SPEC® CINT2006 Result

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IBM Corporation

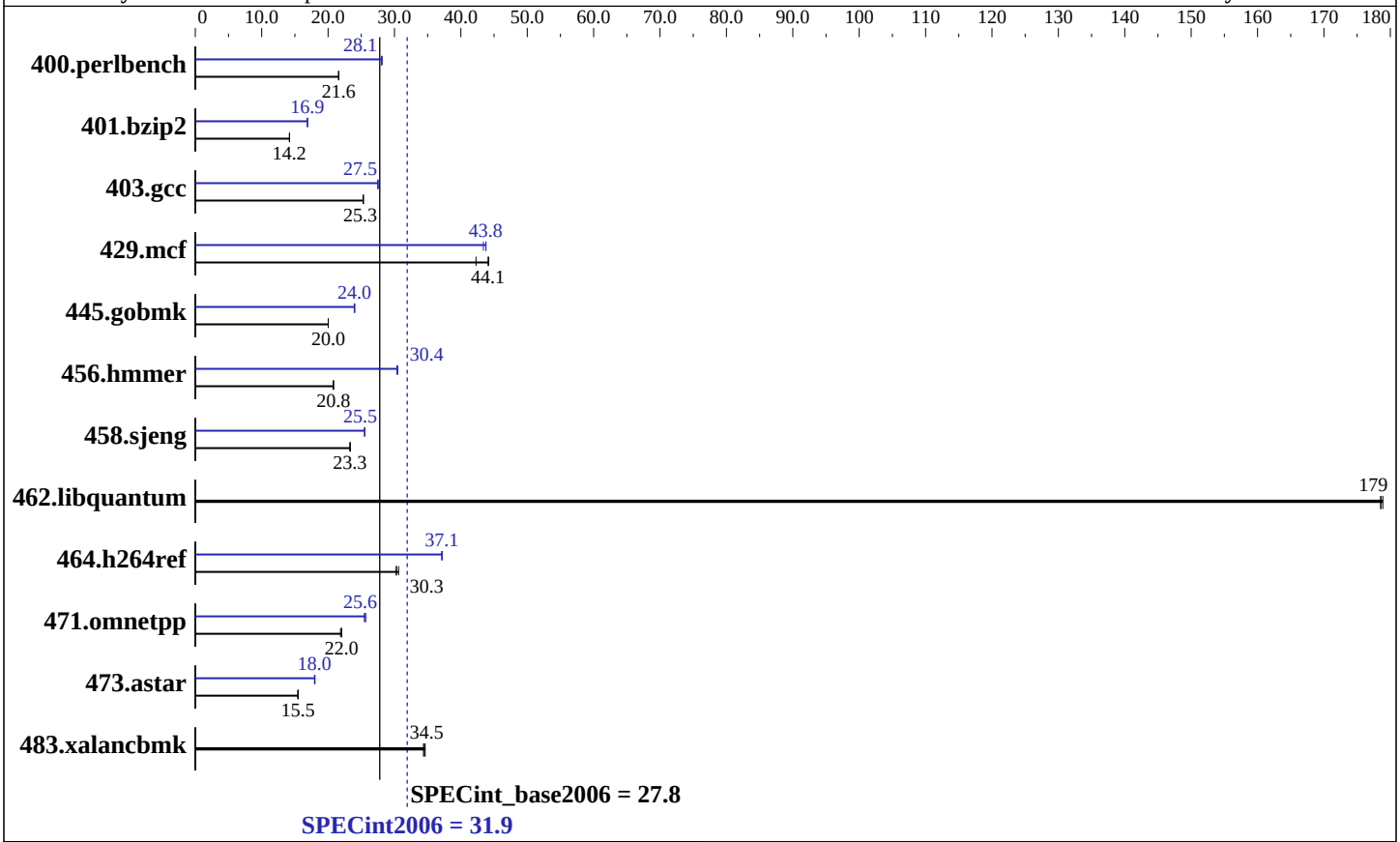
IBM System x3200 M3 (Intel Xeon X3450)

SPECint®2006 = 31.9

SPECint_base2006 = 27.8

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

Test date: Oct-2009
Hardware Availability: Oct-2009
Software Availability: Mar-2009



Hardware

CPU Name:	Intel Xeon X3450
CPU Characteristics:	Intel Turbo Boost Technology up to 3.20 GHz
CPU MHz:	2667
FPU:	Integrated
CPU(s) enabled:	4 cores, 1 chip, 4 cores/chip, 2 threads/core
CPU(s) orderable:	1 chip
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	8 MB I+D on chip per chip
Other Cache:	None
Memory:	16 GB (4 x 4 GB PC3-10600R)
Disk Subsystem:	1 x 250 GB SATA, 7200RPM
Other Hardware:	None

Software

Operating System:	SuSE Linux Enterprise Server 11 (x86_64), Kernel 2.6.27.19-5-default
Compiler:	Intel C++ Compiler Professional 11.0 for Linux Build 20090131 Package ID: l_cproc_p_11.0.080
Auto Parallel:	Yes
File System:	ext3
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					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	452	21.6	**452**	**21.6**	453	21.6	**348**	**28.1**	347	28.2	349	28.0
401.bzip2	**680**	**14.2**	680	14.2	680	14.2	**571**	**16.9**	571	16.9	571	16.9
403.gcc	318	25.3	**318**	**25.3**	318	25.3	**293**	**27.5**	292	27.5	293	27.5
429.mcf	216	42.3	**207**	**44.1**	206	44.2	208	43.8	210	43.4	**208**	**43.8**
445.gobmk	524	20.0	524	20.0	**524**	**20.0**	437	24.0	**437**	**24.0**	438	23.9
456.hmmer	**448**	**20.8**	448	20.8	449	20.8	**307**	**30.4**	307	30.4	306	30.5
458.sjeng	**519**	**23.3**	519	23.3	519	23.3	474	25.5	**474**	**25.5**	475	25.5
462.libquantum	116	179	116	179	**116**	**179**	116	179	116	179	**116**	**179**
464.h264ref	**730**	**30.3**	731	30.3	723	30.6	595	37.2	**596**	**37.1**	596	37.1
471.omnetpp	283	22.0	286	21.9	**284**	**22.0**	**244**	**25.6**	244	25.6	245	25.5
473.astar	453	15.5	**454**	**15.5**	454	15.5	**391**	**18.0**	389	18.0	391	18.0
483.xalancbmk	199	34.6	201	34.4	**200**	**34.5**	199	34.6	201	34.4	**200**	**34.5**

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

General Notes

```
'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
CPU C-States Enable and Adjacent Sector Prefetch Enable
Turbo Mode Enable
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
```

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:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel
-par-runtime-control -opt-prefetch
```

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -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/Compiler/11.0/080/bin/intel64/icc`

456.hmmer: `/opt/intel/Compiler/11.0/080/bin/intel64/icc`

458.sjeng: `/opt/intel/Compiler/11.0/080/bin/intel64/icc`

C++ benchmarks (except as noted below):
`icpc`

473.astar: `/opt/intel/Compiler/11.0/080/bin/intel64/icpc`

Peak Portability Flags

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

Peak Optimization Flags

C benchmarks:

400.perlbench: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -ansi-alias -opt-prefetch

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -auto-ilp32 -opt-prefetch -ansi-alias

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div -static -inline-calloc -opt-malloc-options=3

429.mcf: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2) -O2 -ipo -no-prec-div -ansi-alias

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2 -ansi-alias -auto-ilp32

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll4 -auto-ilp32

462.libquantum: basepeak = yes

464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll2 -ansi-alias

C++ benchmarks:

471.omnetpp: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs -L/spec/cpu2006.1.1/lib -lsmartheap

473.astar: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -ansi-alias -opt-ra-region-strategy=routine -auto-ilp32 -Wl,-z,muldefs -L/spec/cpu2006.1.1/lib -lsmartheap64

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-ic11.0-int-linux64-revA.20091028.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revA.20091028.xml`

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