



SPEC[®] CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECint[®]_rate2006 = 512

IBM System x3755 M3 (AMD Opteron 6128 HE)

SPECint_rate_base2006 = 443

CPU2006 license: 11

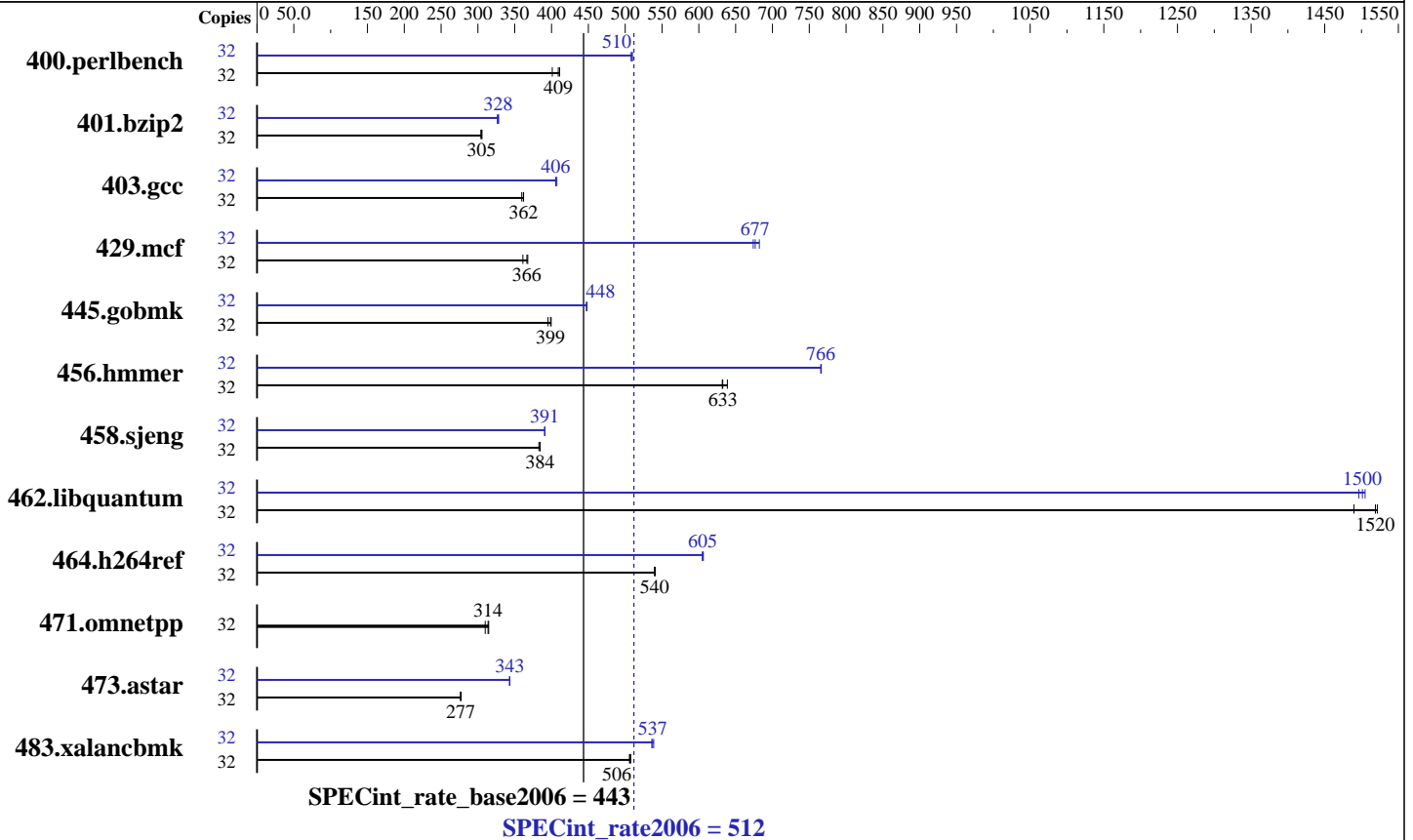
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Jul-2011

Hardware Availability: Dec-2010

Software Availability: Jul-2010



Hardware

CPU Name: AMD Opteron 6128 HE
 CPU Characteristics:
 CPU MHz: 2000
 FPU: Integrated
 CPU(s) enabled: 32 cores, 4 chips, 8 cores/chip
 CPU(s) orderable: 2,4 chips
 Primary Cache: 64 KB I + 64 KB D on chip per core
 Secondary Cache: 512 KB I+D on chip per core
 L3 Cache: 12 MB I+D on chip per chip, 6 MB shared / 4 cores
 Other Cache: None
 Memory: 128 GB (32 x 4 GB 2Rx4 PC3-10600R-9, ECC)
 Disk Subsystem: 1 x 250 GB SATA, 7200 RPM
 Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 11 SP1 (x86_64), Kernel 2.6.32.12-0.7-default
 Compiler: x86 Open64 4.2.4 Compiler Suite (from AMD)
 Auto Parallel: No
 File System: ext3
 System State: Run level 3 (Full multiuser with network)
 Base Pointers: 32/64-bit
 Peak Pointers: 32/64-bit
 Other Software: SmartHeap 8.1 32-bit Library for Linux



SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECint_rate2006 = 512

IBM System x3755 M3 (AMD Opteron 6128 HE)

SPECint_rate_base2006 = 443

CPU2006 license: 11

Test date: Jul-2011

Test sponsor: IBM Corporation

Hardware Availability: Dec-2010

Tested by: IBM Corporation

Software Availability: Jul-2010

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	32	780	401	<u>764</u>	<u>409</u>	761	411	32	615	508	614	510	<u>614</u>	<u>510</u>
401.bzip2	32	1016	304	<u>1012</u>	<u>305</u>	1011	305	32	946	326	<u>943</u>	<u>328</u>	941	328
403.gcc	32	712	362	717	359	<u>712</u>	<u>362</u>	32	635	406	<u>635</u>	<u>406</u>	633	407
429.mcf	32	794	368	<u>796</u>	<u>366</u>	808	361	32	428	682	433	674	<u>431</u>	<u>677</u>
445.gobmk	32	<u>842</u>	<u>399</u>	849	395	840	399	32	751	447	<u>749</u>	<u>448</u>	749	448
456.hammer	32	472	632	467	639	<u>472</u>	<u>633</u>	32	390	766	<u>390</u>	<u>766</u>	390	766
458.sjeng	32	<u>1007</u>	<u>384</u>	1007	385	1012	383	32	991	391	<u>991</u>	<u>391</u>	990	391
462.libquantum	32	436	1520	<u>437</u>	<u>1520</u>	445	1490	32	443	1500	<u>442</u>	<u>1500</u>	441	1500
464.h264ref	32	1312	540	<u>1312</u>	<u>540</u>	1309	541	32	<u>1170</u>	<u>605</u>	1171	605	1168	606
471.omnetpp	32	<u>638</u>	<u>314</u>	636	315	645	310	32	<u>638</u>	<u>314</u>	636	315	645	310
473.astar	32	813	276	810	277	<u>812</u>	<u>277</u>	32	<u>654</u>	<u>343</u>	655	343	654	343
483.xalancbmk	32	<u>436</u>	<u>506</u>	435	508	437	506	32	<u>411</u>	<u>537</u>	412	536	410	539

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

The config file option 'submit' was used.
'numactl' was used to bind copies to the cores.
See the configuration file for details.

Operating System Notes

'ulimit -s unlimited' was used to set environment stack size
'ulimit -l 2097152' was used to set environment locked pages in memory limit

Set vm/nr_hugepages=28672 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages

Platform Notes

BIOS Settings:
Operating Mode set to Performance Mode

General Notes

Environment variables set by runspec before the start of the run:

HUGETLB_LIMIT = "896"

LD_LIBRARY_PATH = "/root/speccpu_2011-03-22/speccpu_rate_revC-3/amd1002mc-rate-libs-revC/64:/root/speccpu_2011-03-22/speccpu_rate_revC-3/amd1002mc-rate-libs-revC/32"

The x86 Open64 Compiler Suite is only available from (and supported by) AMD at
<http://developer.amd.com/cpu/open64>

Continued on next page



SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECint_rate2006 = 512

IBM System x3755 M3 (AMD Opteron 6128 HE)

SPECint_rate_base2006 = 443

CPU2006 license: 11

Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Jul-2011

Hardware Availability: Dec-2010

Software Availability: Jul-2010

General Notes (Continued)

Binaries were compiled on SLES10 SP2 with binutils 2.18

Base Compiler Invocation

C benchmarks:
opencc

C++ benchmarks:
openCC

Base Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
-march=barcelona -mso -Ofast -CG:local_sched_alg=1
-INLINE:aggressive=on -IPA:plimit=8000 -IPA:small_pu=100
-HP:bdt=2m:heap=2m

C++ benchmarks:
-march=barcelona -mso -Ofast -m32 -INLINE:aggressive=on
-CG:cmp_peep=on -L/root/work/libraries/SmartHeap-8.1/lib -lsmarheap

Peak Compiler Invocation

C benchmarks:
opencc

C++ benchmarks:
openCC



SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECint_rate2006 = 512

IBM System x3755 M3 (AMD Opteron 6128 HE)

SPECint_rate_base2006 = 443

CPU2006 license: 11

Test date: Jul-2011

Test sponsor: IBM Corporation

Hardware Availability: Dec-2010

Tested by: IBM Corporation

Software Availability: Jul-2010

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
 401.bzip2: -DSPEC_CPU_LP64
 445.gobmk: -DSPEC_CPU_LP64
 456.hmmer: -DSPEC_CPU_LP64
 458.sjeng: -DSPEC_CPU_LP64
 462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
 464.h264ref: -DSPEC_CPU_LP64
 483.xalanbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -march=barcelona -mso -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2) -Ofast -IPA:plimit=20000 -LNO:opt=0
 -OPT:unroll_times_max=8 -OPT:unroll_size=256
 -OPT:unroll_level=2 -OPT:keep_ext=on -WOPT:if_conv=0
 -CG:local_sched_alg=1 -CG:unroll_fb_req=on
 -HP:bdt=2m:heap=2m

401.bzip2: -march=barcelona -mso -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2) -O3 -OPT:alias=disjoint
 -OPT:goto=off -CG:local_sched_alg=1 -HP:bdt=2m:heap=2m

403.gcc: -march=barcelona -mso -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2) -Ofast -LNO:trip_count=256
 -LNO:prefetch_ahead=10 -CG:cmp_peep=on -m32
 -HP:bdt=2m:heap=2m -GRA:unspill=on -IPA:small_pu=200

429.mcf: -march=barcelona -mso -O3 -ipa -INLINE:aggressive=on
 -CG:gcm=off -GRA:prioritize_by_density=on -m32
 -HP:bdt=2m:heap=2m

445.gobmk: -march=barcelona -mso -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2) -O3 -OPT:alias=restrict
 -OPT:unroll_times_max=8 -OPT:unroll_size=256
 -OPT:unroll_level=2 -OPT:keep_ext=on -ipa -IPA:plimit=750
 -IPA:min_hotness=300 -IPA:pu_reorder=1 -LNO:prefetch=1
 -LNO:ignore_feedback=off -CG:p2align=on
 -CG:unroll_fb_req=on -HP:bdt=2m:heap=2m

456.hmmer: -march=barcelona -mso -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2) -Ofast -LNO:prefetch=0
 -OPT:alias=disjoint -OPT:unroll_times_max=8
 -OPT:unroll_size=256 -OPT:unroll_level=2 -OPT:keep_ext=on
 -CG:local_sched_alg=1 -CG:cflow=0
 -CG:push_pop_int_saved_regs=off -CG:cmp_peep=on
 -HP:bdt=2m:heap=2m

Continued on next page



SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECint_rate2006 = 512

IBM System x3755 M3 (AMD Opteron 6128 HE)

SPECint_rate_base2006 = 443

CPU2006 license: 11

Test date: Jul-2011

Test sponsor: IBM Corporation

Hardware Availability: Dec-2010

Tested by: IBM Corporation

Software Availability: Jul-2010

Peak Optimization Flags (Continued)

458.sjeng: -march=barcelona -mso -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2) -O3 -ipa -LNO:ignore_feedback=off
 -LNO:full_unroll=10 -LNO:fusion=0 -LNO:fission=2
 -IPA:pu_reorder=2 -CG:ptr_load_use=0
 -OPT:unroll_times_max=8 -INLINE:aggressive=on

462.libquantum: -march=barcelona -mso -Ofast -LNO:pf2=0 -CG:gcm=off
 -CG:use_prefetchnta=on -CG:cmp_peep=on -WOPT:aggstr=0
 -HP:bdt=2m:heap=2m -OPT:alias=disjoint
 -INLINE:aggressive=on -IPA:space=1000 -IPA:plimit=20000

464.h264ref: -march=barcelona -mso -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2) -O3 -IPA:plimit=20000
 -OPT:alias=disjoint -LNO:prefetch=0 -CG:ptr_load_use=0
 -CG:push_pop_int_saved_regs=off

C++ benchmarks:

471.omnetpp: basepeak = yes

473.astar: -march=barcelona -mso -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2) -Ofast -TENV:frame_pointer=off
 -WOPT:if_conv=0 -GRA:optimize_boundary=on
 -OPT:alias=disjoint -INLINE:aggressive=on
 -IPA:small_pu=3000 -IPA:plimit=3000 -m32
 -HP:bdt=2m:heap=2m

483.xalancbmk: -march=barcelona -mso -Ofast -INLINE:aggressive=on -m32
 -CG:cmp_peep=on -GRA:unspill=on -TENV:frame_pointer=off
 -fno-emit-exceptions
 -L/root/work/libraries/SmartHeap-8.1/lib -lsmarheap

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/x86-open64-424-flags-rate-revC.20101109.html>

<http://www.spec.org/cpu2006/flags/amd-platform-rate-revC.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/x86-open64-424-flags-rate-revC.20101109.xml>

<http://www.spec.org/cpu2006/flags/amd-platform-rate-revC.xml>



SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECint_rate2006 = 512

IBM System x3755 M3 (AMD Opteron 6128 HE)

SPECint_rate_base2006 = 443

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Jul-2011
Hardware Availability: Dec-2010
Software Availability: Jul-2010

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 22:56:19 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 16 August 2011.