SPEC® CINT2006 Result

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IBM Corporation

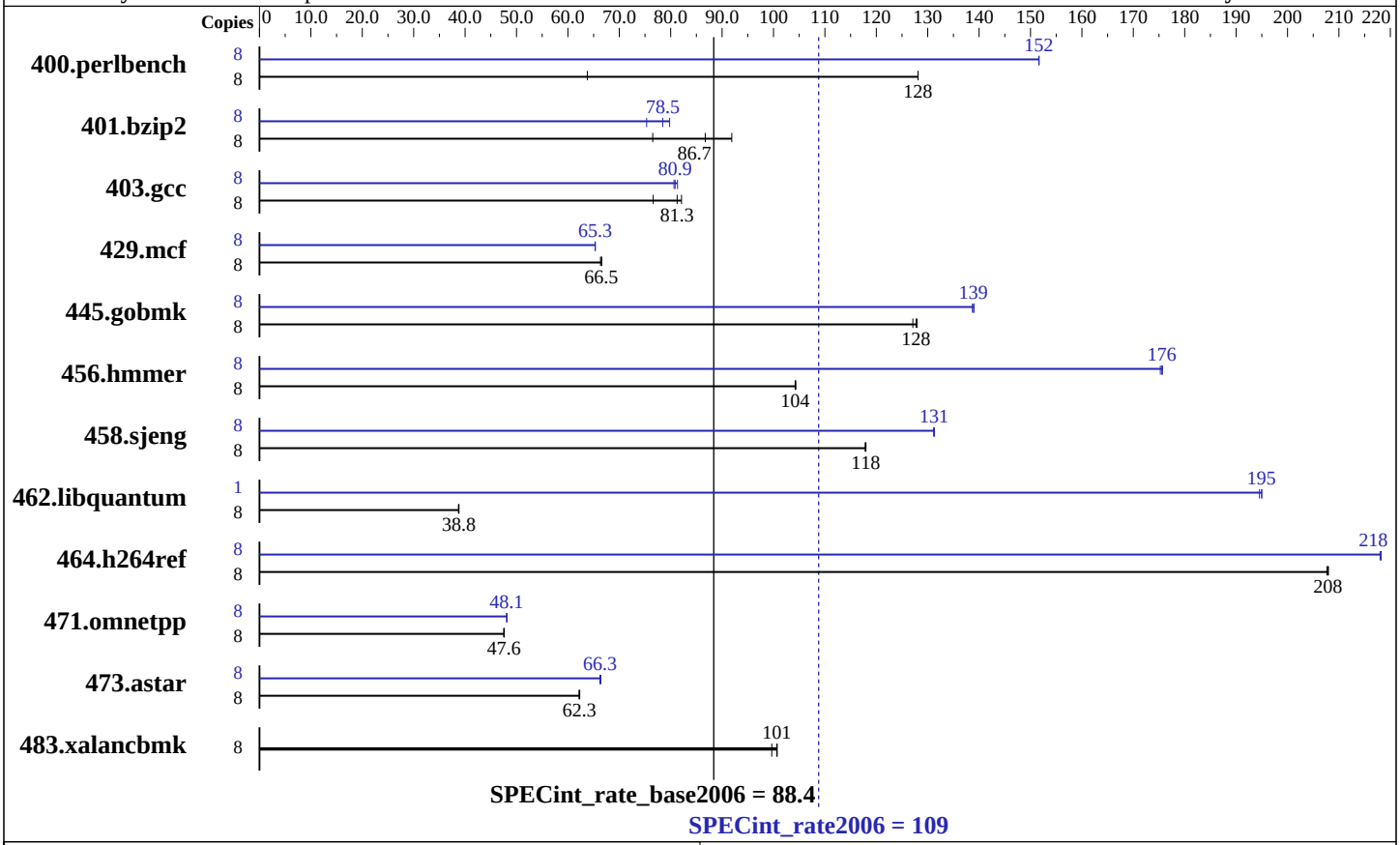
IBM System x iDataPlex dx320 (Intel Xeon L5420)

SPECint®_rate2006 = 109

SPECint_rate_base2006 = 88.4

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

Test date: Sep-2008
Hardware Availability: Nov-2008
Software Availability: Jul-2008



Hardware

CPU Name:	Intel Xeon L5420
CPU Characteristics:	1333MHz system bus
CPU MHz:	2500
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(4 x 4 GB DDR2-5300P ECC)
Disk Subsystem:	1 x 250 GB SATA, 7200 RPM
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux AS release 4 (x86_64)(Nahant Update 7), Kernel 2.6.9-78.ELsmp
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	8	1226	63.8	**610**	**128**	610	128	8	515	152	**515**	**152**	516	152
401.bzip2	8	1009	76.5	840	91.9	**890**	**86.7**	8	967	79.8	1025	75.3	**984**	**78.5**
403.gcc	8	841	76.6	784	82.1	**793**	**81.3**	8	**796**	**80.9**	799	80.6	792	81.3
429.mcf	8	1100	66.3	**1097**	**66.5**	1096	66.6	8	**1117**	**65.3**	1117	65.3	1117	65.3
445.gobmk	8	660	127	**657**	**128**	656	128	8	604	139	605	139	**604**	**139**
456.hmmer	8	715	104	716	104	**716**	**104**	8	**425**	**176**	426	175	425	176
458.sjeng	8	820	118	**821**	**118**	822	118	8	738	131	737	131	**737**	**131**
462.libquantum	8	4283	38.7	**4273**	**38.8**	4272	38.8	1	**106**	**195**	106	195	107	195
464.h264ref	8	853	208	851	208	**852**	**208**	8	**812**	**218**	811	218	812	218
471.omnetpp	8	1052	47.5	**1050**	**47.6**	1050	47.6	8	1040	48.1	**1039**	**48.1**	1038	48.1
473.astar	8	901	62.3	**902**	**62.3**	904	62.2	8	**847**	**66.3**	848	66.2	846	66.4
483.xalancbmk	8	**549**	**101**	548	101	554	99.7	8	**549**	**101**	548	101	554	99.7

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.
 taskset was used to bind processes to cores except for 462.libquantum peak
```

General Notes

```
All benchmarks compiled in 32-bit mode except 401.bzip2 and 456.hmmer,
for peak, are compiled in 64-bit mode
Hardware Prefetch Enabled and Adjacent Sector Prefetch Enabled
OMP_NUM_THREADS set to number of processors
KMP_AFFINITY set to "physical,0"
KMP_STACKSIZE set to null
'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
```

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`

Continued on next page

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-Linux64-Platform.20090713.09.html`
`http://www.spec.org/cpu2006/flags/Intel-ic10.1-int-linux64-revD.20090713.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.09.xml`
`http://www.spec.org/cpu2006/flags/Intel-ic10.1-int-linux64-revD.20090713.xml`

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