SPEC® CINT2006 Result

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IBM Corporation

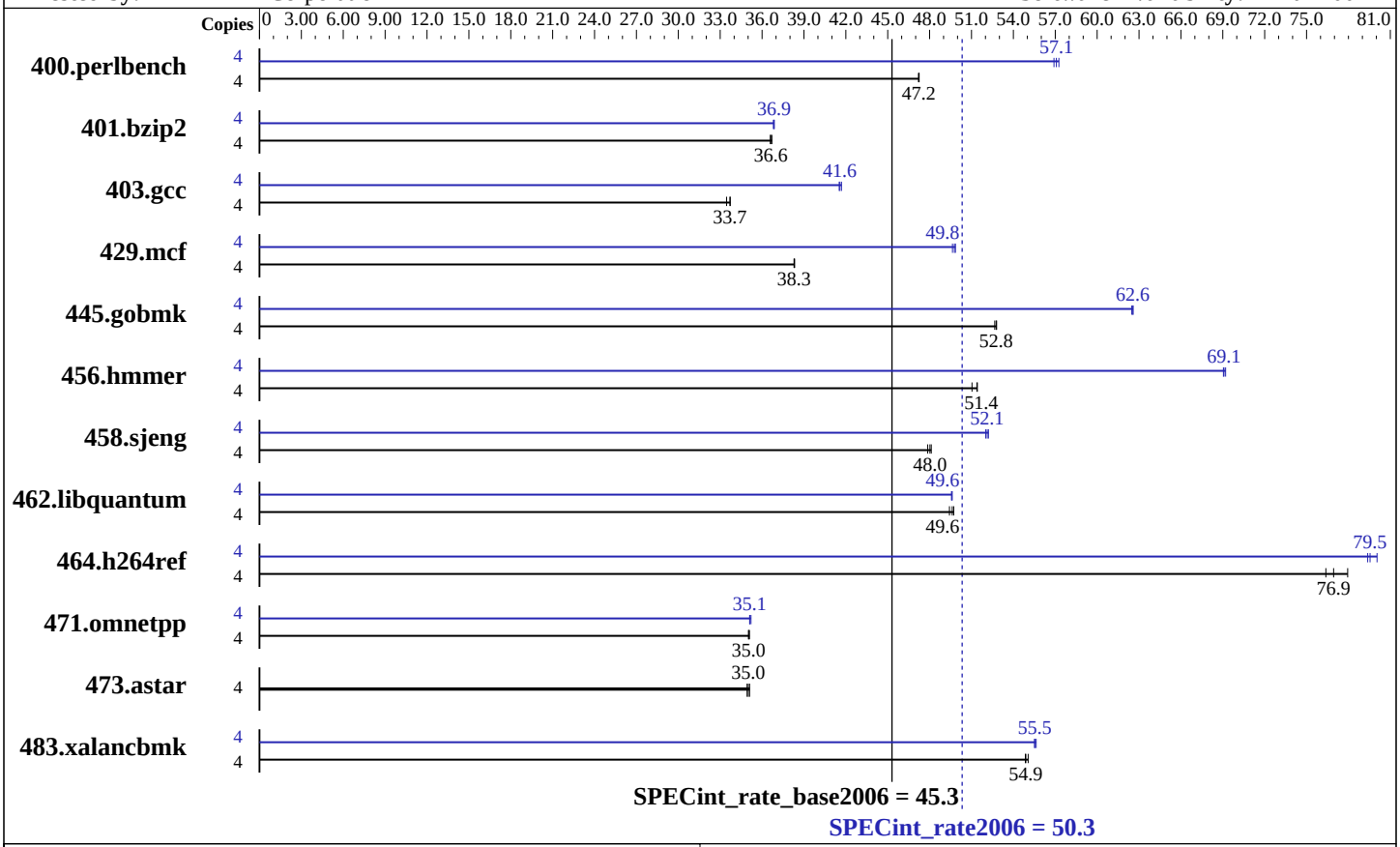
IBM System x3655 (AMD Opteron 2218)

SPECint®_rate2006 = 50.3

SPECint_rate_base2006 = 45.3

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

Test date: Jul-2007
Hardware Availability: Oct-2006
Software Availability: Mar-2007



Hardware

CPU Name:	AMD Opteron 2218
CPU Characteristics:	
CPU MHz:	2600
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 36 GB SAS, 10000 RPM
Other Hardware:	None

Software

Operating System:	SLES 10 (x86_64), 2.6.16.21-0.8-smp
Compiler:	QLogic PathScale Compiler Suite, Release 3.0
Auto Parallel:	No
File System:	ext3
System State:	Multi-user, run level 3
Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	MicroQuill SmartHeap 8.1

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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	828	47.2	827	47.2	**827**	**47.2**	4	683	57.3	**685**	**57.1**	687	56.9
401.bzip2	4	**1054**	**36.6**	1052	36.7	1055	36.6	4	**1047**	**36.9**	1047	36.9	1049	36.8
403.gcc	4	955	33.7	962	33.5	**956**	**33.7**	4	772	41.7	775	41.5	**774**	**41.6**
429.mcf	4	**952**	**38.3**	952	38.3	953	38.3	4	735	49.6	732	49.9	**733**	**49.8**
445.gobmk	4	795	52.8	797	52.7	**795**	**52.8**	4	671	62.6	672	62.5	**671**	**62.6**
456.hmmer	4	731	51.0	726	51.4	**726**	**51.4**	4	539	69.2	541	69.0	**540**	**69.1**
458.sjeng	4	1006	48.1	1011	47.9	**1008**	**48.0**	4	927	52.2	930	52.0	**929**	**52.1**
462.libquantum	4	1677	49.4	1667	49.7	**1670**	**49.6**	4	1671	49.6	1672	49.6	**1671**	**49.6**
464.h264ref	4	**1151**	**76.9**	1136	77.9	1159	76.4	4	1115	79.4	1106	80.0	**1113**	**79.5**
471.omnetpp	4	**713**	**35.0**	714	35.0	712	35.1	4	710	35.2	**712**	**35.1**	712	35.1
473.astar	4	**802**	**35.0**	800	35.1	804	34.9	4	**802**	**35.0**	800	35.1	804	34.9
483.xalancbmk	4	501	55.1	**503**	**54.9**	503	54.9	4	496	55.6	**497**	**55.5**	497	55.5

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

General 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:
`-Ofast -OPT:malloc_alg=1`

C++ benchmarks:
`-Ofast -m32 -L/tools/SmartHeap_8.1/lib -lsmartheap`

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`
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: `-fb_create fbdata`(pass 1) `-fb_opt fbdata`(pass 2) `-Ofast -LNO:opt=0`

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

Continued on next page

Peak Optimization Flags (Continued)

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

429.mcf: `-m32 -O3 -ipa -L/tools/SmartHeap_8.1/lib -lsmartheap`

445.gobmk: `-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: `-O2 -OPT:alias=disjoint -OPT:malloc_alg=1 -CG:cflow=0`

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

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

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

C++ benchmarks:

471.omnetpp: `-Ofast -CG:gcm=off -m32 -L/tools/SmartHeap_8.1/lib -lsmartheap`

473.astar: `basepeak = yes`

483.xalancbmk: `-Ofast -m32 -OPT:unroll_times_max=8 -L/tools/SmartHeap_8.1/lib -lsmartheap`

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.20090714.13.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.13.xml`

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