



# SPEC® CINT2006 Result

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IBM Corporation

SPECint®2006 = 12.5

IBM System x3755 (AMD Opteron 8218)

SPECint\_base2006 = 11.3

CPU2006 license: 11

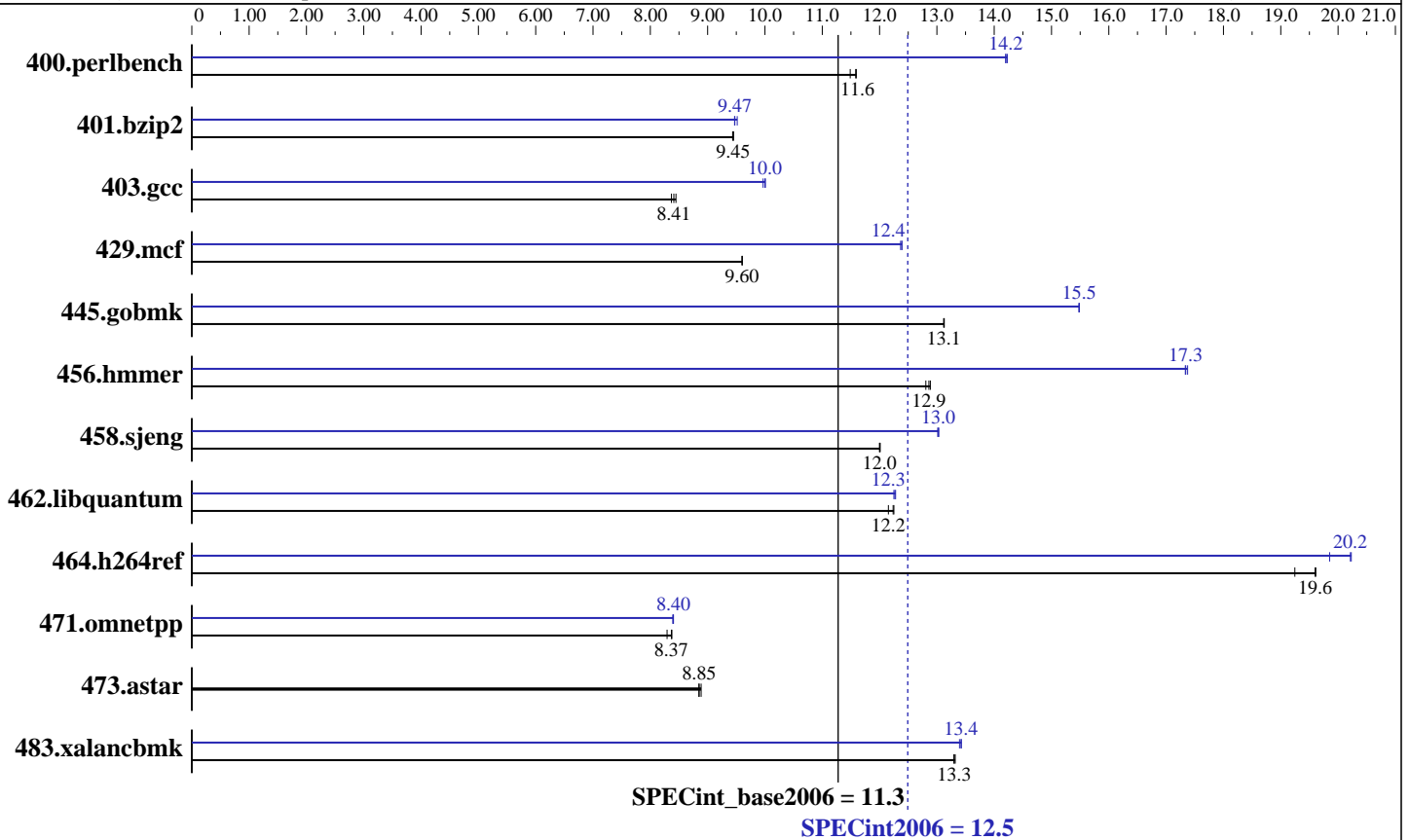
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Jul-2007

Hardware Availability: Oct-2006

Software Availability: Mar-2007



### Hardware

CPU Name: AMD Opteron 8218  
 CPU Characteristics:  
 CPU MHz: 2600  
 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					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	<b>843</b>	<b>11.6</b>	843	11.6	850	11.5	688	14.2	687	14.2	<b>688</b>	<b>14.2</b>
401.bzip2	1023	9.44	1021	9.45	<b>1021</b>	<b>9.45</b>	1014	9.52	1019	9.47	<b>1019</b>	<b>9.47</b>
403.gcc	953	8.45	<b>957</b>	<b>8.41</b>	962	8.37	804	10.0	808	9.97	<b>805</b>	<b>10.0</b>
429.mcf	950	9.60	<b>950</b>	<b>9.60</b>	950	9.60	736	12.4	<b>736</b>	<b>12.4</b>	737	12.4
445.gobmk	799	13.1	<b>799</b>	<b>13.1</b>	800	13.1	<b>678</b>	<b>15.5</b>	678	15.5	677	15.5
456.hmmer	728	12.8	724	12.9	<b>725</b>	<b>12.9</b>	<b>538</b>	<b>17.3</b>	537	17.4	538	17.3
458.sjeng	1008	12.0	<b>1008</b>	<b>12.0</b>	1007	12.0	928	13.0	<b>929</b>	<b>13.0</b>	930	13.0
462.libquantum	1705	12.2	1691	12.2	<b>1693</b>	<b>12.2</b>	1687	12.3	1691	12.2	<b>1689</b>	<b>12.3</b>
464.h264ref	1128	19.6	1150	19.2	<b>1129</b>	<b>19.6</b>	<b>1095</b>	<b>20.2</b>	1115	19.9	1094	20.2
471.omnetpp	754	8.29	746	8.38	<b>747</b>	<b>8.37</b>	744	8.40	745	8.39	<b>744</b>	<b>8.40</b>
473.astar	794	8.85	790	8.89	<b>793</b>	<b>8.85</b>	794	8.85	790	8.89	<b>793</b>	<b>8.85</b>
483.xalancbmk	518	13.3	519	13.3	<b>519</b>	<b>13.3</b>	<b>514</b>	<b>13.4</b>	514	13.4	515	13.4

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.hmmer: -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.xalancbmk: -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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