshEnergy	2585709347520.000488	#
Energy for refresh commands per rank (pJ)		
system.mem_ctrls.rank0.actBackEnergy	13382269405110	# Energy
for active background per rank (pJ)		
system.mem_ctrls.rank0.preBackEnergy	1308920051520	# Energy
for precharge background per rank (pJ)		
system.mem_ctrls.rank0.actPowerDownEnergy	0	# Energy for
active power-down per rank (pJ)		
system.mem_ctrls.rank0.prePowerDownEnergy	0	# Energy for
precharge power-down per rank (pJ)		
system.mem_ctrls.rank0.selfRefreshEnergy	0	# Energy for self
refresh per rank (pJ)		
system.mem_ctrls.rank0.totalEnergy	20058781992900	# Total
energy per rank (pJ)		
system.mem_ctrls.rank0.averagePower	612.374788	# Core power
per rank (mW)		
system.mem_ctrls.rank0.totalIdleTime	0	# Total Idle time Per
DRAM Rank		

system.mem_ctrls.rank0.memoryStateTime::IDLE	3261515708500	#
Time in different power states		
system.mem_ctrls.rank0.memoryStateTime::REF	1093785680000	#
Time in different power states		
system.mem_ctrls.rank0.memoryStateTime::SREF	0	# Time in
different power states		
system.mem_ctrls.rank0.memoryStateTime::PRE_PDN	0	# Time
in different power states		
system.mem_ctrls.rank0.memoryStateTime::ACT	28400426607000	#
Time in different power states		
system.mem_ctrls.rank0.memoryStateTime::ACT_PDN	0	#
Time in different power states		
system.cpu_clk_domain.clock	500	# Clock period in ticks
system.cpu.numPwrStateTransitions	1	# Number of power
state transitions		
system.cpu.pwrStateResidencyTicks::ON	32755727995500	#
Cumulative time (in ticks) in various power states		

----- End Simulation Statistics -----