



# SPEC® CINT2006 Result

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## IBM Corporation

**SPECint®2006 = 12.4**

### IBM BladeCenter LS21 (AMD Opteron 2220)

**SPECint\_base2006 = 11.1**

CPU2006 license: 11

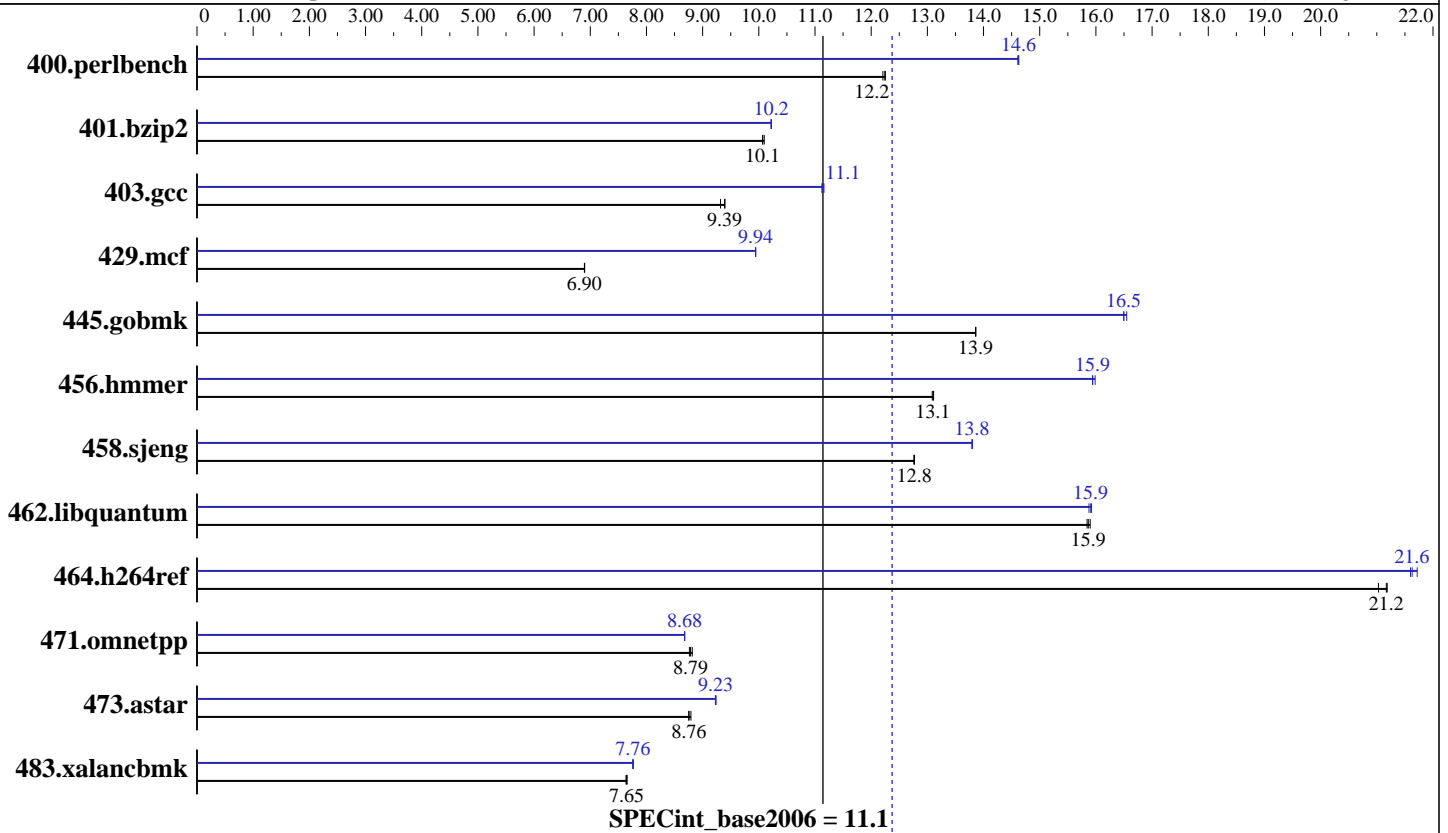
Test date: Feb-2007

Test sponsor: IBM Corporation

Hardware Availability: Feb-2007

Tested by: IBM Corporation

Software Availability: Aug-2006



### Hardware

CPU Name: AMD Opteron 2220  
 CPU Characteristics:  
 CPU MHz: 2800  
 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 74 GB SAS, 10000 RPM  
 Other Hardware: None

### Software

Operating System: SLES9 SP3 for AMD64/EM64T  
 Compiler: QLogic PathScale Compiler Suite 2.5  
 Auto Parallel: No  
 File System: ext3  
 System State: Multi-user, run level 3  
 Base Pointers: 64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: None



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## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	797	12.3	800	12.2	<u>798</u>	<u>12.2</u>	<u>668</u>	<u>14.6</u>	669	14.6	668	14.6
401.bzip2	<u>958</u>	<u>10.1</u>	956	10.1	959	10.1	<u>944</u>	<u>10.2</u>	944	10.2	945	10.2
403.gcc	857	9.40	864	9.32	<u>857</u>	<u>9.39</u>	<u>722</u>	<u>11.1</u>	721	11.2	724	11.1
429.mcf	1322	6.90	<u>1322</u>	<u>6.90</u>	1323	6.90	917	9.94	<u>917</u>	<u>9.94</u>	917	9.94
445.gobmk	757	13.9	<u>757</u>	<u>13.9</u>	757	13.9	<u>636</u>	<u>16.5</u>	636	16.5	634	16.5
456.hmmmer	<u>712</u>	<u>13.1</u>	713	13.1	712	13.1	584	16.0	585	15.9	<u>585</u>	<u>15.9</u>
458.sjeng	948	12.8	<u>948</u>	<u>12.8</u>	948	12.8	877	13.8	<u>877</u>	<u>13.8</u>	877	13.8
462.libquantum	1308	15.8	1303	15.9	<u>1306</u>	<u>15.9</u>	1301	15.9	<u>1303</u>	<u>15.9</u>	1305	15.9
464.h264ref	1052	21.0	1045	21.2	<u>1045</u>	<u>21.2</u>	<u>1023</u>	<u>21.6</u>	1025	21.6	1019	21.7
471.omnetpp	709	8.82	<u>711</u>	<u>8.79</u>	713	8.76	<u>720</u>	<u>8.68</u>	720	8.68	720	8.68
473.astar	799	8.79	<u>801</u>	<u>8.76</u>	802	8.75	760	9.24	<u>760</u>	<u>9.23</u>	761	9.23
483.xalancbmk	904	7.64	901	7.66	<u>902</u>	<u>7.65</u>	<u>889</u>	<u>7.76</u>	888	7.77	890	7.76

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

## Operating System 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.hmmmer: -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:

-march=auto -Ofast

C++ benchmarks:

-march=auto -Ofast -m32

## 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  
 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

## Peak Optimization Flags

C benchmarks:

400.perlbench: -march=auto -fb\_create fbdata(pass 1)  
 -fb\_opt fbdata(pass 2) -Ofast

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## Peak Optimization Flags (Continued)

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

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

429.mcf: -march=auto -fb\_create fbdata(pass 1)  
-fb\_opt fbdata(pass 2) -m32 -O2 -ipa

445.gobmk: -march=auto -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: -march=auto -O2 -OPT:alias=disjoint -WOPT:aggstr=0  
-CG:cflow=0

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

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

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

C++ benchmarks:

471.omnetpp: -march=auto -Ofast -IPA:pu\_reorder=2 -CG:gcm=off -m32

473.astar: -march=auto -fb\_create fbdata(pass 1)  
-fb\_opt fbdata(pass 2) -Ofast

483.xalancbmk: -march=auto -Ofast -m32 -OPT:unroll\_times\_max=8

## 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.20090714.17.html](http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.17.html)



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

[http://www.spec.org/cpu2006/flags/CPU2006\\_flags.20090714.17.xml](http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.17.xml)

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

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