



SPEC® CINT2006 Result

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Oracle Corporation

SPECint®2006 = 31.6

Sun Fire X4170 M2 (Intel Xeon E5620 2.4 GHz)

SPECint_base2006 = 29.4

CPU2006 license: 6

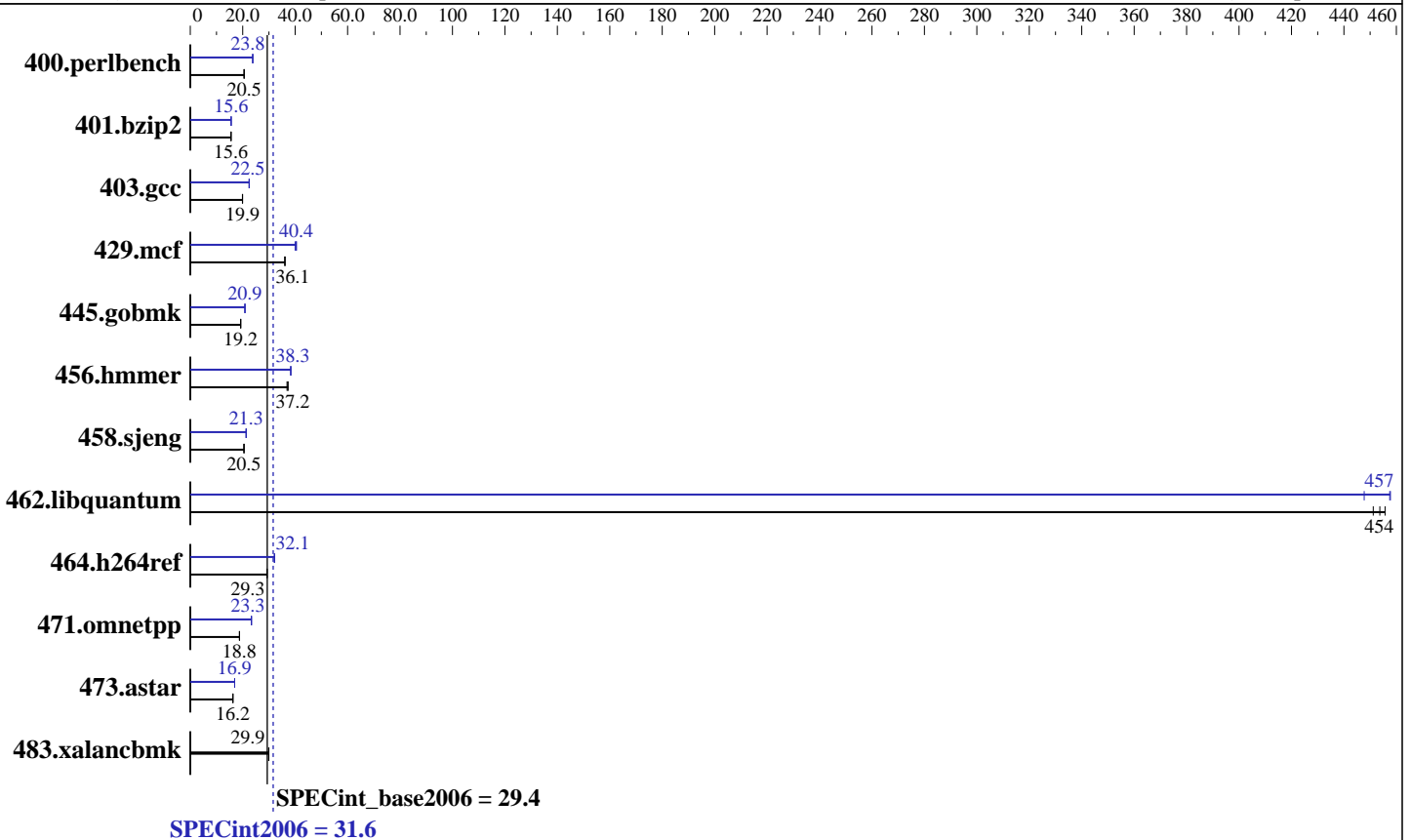
Test sponsor: Oracle Corporation

Tested by: Oracle Corporation

Test date: Sep-2010

Hardware Availability: Jun-2010

Software Availability: Apr-2010



Hardware

CPU Name: Intel Xeon E5620
 CPU Characteristics: Intel Turbo Boost Technology up to 2.66 GHz
 CPU MHz: 2400
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip, 2 threads/core
 CPU(s) orderable: 1 or 2 chips
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core
 L3 Cache: 12 MB I+D on chip per chip
 Other Cache: None
 Memory: 48 GB (12 x 4 GB 2Rx4 PC3-10600R-9, ECC, running at 1066 MHz)
 Disk Subsystem: 1 x 146 GB SAS, 10000 RPM
 Other Hardware: None

Software

Operating System: Oracle Enterprise Linux Server release 5.5 kernel 2.6.18-194.el5
 Compiler: Intel C++ Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: l_cproc_p_11.1.064
 Auto Parallel: Yes
 File System: ext3
 System State: Run level 3 (multi-user)
 Base Pointers: 64-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	<u>475</u>	<u>20.5</u>	475	20.6	476	20.5	410	23.8	<u>410</u>	<u>23.8</u>	410	23.8
401.bzip2	<u>620</u>	<u>15.6</u>	623	15.5	620	15.6	<u>619</u>	<u>15.6</u>	619	15.6	619	15.6
403.gcc	404	19.9	<u>404</u>	<u>19.9</u>	405	19.9	358	22.5	358	22.5	<u>358</u>	<u>22.5</u>
429.mcf	253	36.1	<u>252</u>	<u>36.1</u>	252	36.1	228	40.0	<u>226</u>	<u>40.4</u>	225	40.5
445.gobmk	545	19.3	<u>545</u>	<u>19.2</u>	547	19.2	<u>503</u>	<u>20.9</u>	503	20.9	503	20.8
456.hammer	<u>251</u>	<u>37.2</u>	253	36.9	250	37.3	<u>243</u>	<u>38.3</u>	244	38.3	243	38.4
458.sjeng	590	20.5	<u>590</u>	<u>20.5</u>	592	20.5	567	21.3	568	21.3	<u>568</u>	<u>21.3</u>
462.libquantum	<u>45.7</u>	<u>454</u>	45.9	451	45.5	456	45.3	458	46.3	448	<u>45.3</u>	<u>457</u>
464.h264ref	758	29.2	755	29.3	<u>756</u>	<u>29.3</u>	690	32.1	689	32.1	<u>689</u>	<u>32.1</u>
471.omnetpp	333	18.8	333	18.8	<u>333</u>	<u>18.8</u>	<u>268</u>	<u>23.3</u>	268	23.3	268	23.3
473.astar	432	16.2	431	16.3	<u>432</u>	<u>16.2</u>	415	16.9	415	16.9	<u>415</u>	<u>16.9</u>
483.xalancbmk	230	30.0	231	29.9	<u>230</u>	<u>29.9</u>	230	30.0	231	29.9	<u>230</u>	<u>29.9</u>

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

Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter

Platform Notes

Load Default BIOS Settings and then change the following
C-State Disabled
Data Reuse Optimization Disabled
Hardware Prefetch Enabled
Adjacent Cache Line Prefetch Enabled
L1 Data Prefetch Enabled

General Notes

This result is measured on a Sun Fire X4170 M2 server. The Sun Fire X4170 M2 and the Sun Fire X4270 M2 are electronically equivalent.

Base Compiler Invocation

C benchmarks:
icc -m64

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Base Compiler Invocation (Continued)

C++ benchmarks:
icpc -m64

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
471.omnetpp: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
C++ benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L(path to library) -lsmartheap64

Base Other Flags

C benchmarks:
403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
icc -m64
400.perlbench: icc -m32
429.mcf: icc -m32

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Peak Compiler Invocation (Continued)

445.gobmk: `icc -m32`

464.h264ref: `icc -m32`

C++ benchmarks (except as noted below):

`icpc -m64`

471.omnetpp: `icpc -m32`

Peak Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`

401.bzip2: `-DSPEC_CPU_LP64`

403.gcc: `-DSPEC_CPU_LP64`

456.hmmr: `-DSPEC_CPU_LP64`

458.sjeng: `-DSPEC_CPU_LP64`

462.libquantum: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`

473.astar: `-DSPEC_CPU_LP64`

483.xalancbmk: `-DSPEC_CPU_LP64 -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 -static(pass 2) -prof-use(pass 2) -auto-ilp32 -opt-prefetch -ansi-alias`

403.gcc: `-xSSE4.2 -ipo -O3 -no-prec-div -static -inline-alloc -opt-malloc-options=3 -auto-ilp32`

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.hmmr: `-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`

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Peak Optimization Flags (Continued)

462.libquantum: -xSSE4.2 -ipo -O3 -no-prec-div -static -parallel
-opt-prefetch -par-schedule-static=32768 -ansi-alias

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(path to library) -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 -Wl,-z,muldefs
-L(path to library) -lsmartheap64

483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:

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-ic11.1-linux64-revE-pathfix-smartheap.20101027.html>
http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.20101027.html

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE-pathfix-smartheap.20101027.xml>
http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.20101027.xml

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