



# SPEC® CINT2006 Result

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## Oracle Corporation

SPECint®\_rate2006 = 324

Sun Fire X4270 M2 (Intel Xeon X5649 2.53 GHz)

SPECint\_rate\_base2006 = 304

CPU2006 license: 6

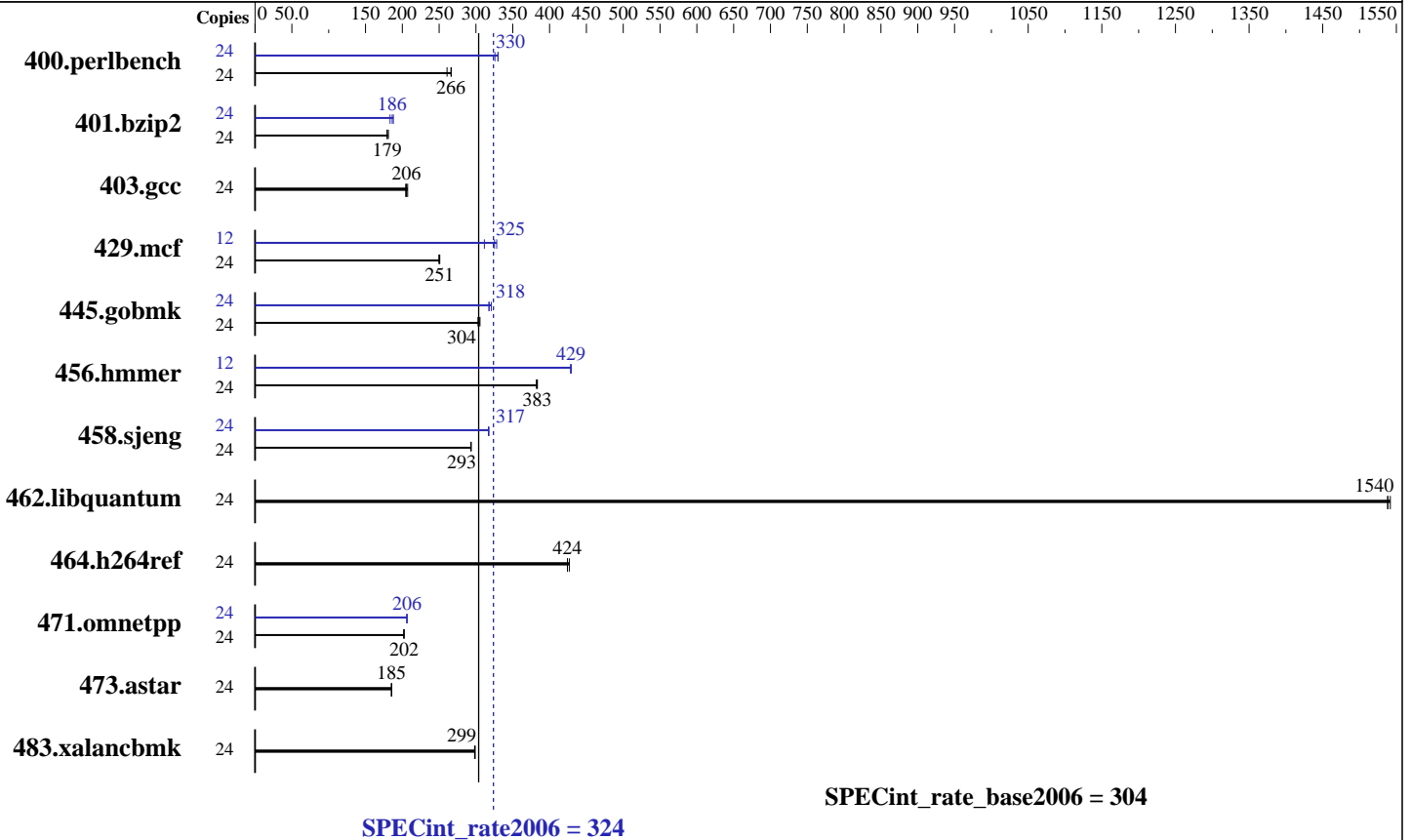
Test date: May-2011

Test sponsor: Oracle Corporation

Hardware Availability: Mar-2011

Tested by: Oracle Corporation

Software Availability: Nov-2010



### Hardware

CPU Name: Intel Xeon E5649  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.93 GHz  
 CPU MHz: 2533  
 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 300 GB 10000 RPM SAS2  
 Other Hardware: None

### Software

Operating System: Oracle Linux 5.5  
 kernel 2.6.18-194.el5  
 Compiler: Intel C++ Compiler XE for applications running on IA-32  
 Version 12.0.1.116 Build 20101116  
 Auto Parallel: No  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V9.01



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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	24	880	266	899	261	<b>881</b>	<b>266</b>	24	720	326	<b>711</b>	<b>330</b>	710	330
401.bzip2	24	1279	181	<b>1291</b>	<b>179</b>	1291	179	24	<b>1243</b>	<b>186</b>	1233	188	1263	183
403.gcc	24	932	207	944	205	<b>939</b>	<b>206</b>	24	932	207	944	205	<b>939</b>	<b>206</b>
429.mcf	24	<b>873</b>	<b>251</b>	872	251	877	250	12	351	311	<b>337</b>	<b>325</b>	333	328
445.gobmk	24	824	305	832	303	<b>827</b>	<b>304</b>	24	785	321	793	318	<b>792</b>	<b>318</b>
456.hammer	24	586	382	<b>584</b>	<b>383</b>	584	383	12	<b>261</b>	<b>429</b>	261	429	261	429
458.sjeng	24	<b>990</b>	<b>293</b>	990	293	990	293	24	<b>915</b>	<b>317</b>	916	317	915	317
462.libquantum	24	323	1540	323	1540	<b>323</b>	<b>1540</b>	24	323	1540	323	1540	<b>323</b>	<b>1540</b>
464.h264ref	24	1244	427	1252	424	<b>1252</b>	<b>424</b>	24	1244	427	1252	424	<b>1252</b>	<b>424</b>
471.omnetpp	24	<b>741</b>	<b>202</b>	741	202	743	202	24	727	206	727	206	<b>727</b>	<b>206</b>
473.astar	24	909	185	908	185	<b>909</b>	<b>185</b>	24	909	185	908	185	<b>909</b>	<b>185</b>
483.xalancbmk	24	554	299	<b>555</b>	<b>299</b>	555	298	24	554	299	<b>555</b>	<b>299</b>	555	298

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.  
numactl was used to bind copies to the cores

## Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run  
Hugepages was enabled with the following:  
'nodev /mnt/hugepages hugetlbfs defaults 0 0' added to /etc/fstab  
echo 10800 > /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  
Hardware Prefetch Enabled  
Adjacent Cache Line Prefetch Enabled  
L1 Data Prefetch Enabled  
Data Reuse Optimization Disabled

## General Notes

Binaries were compiled on RHEL5.5 with Binutils binutils-2.17.50.0.6-14.el5

This result is measured on Sun Fire X4170 M2 server.  
Note that the Sun Fire X4170 M2 server and Sun Fire X4270 M2 server are

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## General Notes (Continued)

electrically equivalent.

## Base Compiler Invocation

C benchmarks:

icc -m32

C++ benchmarks:

icpc -m32

## 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 -opt-prefetch  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs  
-L/smartheap -lsmartheap  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m32

400.perlbench: icc -m64

401.bzip2: icc -m64

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## Peak Compiler Invocation (Continued)

456.hmmer: icc -m64

458.sjeng: icc -m64

C++ benchmarks:

icpc -m32

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64

401.bzip2: -DSPEC\_CPU\_LP64

456.hmmer: -DSPEC\_CPU\_LP64

458.sjeng: -DSPEC\_CPU\_LP64

462.libquantum: -DSPEC\_CPU\_LINUX

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) -prof-use(pass 2)  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

401.bzip2: -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 -auto-ilp32 -ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

403.gcc: basepeak = yes

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)  
-ansi-alias -auto-ilp32

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-ansi-alias -auto-ilp32

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

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## Peak Optimization Flags (Continued)

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

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/smartheap -lsmartheap

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\\_64.20110622.html](http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.20110622.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\\_64.20110622.xml](http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.20110622.xml)

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

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