SPEC® CINT2006 Result

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IBM Corporation

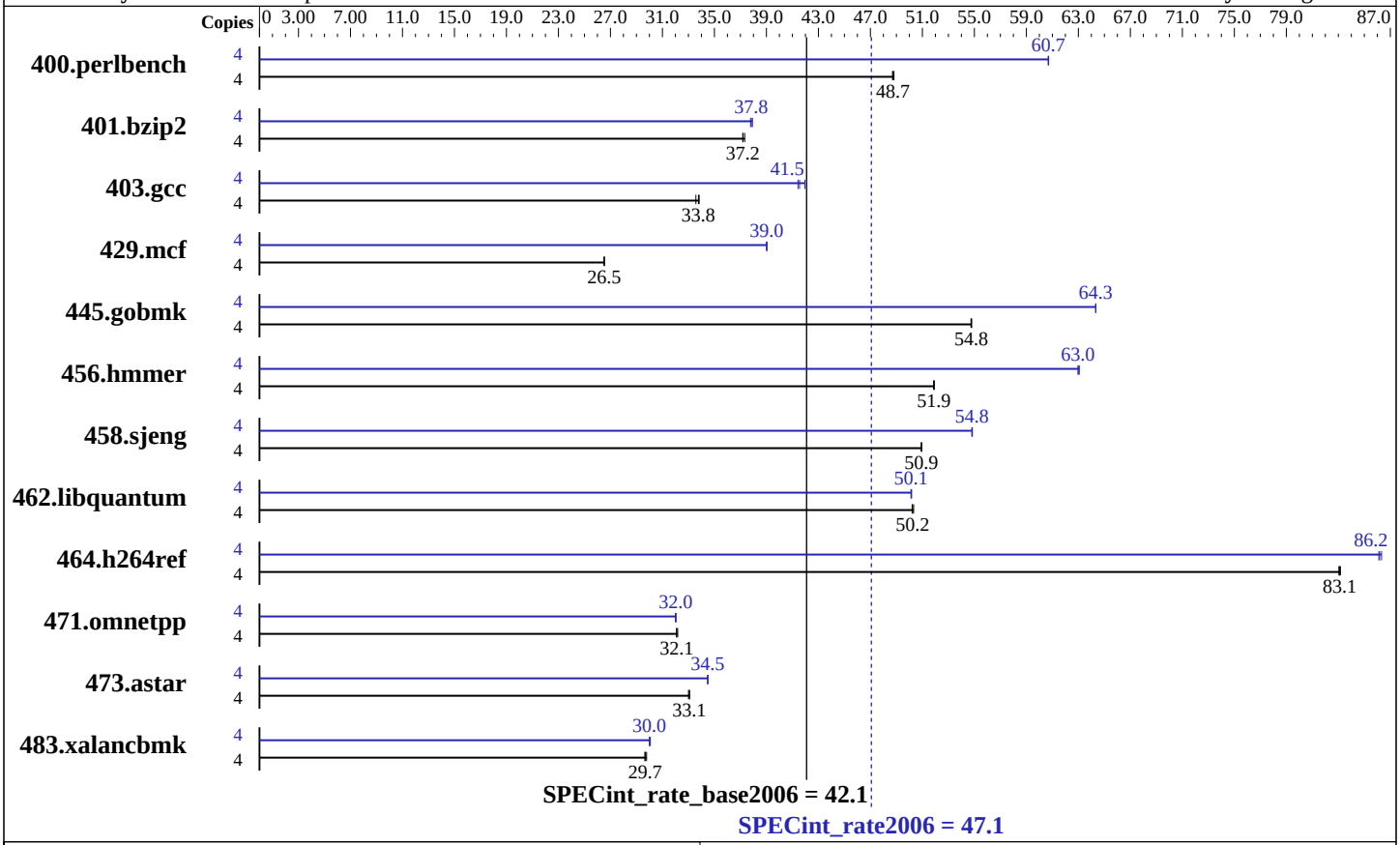
IBM System x3655 (AMD Opteron 2220)

SPECint®_rate2006 = 47.1

SPECint_rate_base2006 = 42.1

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

Test date: Feb-2007
Hardware Availability: Apr-2007
Software Availability: Aug-2006



Hardware

CPU Name:	AMD Opteron 2220
CPU Characteristics:	
CPU MHz:	2800
FPU:	Integrated
CPU(s) enabled:	4 cores, 2 chips, 2 cores/chip
CPU(s) orderable:	1, 2 chips
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	1 MB I+D on chip per core
L3 Cache:	None
Other Cache:	None
Memory:	16 GB (8 x 2GB DDR2-5300 ECC)
Disk Subsystem:	1 x 74 GB SAS, 15000 RPM
Other Hardware:	None

Software

Operating System:	SLES9 SP3 for AMD64/EM64T
Compiler:	QLogic PathScale Compiler Suite 2.5
Auto Parallel:	No
File System:	ext3
System State:	Multi-user, run level 3
Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	None

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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	4	**802**	**48.7**	801	48.8	802	48.7	4	644	60.7	644	60.7	**644**	**60.7**
401.bzip2	4	1034	37.3	1038	37.2	**1038**	**37.2**	4	**1020**	**37.8**	1018	37.9	1022	37.8
403.gcc	4	**953**	**33.8**	959	33.6	952	33.8	4	767	42.0	777	41.4	**775**	**41.5**
429.mcf	4	**1375**	**26.5**	1375	26.5	1376	26.5	4	934	39.0	935	39.0	**935**	**39.0**
445.gobmk	4	766	54.8	**766**	**54.8**	767	54.7	4	**652**	**64.3**	652	64.3	652	64.3
456.hmmer	4	719	51.9	**719**	**51.9**	720	51.9	4	**593**	**63.0**	592	63.1	593	63.0
458.sjeng	4	951	50.9	**950**	**50.9**	950	50.9	4	882	54.8	883	54.8	**883**	**54.8**
462.libquantum	4	1647	50.3	1651	50.2	**1650**	**50.2**	4	1653	50.1	**1653**	**50.1**	1652	50.2
464.h264ref	4	1064	83.2	1066	83.0	**1065**	**83.1**	4	1028	86.1	**1027**	**86.2**	1025	86.3
471.omnetpp	4	777	32.2	779	32.1	**779**	**32.1**	4	**780**	**32.0**	781	32.0	780	32.0
473.astar	4	849	33.1	**849**	**33.1**	851	33.0	4	814	34.5	**814**	**34.5**	814	34.5
483.xalancbmk	4	927	29.8	931	29.6	**930**	**29.7**	4	920	30.0	**920**	**30.0**	918	30.1

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

Operating System Notes

taskset utility used to bind CPU(s) to processes

Base Compiler Invocation

C benchmarks:
pathcc

C++ benchmarks:
pathCC

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=auto -Ofast`

C++ benchmarks:
`-march=auto -Ofast -m32`

Base Other Flags

C benchmarks:
`-IPA:max_jobs=2`

C++ benchmarks:
`-IPA:max_jobs=2`

Peak Compiler Invocation

C benchmarks:
`pathcc`

C++ benchmarks:
`pathCC`

Peak Portability Flags

400.perlbench: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64`
401.bzip2: `-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`

Peak Optimization Flags

C benchmarks:

400.perlbench: `-march=auto -fb_create fbdata`(pass 1)
`-fb_opt fbdata`(pass 2) `-Ofast`

Continued on next page

Peak Optimization Flags (Continued)

401.bzip2: -march=auto -O3 -LNO:ou_prod_max=10 -OPT:Ofast
-OPT:alias=disjoint

403.gcc: -march=auto -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -m32 -O3 -OPT:Ofast

429.mcf: -march=auto -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -m32 -O2 -ipa

445.gobmk: -march=auto -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -O3 -OPT:alias=disjoint -LNO:simd=0
-LNO:minvariant=off -WOPT:retype_expr=on

456.hmmer: -march=auto -O2 -OPT:alias=disjoint -WOPT:aggstr=0
-CG:cflow=0

458.sjeng: -march=auto -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -O3 -IPA:plimit=50000
-IPA:pu_reorder=2

462.libquantum: -march=auto -O3 -ipa -CG:local_fwd_sched=on
-IPA:space=1000

464.h264ref: -march=auto -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -O3 -IPA:plimit=20000
-OPT:alias=disjoint -LNO:prefetch=0

C++ benchmarks:

471.omnetpp: -march=auto -Ofast -IPA:pu_reorder=2 -CG:gcm=off -m32

473.astar: -march=auto -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast

483.xalancbmk: -march=auto -Ofast -m32 -OPT:unroll_times_max=8

Peak Other Flags

C benchmarks:
-IPA:max_jobs=2

C++ benchmarks:
-IPA:max_jobs=2

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.17.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.17.xml

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Tested with SPEC CPU2006 v1.0.
Report generated on Tue Jul 22 10:33:35 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 6 March 2007.