



# SPEC® CINT2006 Result

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## Oracle Corporation

SPECint®2006 = 43.4

Sun Fire X2270 M2 (Intel Xeon X5675 3.06 GHz)

SPECint\_base2006 = 41.2

CPU2006 license: 6

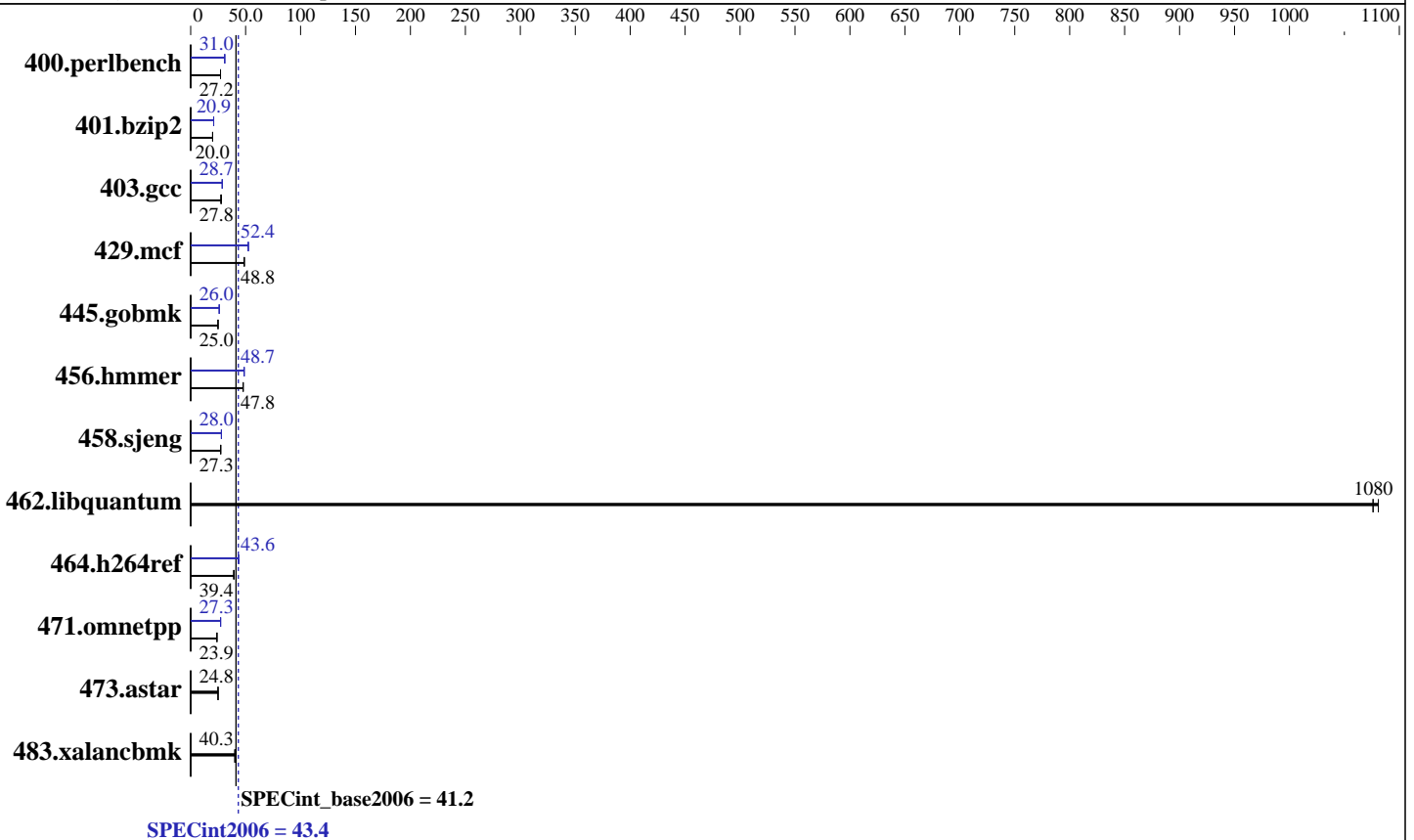
Test sponsor: Oracle Corporation

Tested by: Oracle Corporation

Test date: Feb-2011

Hardware Availability: Mar-2011

Software Availability: Nov-2010



### Hardware

CPU Name: Intel Xeon X5675  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.46 GHz  
 CPU MHz: 3067  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip, 2 threads/core  
 CPU(s) orderable: 1,2 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)  
 Disk Subsystem: 1 x 1 TB, SATA, 7200 RPM  
 Other Hardware: None

### Software

Operating System: Oracle Linux 5.5  
 kernel 2.6.18-194.el5  
 Compiler: Intel C++ Intel 64 Compiler XE for applications running on Intel 64  
 Version 12.0.1.116 Build 20101116  
 Auto Parallel: Yes  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V9.01



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## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	360	27.1	<b>360</b>	<b>27.2</b>	360	27.2	315	31.0	<b>315</b>	<b>31.0</b>	316	31.0
401.bzip2	483	20.0	483	20.0	<b>483</b>	<b>20.0</b>	461	20.9	<b>461</b>	<b>20.9</b>	461	20.9
403.gcc	<b>290</b>	<b>27.8</b>	287	28.0	294	27.4	<b>280</b>	<b>28.7</b>	280	28.7	280	28.7
429.mcf	187	48.8	<b>187</b>	<b>48.8</b>	187	48.7	175	52.2	<b>174</b>	<b>52.4</b>	173	52.6
445.gobmk	425	24.7	<b>420</b>	<b>25.0</b>	420	25.0	404	26.0	404	26.0	<b>404</b>	<b>26.0</b>
456.hammer	195	47.8	<b>195</b>	<b>47.8</b>	196	47.7	192	48.6	192	48.7	<b>192</b>	<b>48.7</b>
458.sjeng	<b>443</b>	<b>27.3</b>	444	27.2	442	27.4	433	28.0	432	28.0	<b>433</b>	<b>28.0</b>
462.libquantum	19.3	1080	19.2	1080	<b>19.3</b>	<b>1080</b>	19.3	1080	19.2	1080	<b>19.3</b>	<b>1080</b>
464.h264ref	566	39.1	<b>562</b>	<b>39.4</b>	561	39.4	508	43.6	508	43.6	<b>508</b>	<b>43.6</b>
471.omnetpp	262	23.8	<b>261</b>	<b>23.9</b>	261	23.9	<b>229</b>	<b>27.3</b>	230	27.2	229	27.3
473.astar	283	24.8	<b>283</b>	<b>24.8</b>	280	25.0	283	24.8	<b>283</b>	<b>24.8</b>	280	25.0
483.xalancbmk	<b>171</b>	<b>40.3</b>	171	40.4	172	40.2	<b>171</b>	<b>40.3</b>	171	40.4	172	40.2

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
Hugepages was enabled with the following:
'nodenv /mnt/hugepages hugetlbfs defaults 0 0' added to /etc/fstab
echo 900 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

## Platform Notes

Load Default BIOS Settings and then change the following  
 Data Reuse Optimization Disabled  
 Intel Hyperthreading Options Enabled

## General Notes

OMP\_NUM\_THREADS set to number of cores  
 KMP\_AFFINITY set to granularity=fine,scatter  
 Binaries were compiled on RHEL5.5 with Binutils binutils-2.17.50.0.6-14.el5

## 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.hmmr: -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 -parallel -opt-prefetch -auto-p32  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

C++ benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs  
-L/smartheap -lsmartheap64  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

## Base Other Flags

C benchmarks:  
403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

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

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## Peak Compiler Invocation (Continued)

429.mcf: icc -m32

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.hammer: -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) -prof-use(pass 2)  
-opt-prefetch -ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

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

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div -inline-calloc  
-opt-malloc-options=3 -auto-ilp32  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

429.mcf: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-auto-ilp32 -ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-auto-ilp32 -ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

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## Peak Optimization Flags (Continued)

456.hmmcr: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32  
-ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

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

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) -prof-use(pass 2)  
-unroll2 -ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

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)  
-opt-ra-region-strategy=block -ansi-alias -Wl,-z,muldefs  
-L/smartheap -lsmartheap  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

473.astar: basepeak = yes

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-ic12.0-linux64-revB.html>  
[http://www.spec.org/cpu2006/flags/Oracle-platform-x86\\_64.20101027.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-ic12.0-linux64-revB.xml>  
[http://www.spec.org/cpu2006/flags/Oracle-platform-x86\\_64.20101027.xml](http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.20101027.xml)



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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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