SPEC® CINT2006 Result

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IBM Corporation

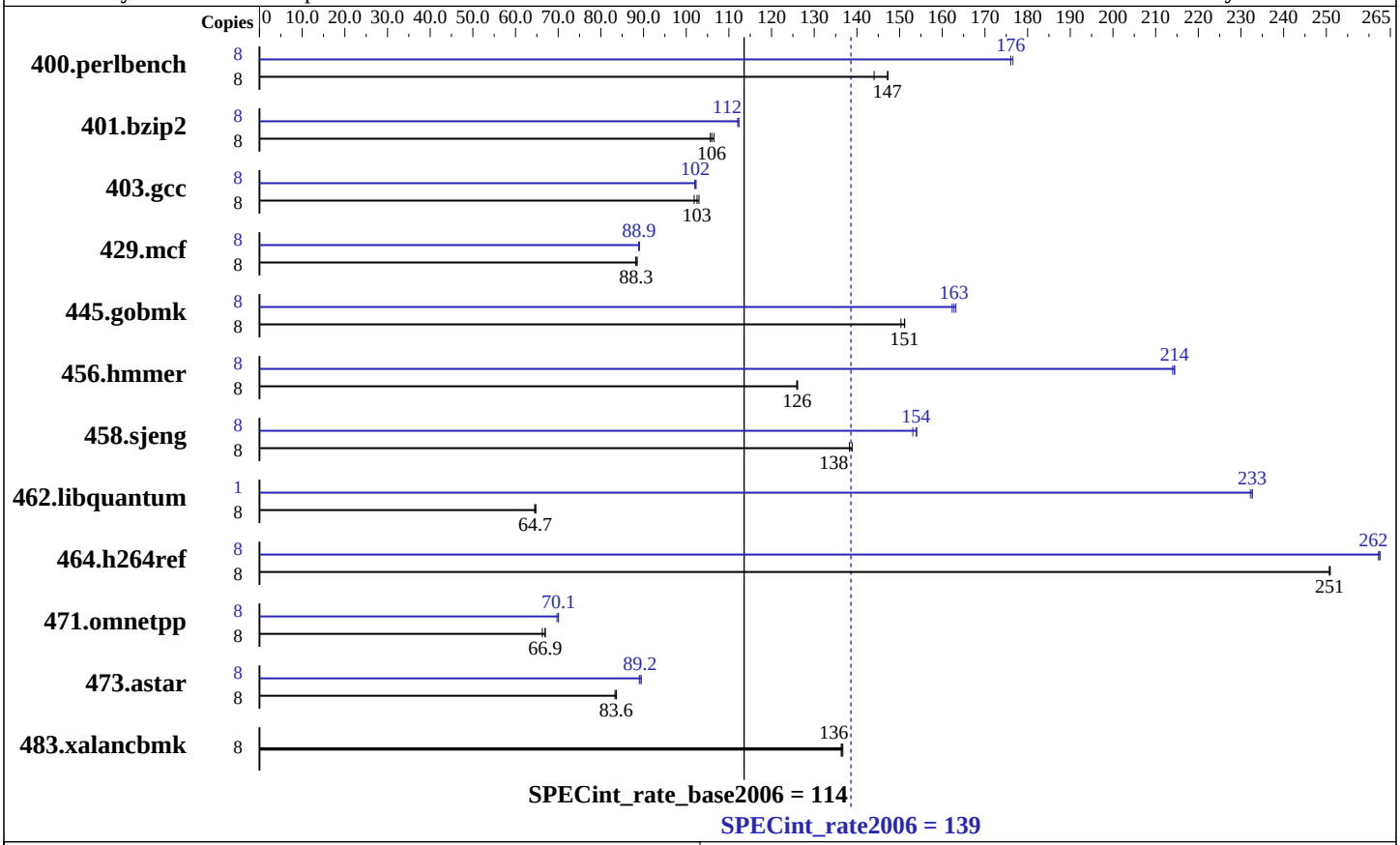
IBM System x3450 (Intel Xeon E5472)

SPECint®_rate2006 = 139

SPECint_rate_base2006 = 114

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

Test date: Feb-2008
Hardware Availability: May-2008
Software Availability: Nov-2007



Hardware

CPU Name:	Intel Xeon E5472
CPU Characteristics:	1600MHz system bus
CPU MHz:	3000
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 cores/chip
CPU(s) orderable:	1,2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	12 MB I+D on chip per chip, 6 MB shared / 2 cores
L3 Cache:	None
Other Cache:	None
Memory:	16 GB (8 x 2 GB DDR2-5300F ECC)
Disk Subsystem:	1 x 80 GB SATA, 7200 RPM
Other Hardware:	None

Software

Operating System:	SuSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp
Compiler:	Intel C++ Compiler 10.1 for Linux Build 20070913 Package ID: l_cc_p_10.1.008
Auto Parallel:	Yes
File System:	ReiserFS
System State:	Multi-user, run level 3
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	MicroQuill SmartHeap 8.1 Binutils 2.17.50.0.15

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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	543	144	**531**	**147**	531	147	8	443	177	**444**	**176**	444	176
401.bzip2	8	**728**	**106**	725	106	731	106	8	**687**	**112**	687	112	689	112
403.gcc	8	625	103	**628**	**103**	632	102	8	**630**	**102**	629	102	631	102
429.mcf	8	824	88.5	827	88.2	**826**	**88.3**	8	821	88.9	**820**	**88.9**	819	89.1
445.gobmk	8	558	150	555	151	**555**	**151**	8	**516**	**163**	517	162	514	163
456.hmmer	8	592	126	593	126	**592**	**126**	8	**348**	**214**	349	214	348	214
458.sjeng	8	**700**	**138**	697	139	700	138	8	632	153	**629**	**154**	628	154
462.libquantum	8	2560	64.8	**2563**	**64.7**	2570	64.5	1	89.2	232	**89.1**	**233**	89.1	233
464.h264ref	8	706	251	706	251	**706**	**251**	8	675	262	674	263	**674**	**262**
471.omnetpp	8	**747**	**66.9**	747	67.0	754	66.3	8	714	70.1	**714**	**70.1**	717	69.7
473.astar	8	**672**	**83.6**	674	83.3	671	83.7	8	**630**	**89.2**	628	89.5	631	89.0
483.xalancbmk	8	**404**	**136**	405	136	404	137	8	**404**	**136**	405	136	404	137

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

General Notes

```
All benchmarks compiled in 32-bit mode except 401.bzip2 and 456.hmmer,
for peak, are compiled in 64-bit mode
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to physical,0
KMP_STACKSIZE set to 64M
taskset utility used to bind CPU(s) to processes
```

Base Compiler Invocation

C benchmarks:
`icc`

C++ benchmarks:
`icpc`

Base Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`
462.libquantum: `-DSPEC_CPU_LINUX`
483.xalancbmk: `-DSPEC_CPU_LINUX`

Base Optimization Flags

C benchmarks:
```
-fast -inline-calloc -opt-malloc-options=3
```

C++ benchmarks:
```
-xT -ipo -O3 -no-prec-div -Wl,-z,muldefs
-L/spec/users/rahul/cpu2006.1.0/lib -lsmartheap
```

Base Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc
```

401.bzip2:
```
/opt/intel/cce/10.1.008/bin/icc
-L/opt/intel/cce/10.1.008/lib
-I/opt/intel/cce/10.1.008/include
```

456.hmmer:
```
/opt/intel/cce/10.1.008/bin/icc
-L/opt/intel/cce/10.1.008/lib
-I/opt/intel/cce/10.1.008/include
```

C++ benchmarks:
```
icpc
```

Peak Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`
401.bzip2: `-DSPEC_CPU_LP64`
456.hmmer: `-DSPEC_CPU_LP64`
462.libquantum: `-DSPEC_CPU_LINUX`
483.xalancbmk: `-DSPEC_CPU_LINUX`

Peak Optimization Flags

C benchmarks:

Continued on next page

Peak Optimization Flags (Continued)

400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -fast -ansi-alias -prefetch

401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch

403.gcc: -fast -inline-calloc -opt-malloc-options=3

429.mcf: -fast -prefetch

445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xT -O2 -ipo -no-prec-div -ansi-alias

456.hmmer: -fast -unroll2 -ansi-alias -opt-multi-version-aggressive

458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4

462.libquantum: -fast -unroll4 -Ob0 -prefetch -opt-streaming-stores always -vec-guard-write -opt-malloc-options=3 -parallel -par-runtime-control

464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -ansi-alias

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xT -O3 -ipo -no-prec-div -ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs -L/spec/users/rahul/cpu2006.1.0/lib -lsmartheap

473.astar: -prof-gen(pass 1) -prof-use(pass 2) -xT -O3 -ipo -no-prec-div -ansi-alias -opt-ra-region-strategy=routine -Wl,-z,muldefs -L/spec/users/rahul/cpu2006.1.0/lib -lsmartheap

483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic10.1-INT-ia32-linux-flags.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic10.1-INT-ia32-linux-flags.xml

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