SPEC® CINT2006 Result

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IBM Corporation

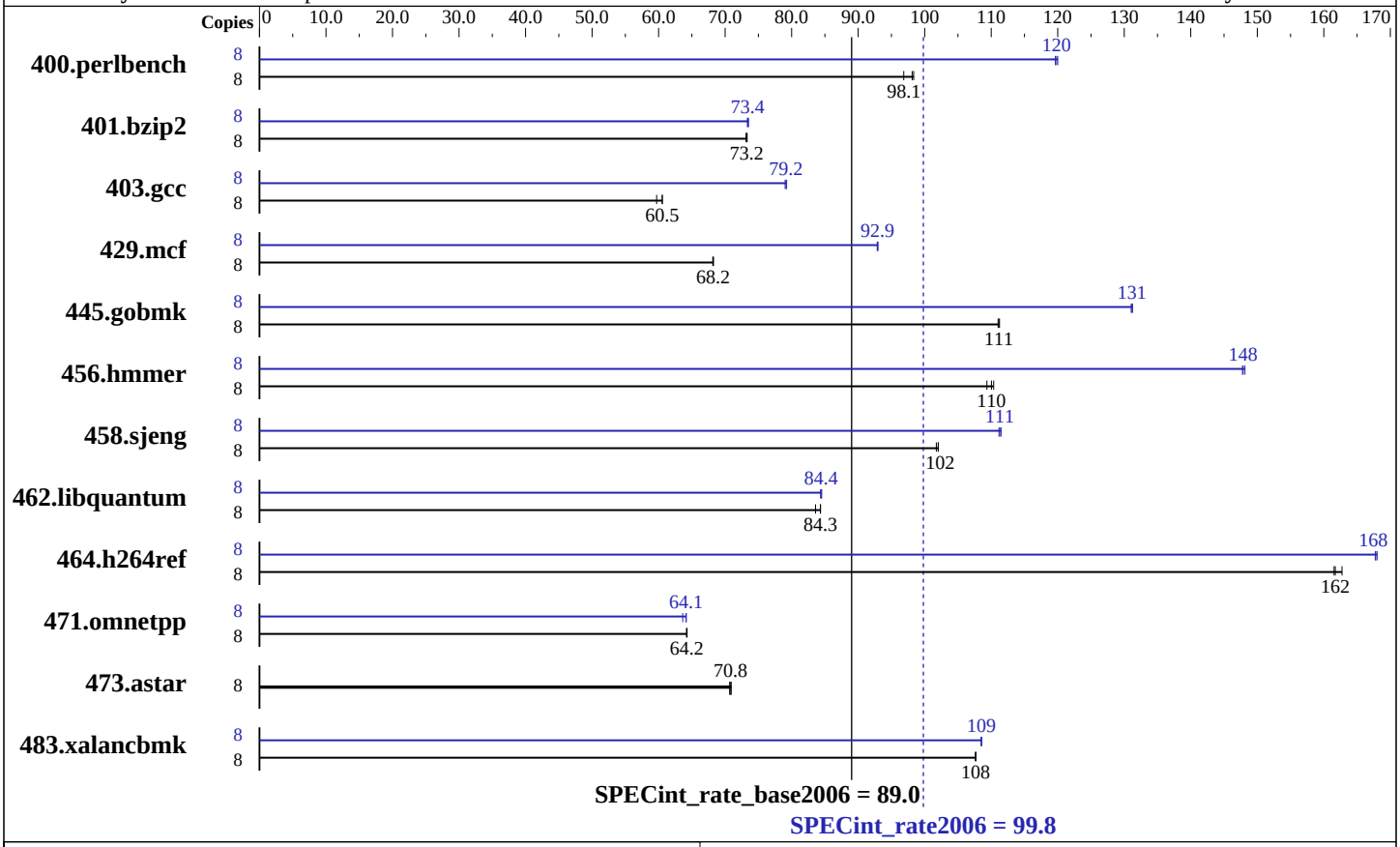
IBM System x3755 (AMD Opteron 8220)

SPECint®_rate2006 = 99.8

SPECint_rate_base2006 = 89.0

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

Test date: Jul-2007
Hardware Availability: Apr-2007
Software Availability: Mar-2007



Hardware

CPU Name:	AMD Opteron 8220
CPU Characteristics:	
CPU MHz:	2800
FPU:	Integrated
CPU(s) enabled:	8 cores, 4 chips, 2 cores/chip
CPU(s) orderable:	1, 2, 3, 4 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:	32 GB (16 x 2GB DDR2-5300 ECC)
Disk Subsystem:	1 x 36 GB SAS, 15000 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	8	807	96.9	795	98.3	**797**	**98.1**	8	651	120	**652**	**120**	653	120
401.bzip2	8	1053	73.3	**1054**	**73.2**	1055	73.1	8	**1052**	**73.4**	1052	73.4	1050	73.5
403.gcc	8	1063	60.6	1079	59.7	**1064**	**60.5**	8	**814**	**79.2**	813	79.2	815	79.0
429.mcf	8	**1070**	**68.2**	1069	68.2	1071	68.1	8	**785**	**92.9**	785	93.0	786	92.9
445.gobmk	8	754	111	756	111	**755**	**111**	8	640	131	639	131	**640**	**131**
456.hmmer	8	**678**	**110**	676	110	683	109	8	504	148	505	148	**505**	**148**
458.sjeng	8	**949**	**102**	951	102	949	102	8	**870**	**111**	868	111	871	111
462.libquantum	8	1983	83.6	1965	84.3	**1966**	**84.3**	8	**1963**	**84.4**	1965	84.3	1961	84.5
464.h264ref	8	1096	162	1088	163	**1095**	**162**	8	1054	168	**1055**	**168**	1055	168
471.omnetpp	8	779	64.2	**778**	**64.2**	778	64.3	8	779	64.1	**780**	**64.1**	786	63.6
473.astar	8	795	70.7	792	70.9	**793**	**70.8**	8	795	70.7	792	70.9	**793**	**70.8**
483.xalancbmk	8	513	108	**513**	**108**	513	108	8	**509**	**109**	508	109	509	108

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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