



# SPEC® CINT2006 Result

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## IBM Corporation

### SPECint®\_rate2006 = 41.4

### IBM BladeCenter LS21 (AMD Opteron 2212)

### SPECint\_rate\_base2006 = 37.3

CPU2006 license: 11

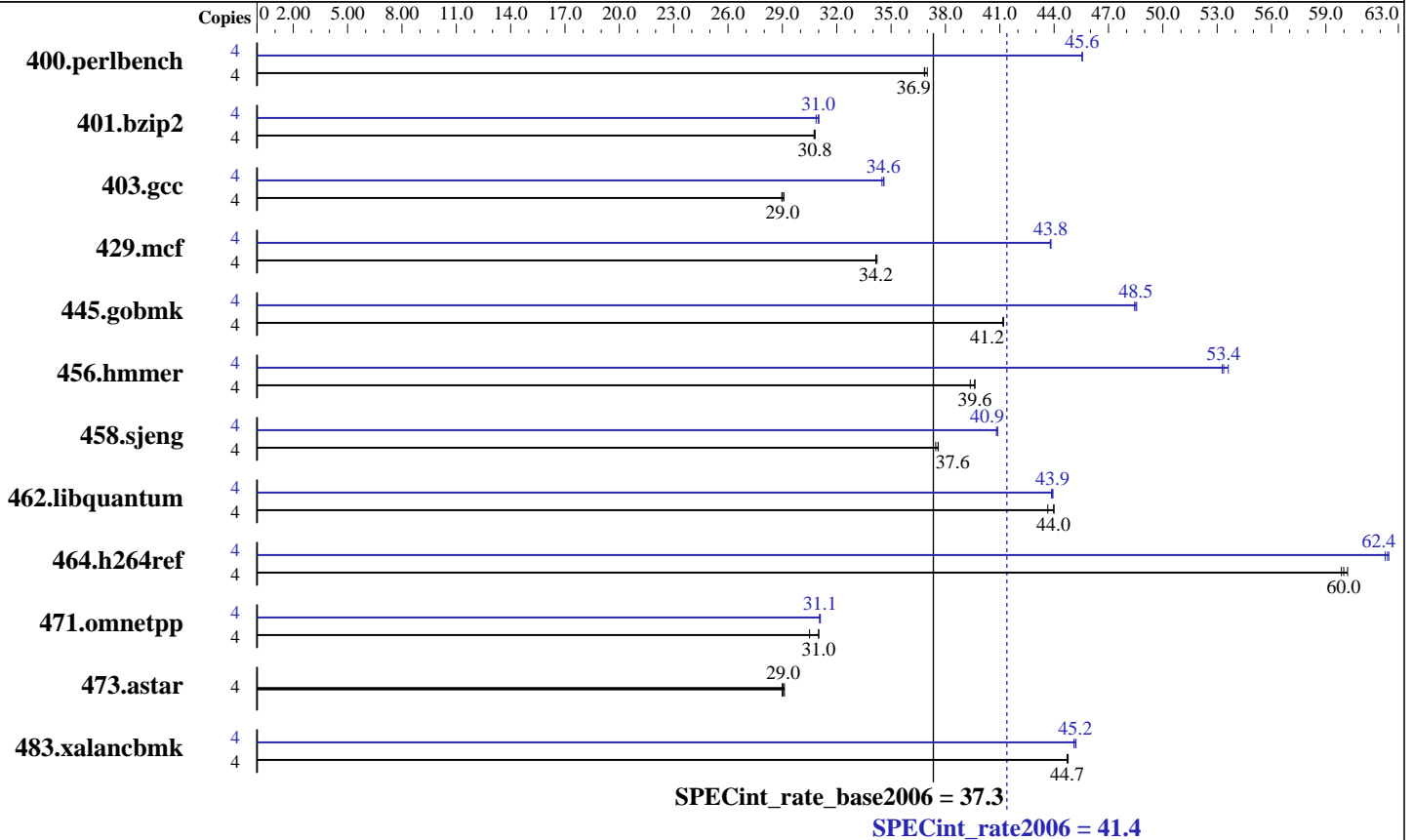
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Aug-2007

Hardware Availability: Oct-2006

Software Availability: Mar-2007



#### Hardware

CPU Name: AMD Opteron 2212  
 CPU Characteristics:  
 CPU MHz: 2000  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip  
 CPU(s) orderable: 1, 2 chips  
 Primary Cache: 64 KB I + 64 KB D on chip per core  
 Secondary Cache: 1 MB I+D on chip per core  
 L3 Cache: None  
 Other Cache: None  
 Memory: 16 GB (8 x 2GB DDR2-5300 ECC)  
 Disk Subsystem: 1 x 36 GB SAS, 10000 RPM  
 Other Hardware: None

#### Software

Operating System: SLES 10 (x86\_64), 2.6.16.21-0.8-smp  
 Compiler: QLogic PathScale Compiler Suite, Release 3.0  
 Auto Parallel: No  
 File System: ext3  
 System State: Multi-user, run level 3  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: MicroQuill SmartHeap 8.1



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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	4	1056	37.0	<b>1060</b>	<b>36.9</b>	1061	36.8	4	858	45.6	<b>858</b>	<b>45.6</b>	858	45.5
401.bzip2	4	1253	30.8	<b>1254</b>	<b>30.8</b>	1255	30.7	4	1251	30.9	1245	31.0	<b>1246</b>	<b>31.0</b>
403.gcc	4	<b>1110</b>	<b>29.0</b>	1107	29.1	1112	29.0	4	930	34.6	934	34.5	<b>931</b>	<b>34.6</b>
429.mcf	4	1068	34.2	<b>1068</b>	<b>34.2</b>	1066	34.2	4	833	43.8	832	43.8	<b>833</b>	<b>43.8</b>
445.gobmk	4	1019	41.2	<b>1019</b>	<b>41.2</b>	1018	41.2	4	864	48.6	<b>865</b>	<b>48.5</b>	866	48.4
456.hammer	4	<b>942</b>	<b>39.6</b>	948	39.4	942	39.6	4	701	53.3	696	53.6	<b>699</b>	<b>53.4</b>
458.sjeng	4	1292	37.5	1287	37.6	<b>1288</b>	<b>37.6</b>	4	1184	40.9	<b>1184</b>	<b>40.9</b>	1186	40.8
462.libquantum	4	1899	43.6	<b>1885</b>	<b>44.0</b>	1884	44.0	4	<b>1887</b>	<b>43.9</b>	1887	43.9	1890	43.9
464.h264ref	4	1470	60.2	<b>1476</b>	<b>60.0</b>	1479	59.9	4	1417	62.5	1422	62.3	<b>1419</b>	<b>62.4</b>
471.omnetpp	4	<b>806</b>	<b>31.0</b>	806	31.0	820	30.5	4	805	31.0	804	31.1	<b>805</b>	<b>31.1</b>
473.astar	4	<b>967</b>	<b>29.0</b>	969	29.0	964	29.1	4	<b>967</b>	<b>29.0</b>	969	29.0	964	29.1
483.xalancbmk	4	<b>617</b>	<b>44.7</b>	617	44.7	616	44.8	4	612	45.1	611	45.2	<b>611</b>	<b>45.2</b>

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

## General Notes

taskset utility used to bind CPU(s) to processes

## Base Compiler Invocation

C benchmarks:  
pathcc

C++ benchmarks:  
pathCC

## 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.hammer: -DSPEC\_CPU\_LP64  
458.sjeng: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX  
464.h264ref: -DSPEC\_CPU\_LP64  
483.xalancbmk: -DSPEC\_CPU\_LINUX



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## Base Optimization Flags

C benchmarks:

-Ofast -OPT:malloc\_alg=1

C++ benchmarks:

-Ofast -m32 -L/tools/SmartHeap\_8.1/lib -lsmartheap

## Base Other Flags

C benchmarks:

-IPA:max\_jobs=2

C++ benchmarks:

-IPA:max\_jobs=2

## Peak Compiler Invocation

C benchmarks:

pathcc

C++ benchmarks:

pathCC

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64  
401.bzip2: -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  
483.xalanbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -fb\_create fbdata(pass 1) -fb\_opt fbdata(pass 2) -Ofast  
-LNO:opt=0

401.bzip2: -O3 -LNO:ou\_prod\_max=10 -OPT:Ofast -OPT:alias=disjoint

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## Peak Optimization Flags (Continued)

403.gcc: -fb\_create fbdata(pass 1) -fb\_opt fbdata(pass 2) -m32 -O3  
-OPT:Ofast

429.mcf: -m32 -O3 -ipa -L/tools/SmartHeap\_8.1/lib -lsmartheap

445.gobmk: -fb\_create fbdata(pass 1) -fb\_opt fbdata(pass 2) -O3  
-OPT:alias=disjoint -LNO:simd=0 -LNO:minvariant=off  
-WOPT:retype\_expr=on

456.hmmr: -O2 -OPT:alias=disjoint -OPT:malloc\_alg=1 -CG:cflow=0

458.sjeng: -fb\_create fbdata(pass 1) -fb\_opt fbdata(pass 2) -O3  
-IPA:plimit=50000 -IPA:pu\_reorder=2

462.libquantum: -O3 -ipa -CG:local\_fwd\_sched=on -IPA:space=1000

464.h264ref: -fb\_create fbdata(pass 1) -fb\_opt fbdata(pass 2) -O3  
-IPA:plimit=20000 -OPT:alias=disjoint -LNO:prefetch=0

C++ benchmarks:

471.omnetpp: -Ofast -CG:gcm=off -m32  
-L/tools/SmartHeap\_8.1/lib -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: -Ofast -m32 -OPT:unroll\_times\_max=8  
-L/tools/SmartHeap\_8.1/lib -lsmartheap

## Peak Other Flags

C benchmarks:

-IPA:max\_jobs=2

C++ benchmarks:

-IPA:max\_jobs=2

The flags file that was used to format this result can be browsed at

[http://www.spec.org/cpu2006/flags/CPU2006\\_flags.20090714.13.html](http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.13.html)

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

[http://www.spec.org/cpu2006/flags/CPU2006\\_flags.20090714.13.xml](http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.13.xml)



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

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