



# SPEC® CINT2006 Result

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## IBM Corporation

SPECint®\_rate2006 = 75.6

## IBM System x3755 (AMD Opteron 8212)

SPECint\_rate\_base2006 = 67.2

CPU2006 license: 11

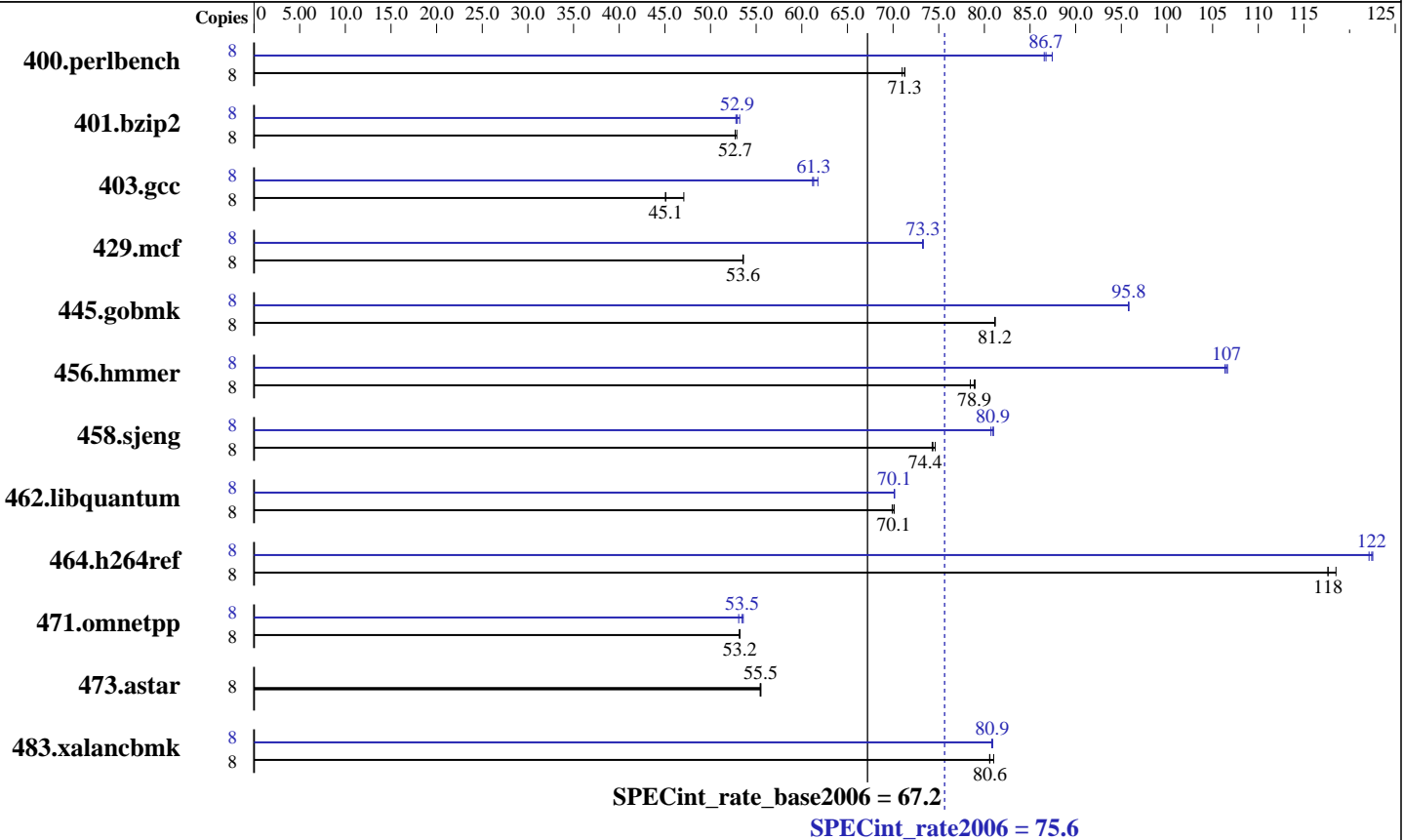
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Aug-2007

Hardware Availability: Oct-2006

Software Availability: Mar-2007



### Hardware

CPU Name: AMD Opteron 8212  
 CPU Characteristics: 2000  
 CPU MHz: Integrated  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 4 chips, 2 cores/chip  
 CPU(s) orderable: 1, 2, 3, 4 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: 32 GB (16 x 2GB DDR2-5300 ECC)  
 Disk Subsystem: 1 x 36 GB SAS, 15000 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	8	1101	71.0	<b>1097</b>	<b>71.3</b>	1097	71.3	8	894	87.4	903	86.6	<b>901</b>	<b>86.7</b>
401.bzip2	8	1465	52.7	1460	52.9	<b>1465</b>	<b>52.7</b>	8	<b>1459</b>	<b>52.9</b>	1462	52.8	1451	53.2
403.gcc	8	<b>1428</b>	<b>45.1</b>	1368	47.1	1429	45.1	8	1043	61.8	<b>1051</b>	<b>61.3</b>	1053	61.2
429.mcf	8	1361	53.6	1363	53.5	<b>1362</b>	<b>53.6</b>	8	995	73.3	996	73.2	<b>996</b>	<b>73.3</b>
445.gobmk	8	1034	81.2	1034	81.1	<b>1034</b>	<b>81.2</b>	8	876	95.8	876	95.8	<b>876</b>	<b>95.8</b>
456.hammer	8	945	79.0	<b>946</b>	<b>78.9</b>	951	78.5	8	702	106	<b>701</b>	<b>107</b>	700	107
458.sjeng	8	1297	74.6	1303	74.3	<b>1302</b>	<b>74.4</b>	8	1199	80.7	1195	81.0	<b>1196</b>	<b>80.9</b>
462.libquantum	8	2371	69.9	2364	70.1	<b>2365</b>	<b>70.1</b>	8	2363	70.1	<b>2363</b>	<b>70.1</b>	2363	70.1
464.h264ref	8	<b>1505</b>	<b>118</b>	1494	119	1505	118	8	1450	122	1445	123	<b>1446</b>	<b>122</b>
471.omnetpp	8	941	53.2	940	53.2	<b>940</b>	<b>53.2</b>	8	942	53.1	933	53.6	<b>935</b>	<b>53.5</b>
473.astar	8	1012	55.5	<b>1012</b>	<b>55.5</b>	1013	55.4	8	1012	55.5	<b>1012</b>	<b>55.5</b>	1013	55.4
483.xalanbmk	8	<b>685</b>	<b>80.6</b>	685	80.6	681	81.0	8	682	80.9	<b>683</b>	<b>80.9</b>	683	80.8

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.xalanbmk: -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.hmmer: -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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