



# SPEC® CINT2006 Result

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## IBM Corporation

**SPECint®2006 = 30.2**

### IBM BladeCenter HS21 (Intel Xeon X5470)

**SPECint\_base2006 = 26.4**

CPU2006 license: 11

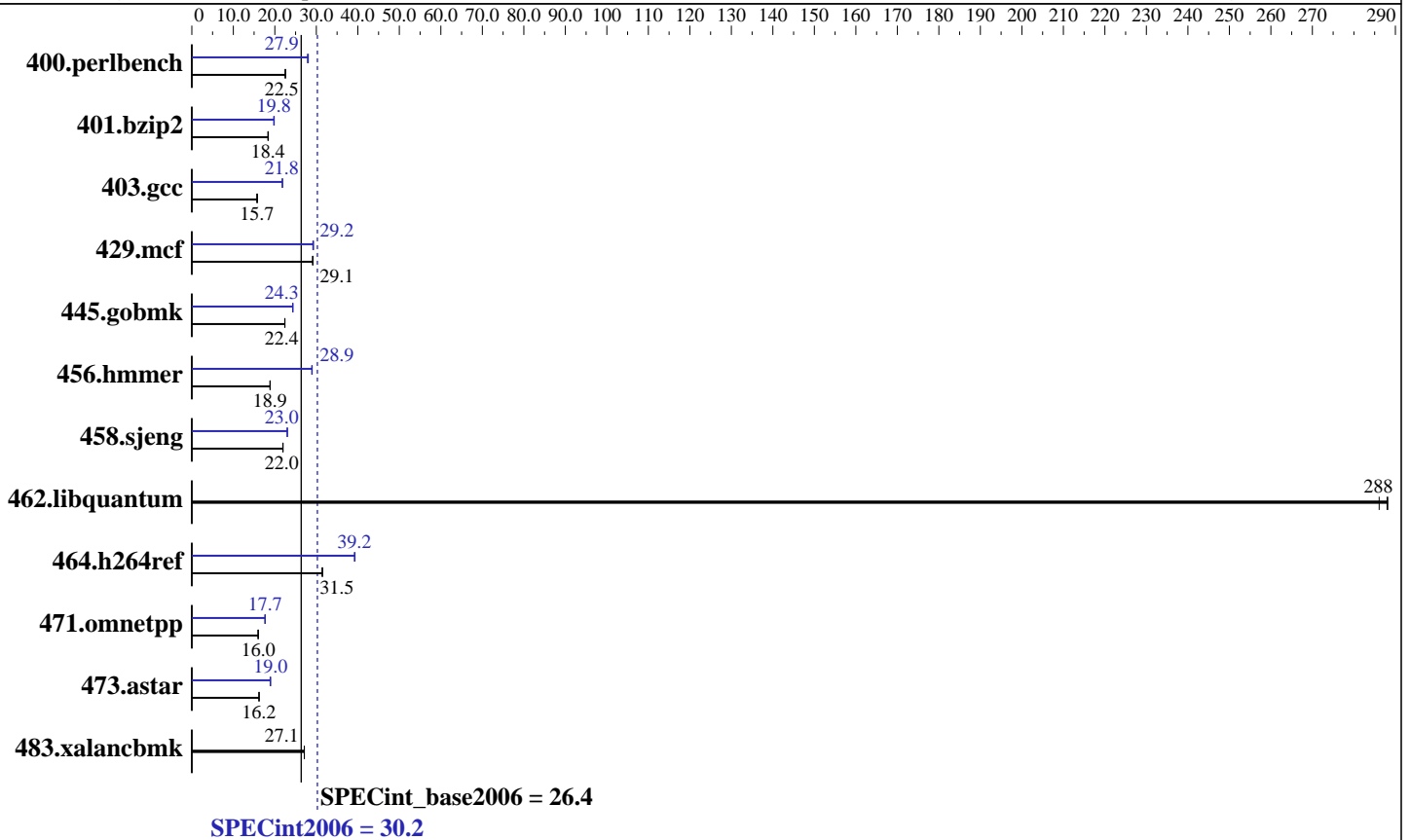
**Test date:** Sep-2008

**Test sponsor:** IBM Corporation

**Hardware Availability:** Oct-2008

**Tested by:** IBM Corporation

**Software Availability:** Nov-2008



### Hardware

CPU Name: Intel Xeon X5470  
 CPU Characteristics: 1333MHz system bus  
 CPU MHz: 3333  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
 CPU(s) orderable: 1,2 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 12 MB I+D on chip per chip, 6 MB shared / 2 cores  
 L3 Cache: None  
 Other Cache: None  
 Memory: 16 GB (8 x 2 GB DDR2-5300F ECC)  
 Disk Subsystem: 1 x 36 GB SAS, 10000 RPM  
 Other Hardware: None

### Software

Operating System: SuSE Linux Enterprise Server 10 (x86\_64) SP1, Kernel 2.6.16.46-0.12-smp  
 Compiler: Intel C++ Compiler 11.0 for Linux Build 20080730 Package ID: l\_cproc\_b\_11.0.042  
 Auto Parallel: Yes  
 File System: ReiserFS  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V8.1 Binutils 2.18.50.0.7.20080502



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## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	433	22.6	435	22.5	<b><u>433</u></b>	<b><u>22.5</u></b>	<b><u>350</u></b>	<b><u>27.9</u></b>	348	28.1	350	27.9
401.bzip2	523	18.4	<b><u>525</u></b>	<b><u>18.4</u></b>	526	18.3	<b><u>487</u></b>	<b><u>19.8</u></b>	489	19.7	486	19.9
403.gcc	514	15.7	509	15.8	<b><u>513</u></b>	<b><u>15.7</u></b>	<b><u>369</u></b>	<b><u>21.8</u></b>	369	21.8	369	21.8
429.mcf	313	29.1	313	29.1	<b><u>313</u></b>	<b><u>29.1</u></b>	311	29.3	313	29.2	<b><u>312</u></b>	<b><u>29.2</u></b>
445.gobmk	468	22.4	<b><u>468</u></b>	<b><u>22.4</u></b>	468	22.4	431	24.3	<b><u>431</u></b>	<b><u>24.3</u></b>	431	24.3
456.hammer	495	18.9	<b><u>495</u></b>	<b><u>18.9</u></b>	495	18.9	<b><u>323</u></b>	<b><u>28.9</u></b>	323	28.9	322	29.0
458.sjeng	<b><u>551</u></b>	<b><u>22.0</u></b>	552	21.9	551	22.0	527	23.0	526	23.0	<b><u>526</u></b>	<b><u>23.0</u></b>
462.libquantum	72.4	286	<b><u>71.9</u></b>	<b><u>288</u></b>	71.9	288	72.4	286	<b><u>71.9</u></b>	<b><u>288</u></b>	71.9	288
464.h264ref	705	31.4	703	31.5	<b><u>703</u></b>	<b><u>31.5</u></b>	<b><u>564</u></b>	<b><u>39.2</u></b>	565	39.2	563	39.3
471.omnetpp	<b><u>391</u></b>	<b><u>16.0</u></b>	390	16.0	392	15.9	<b><u>354</u></b>	<b><u>17.7</u></b>	355	17.6	353	17.7
473.astar	<b><u>434</u></b>	<b><u>16.2</u></b>	434	16.2	433	16.2	372	18.9	<b><u>370</u></b>	<b><u>19.0</u></b>	370	19.0
483.xalancbmk	254	27.1	<b><u>255</u></b>	<b><u>27.1</u></b>	255	27.1	254	27.1	<b><u>255</u></b>	<b><u>27.1</u></b>	255	27.1

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

## General Notes

OMP\_NUM\_THREADS set to number of processors  
KMP\_AFFINITY set to "physical,0"  
Hardware Prefetch Enabled, Adjacent Sector Prefetch Enabled  
'ulimit -s unlimited' was used to set the stack size to unlimited prior to run

## Base Compiler Invocation

C benchmarks:  
icc

C++ benchmarks:  
icpc

## Base Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
462.libquantum: -DSPEC\_CPU\_LINUX  
483.xalancbmk: -DSPEC\_CPU\_LINUX



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## Base Optimization Flags

C benchmarks:

-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel  
-par-runtime-control -opt-prefetch

C++ benchmarks:

-xSSE4.1 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs  
-L/spec/cpu2006.1.1/lib -lsmartheap

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc

401.bzip2: /opt/intel/Compiler/11.0/042/bin/intel64/icc  
-L/opt/intel/Compiler/11.0/042/ipp/em64t/lib  
-I/opt/intel/Compiler/11.0/042/ipp/em64t/include

456.hmmer: /opt/intel/Compiler/11.0/042/bin/intel64/icc  
-L/opt/intel/Compiler/11.0/042/ipp/em64t/lib  
-I/opt/intel/Compiler/11.0/042/ipp/em64t/include

C++ benchmarks:

icpc

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
401.bzip2: -DSPEC\_CPU\_LP64  
456.hmmer: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LINUX  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

Continued on next page



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## Peak Optimization Flags (Continued)

400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -ansi-alias -opt-prefetch

401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -auto-ilp32 -opt-prefetch  
-ansi-alias

403.gcc: -xSSE4.1 -ipo -O3 -no-prec-div -static -inline-calloc  
-opt-malloc-options=3

429.mcf: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -O2 -ipo  
-no-prec-div -ansi-alias

456.hmmer: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2  
-ansi-alias -auto-ilp32

458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll4

462.libquantum: basepeak = yes

464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll2 -ansi-alias

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -ansi-alias -opt-ra-region-strategy=block  
-Wl,-z,muldefs -L/spec/cpu2006.1.1/lib -lsmartheap

473.astar: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -ansi-alias -opt-ra-region-strategy=routine  
-Wl,-z,muldefs -L/spec/cpu2006.1.1/lib -lsmartheap

483.xalancbmk: basepeak = yes

## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.03.html>

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revA.20090713.11.html>



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You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.03.xml>

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revA.20090713.11.xml>

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

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