



# SPEC® CINT2006 Result

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## IBM Corporation

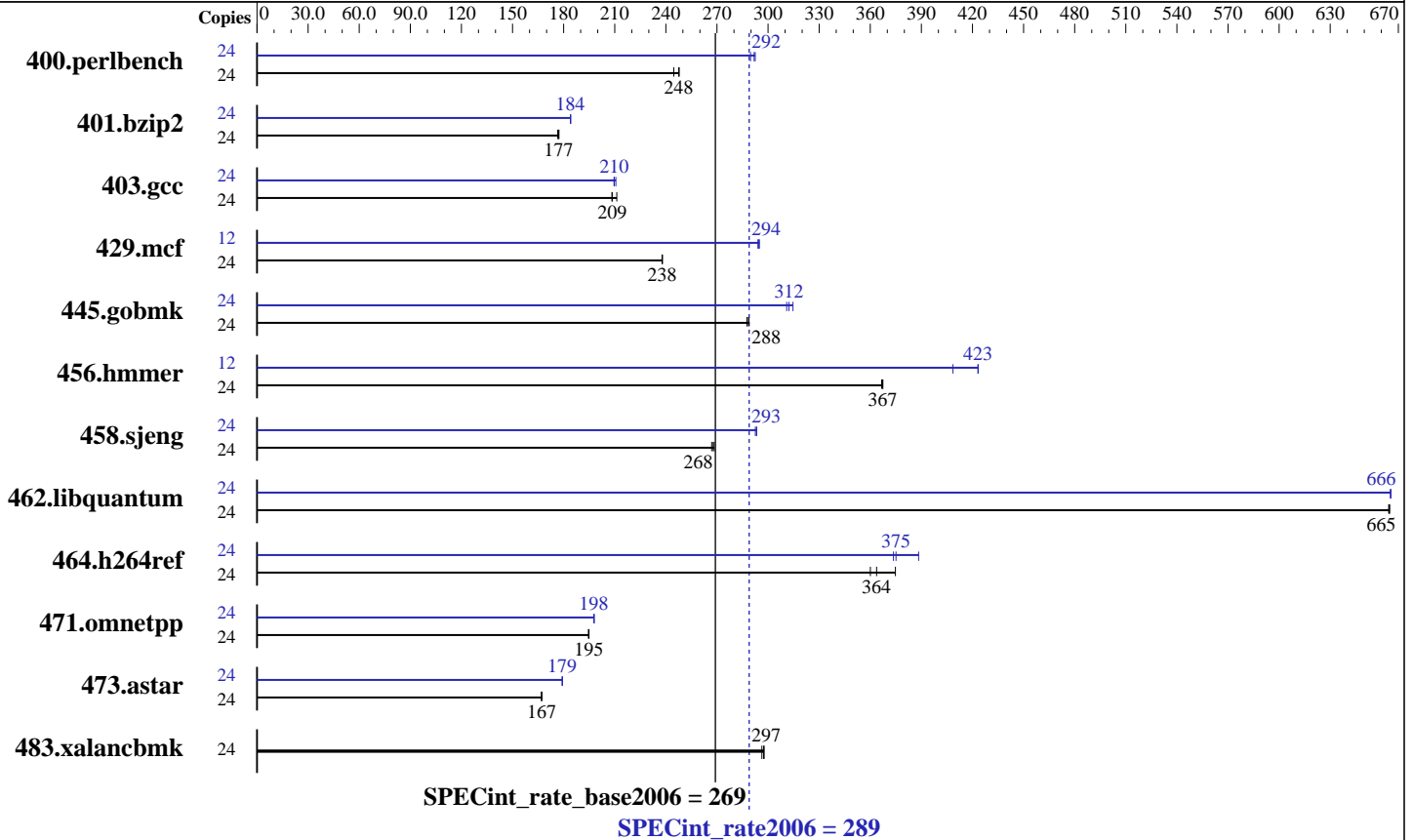
SPECint®\_rate2006 = 289

### IBM BladeCenter HS22V (Intel Xeon E5645)

SPECint\_rate\_base2006 = 269

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

Test date: Jun-2010  
Hardware Availability: Sep-2010  
Software Availability: Jan-2010



### Hardware

CPU Name: Intel Xeon E5645  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz  
 CPU MHz: 2400  
 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 PC3-10600R CL9, 2 Rank)  
 Disk Subsystem: 2 x 50 GB SATA, SSD, RAID 0  
 Other Hardware: None

### Software

Operating System: SuSE Linux Enterprise Server 11 (x86\_64), Kernel 2.6.27.19-5-default  
 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: No  
 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



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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	<b>947</b>	<b>248</b>	946	248	958	245	24	809	290	802	292	<b>803</b>	<b>292</b>
401.bzip2	24	1312	176	<b>1308</b>	<b>177</b>	1307	177	24	<b>1259</b>	<b>184</b>	1258	184	1259	184
403.gcc	24	927	208	<b>927</b>	<b>209</b>	915	211	24	917	211	<b>921</b>	<b>210</b>	922	210
429.mcf	24	921	238	920	238	<b>920</b>	<b>238</b>	12	372	294	<b>372</b>	<b>294</b>	371	295
445.gobmk	24	875	288	872	289	<b>875</b>	<b>288</b>	24	800	315	810	311	<b>806</b>	<b>312</b>
456.hammer	24	611	367	609	367	<b>610</b>	<b>367</b>	12	<b>265</b>	<b>423</b>	264	423	274	409
458.sjeng	24	1088	267	<b>1085</b>	<b>268</b>	1082	268	24	993	293	990	293	<b>990</b>	<b>293</b>
462.libquantum	24	749	664	748	665	<b>748</b>	<b>665</b>	24	<b>747</b>	<b>666</b>	747	665	747	666
464.h264ref	24	1417	375	<b>1460</b>	<b>364</b>	1475	360	24	1368	388	1422	374	<b>1416</b>	<b>375</b>
471.omnetpp	24	<b>770</b>	<b>195</b>	771	195	770	195	24	759	198	758	198	<b>758</b>	<b>198</b>
473.astar	24	1008	167	<b>1008</b>	<b>167</b>	1009	167	24	<b>940</b>	<b>179</b>	940	179	940	179
483.xalancbmk	24	559	296	<b>557</b>	<b>297</b>	556	298	24	559	296	<b>557</b>	<b>297</b>	556	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

## Platform Notes

Turbo Mode enabled  
Turbo Boost set to Traditional  
Power C-states enabled  
Demand Scrub disabled

## General Notes

'ulimit -s unlimited' was used to set the stack size to unlimited prior to run  
Binaries were compiled on SLES 10 with Binutils 2.18.50.50.0.7.20080502

## Base Compiler Invocation

C benchmarks:  
icc -m32  
  
C++ benchmarks:  
icpc -m32



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## 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 -opt-prefetch

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs  
-L/home/cmplr/usr3/alrahate/cpu2006.1.1.icl1.1/libic11.1-32bit -lsmarheap

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m32

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

462.libquantum: icc -m64

C++ benchmarks (except as noted below):

icpc -m32

473.astar: icpc -m64

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
401.bzip2: -DSPEC\_CPU\_LP64

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## Peak Portability Flags (Continued)

456.hmmcr: -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\_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

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) -opt-prefetch -ansi-alias -auto-ilp32

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div -static

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.hmmcr: -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: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32  
 -opt-prefetch

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/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-32bit -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

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## Peak Optimization Flags (Continued)

473.astar (continued):

`-L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-64bit -lsmarthearp64`

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-ic11.1-linux64-revE.20100603.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100603.xml>

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

Tested with SPEC CPU2006 v1.1.

Report generated on Wed Jul 23 11:56:25 2014 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 17 August 2010.