SPEC® CINT2006 Result

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Dell Inc.

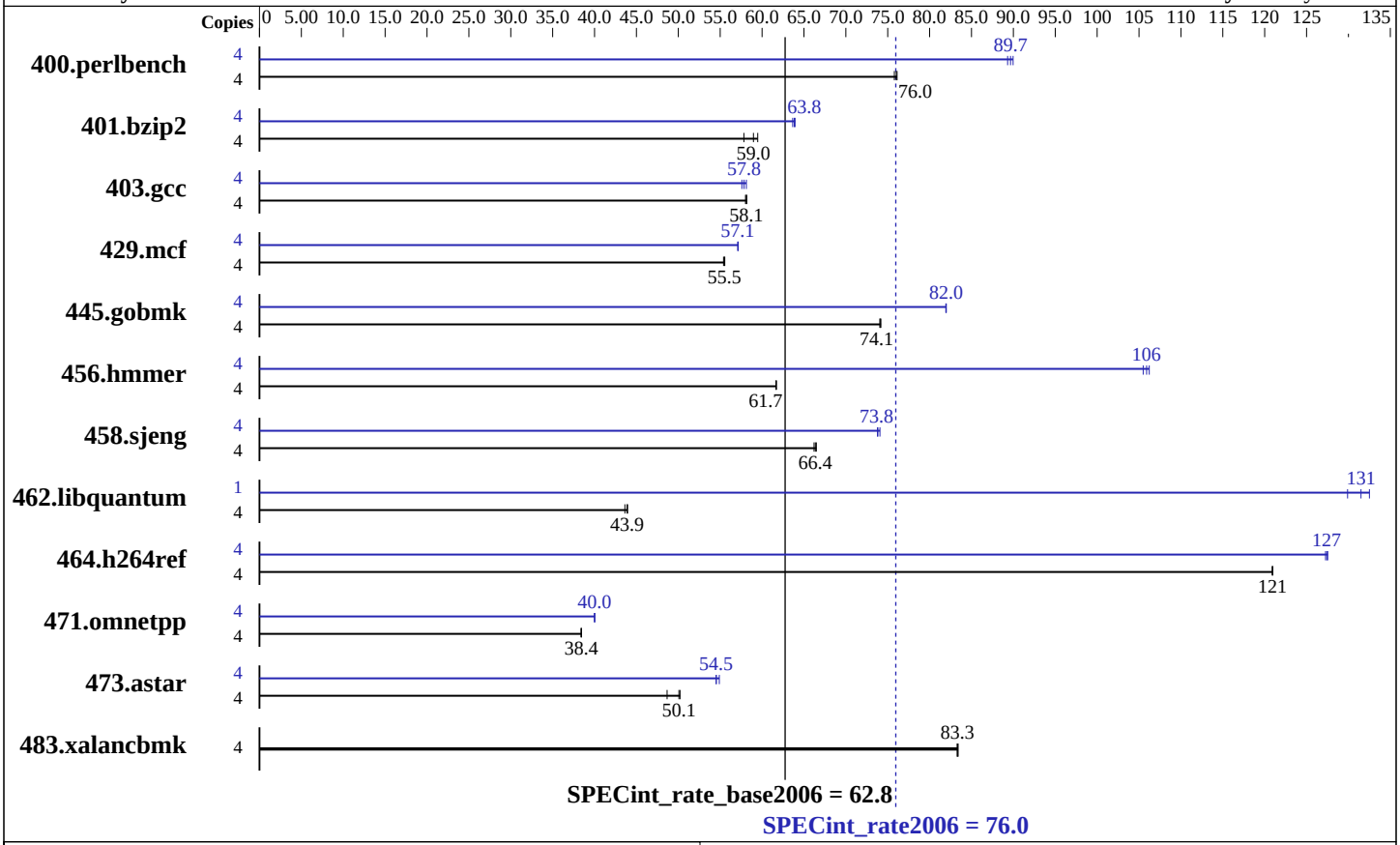
PowerEdge R900 (Intel Xeon E7220, 2.93 GHz)

SPECint®_rate2006 = 76.0

SPECint_rate_base2006 = 62.8

CPU2006 license: 55
Test sponsor: Dell Inc.
Tested by: Dell Inc.

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



Hardware

CPU Name:	Intel Xeon E7220
CPU Characteristics:	
CPU MHz:	2933
FPU:	Integrated
CPU(s) enabled:	4 cores, 2 chips, 2 cores/chip
CPU(s) orderable:	2,4 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	4 MB I+D on chip per core
L3 Cache:	None
Other Cache:	None
Memory:	16 GB (16 x 1 GB 667 MHz ECC CL5 FB-DIMM)
Disk Subsystem:	2 x 300 GB 10000 RPM SAS (RAID-0)
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 10 (x86_64) SP2, Kernel 2.6.16-60.0.21-smp
Compiler:	Intel C++ Compiler 10.1 for Linux Build 20080312 Package ID: l_cc_p_10.1.015
Auto Parallel:	Yes
File System:	ReiserFS
System State:	Run level 3 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V8.1 Binutils 2.18.50.0.7.20080502

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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	**514**	**76.0**	516	75.8	513	76.1	4	**436**	**89.7**	438	89.3	434	90.0
401.bzip2	4	649	59.5	**655**	**59.0**	667	57.8	4	604	63.9	606	63.7	**605**	**63.8**
403.gcc	4	**554**	**58.1**	554	58.2	555	58.0	4	559	57.6	554	58.1	**557**	**57.8**
429.mcf	4	657	55.5	**657**	**55.5**	658	55.4	4	**639**	**57.1**	639	57.1	638	57.2
445.gobmk	4	**566**	**74.1**	566	74.2	566	74.1	4	512	81.9	**512**	**82.0**	512	82.0
456.hmmer	4	**605**	**61.7**	605	61.7	605	61.7	4	351	106	**352**	**106**	354	105
458.sjeng	4	**729**	**66.4**	728	66.5	731	66.2	4	656	73.8	653	74.1	**656**	**73.8**
462.libquantum	4	1900	43.6	1886	43.9	**1889**	**43.9**	1	**158**	**131**	160	130	156	133
464.h264ref	4	732	121	**732**	**121**	732	121	4	694	128	**695**	**127**	696	127
471.omnetpp	4	651	38.4	**651**	**38.4**	650	38.4	4	625	40.0	625	40.0	**625**	**40.0**
473.astar	4	**561**	**50.1**	559	50.2	577	48.7	4	**515**	**54.5**	512	54.9	515	54.5
483.xalancbmk	4	331	83.3	**331**	**83.3**	331	83.4	4	331	83.3	**331**	**83.3**	331	83.4

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.
```

Operating System Notes

```
'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
```

General Notes

```
All benchmarks compiled in 32-bit mode except 401.bzip2 and 456.hmmer,
for peak, are compiled in 64-bit mode
taskset was used to bind processes to cores except
for 462.libquantum peak
OMP_NUM_THREADS set to number of processors
KMP_AFFINITY set to "physical,0"
KMP_STACKSIZE set to 64M
```

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/cpu2006.1.1/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/10.1.015/bin/icc
-L/opt/intel/cce/10.1.015/lib
-I/opt/intel/cce/10.1.015/include

456.hmmer: /opt/intel/cce/10.1.015/bin/icc
-L/opt/intel/cce/10.1.015/lib
-I/opt/intel/cce/10.1.015/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

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Peak Portability Flags (Continued)

483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

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/cpu2006.1.1/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/cpu2006.1.1/lib -lsmartheap

483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:

Continued on next page

Peak Other Flags (Continued)

403.gcc: `-Dalloca=_alloca`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic10.1-int-linux64-revD.html`
`http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.07.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2006/flags/Intel-ic10.1-int-linux64-revD.xml`
`http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.07.xml`

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