



# SPEC® CINT2006 Result

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## IBM Corporation

**SPECint®2006 = 40.7**

### IBM BladeCenter HS22 (Intel Xeon X5667)

**SPECint\_base2006 = 37.7**

CPU2006 license: 11

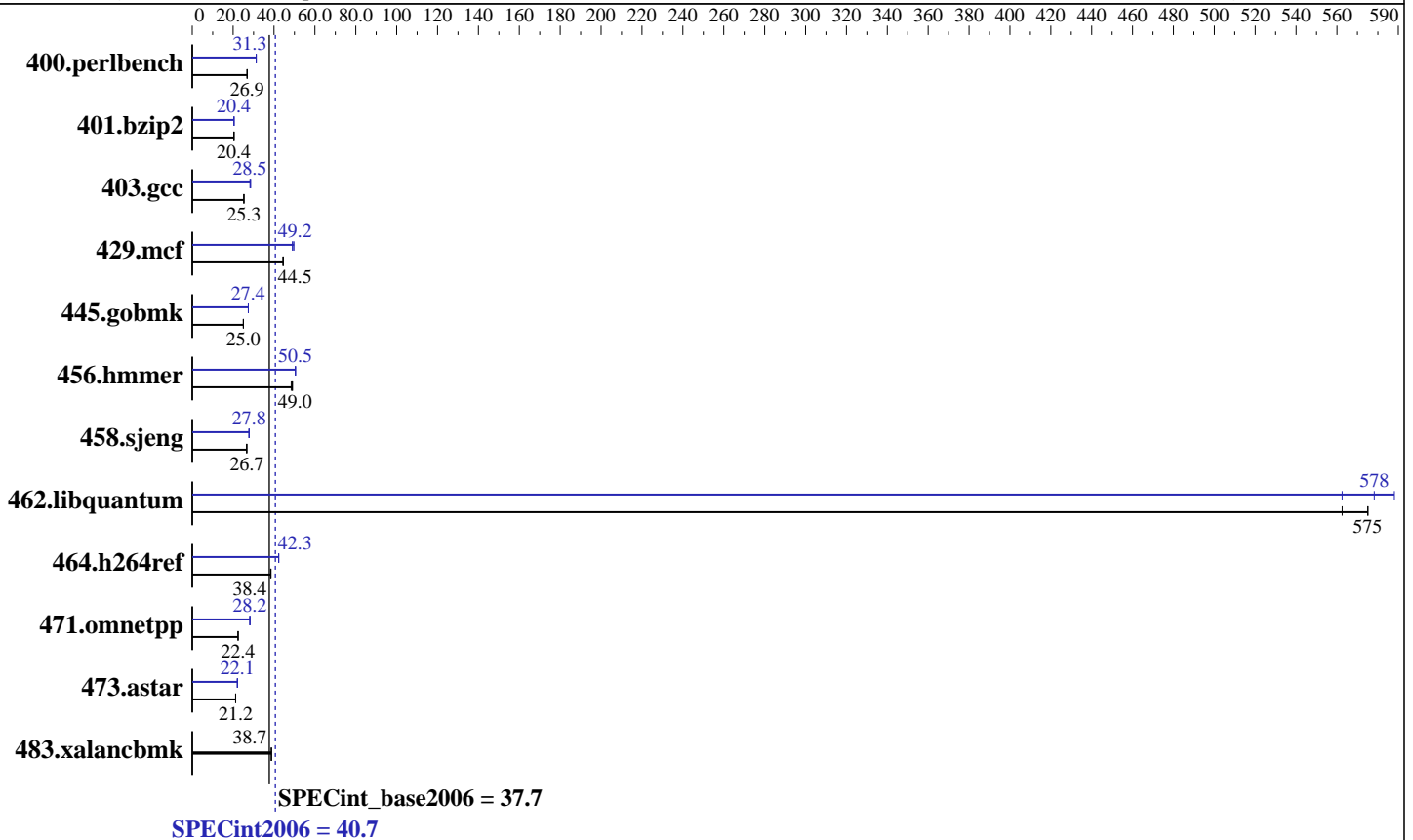
Test date: Mar-2010

Test sponsor: IBM Corporation

Hardware Availability: Mar-2010

Tested by: IBM Corporation

Software Availability: Jan-2010



### Hardware

CPU Name: Intel Xeon X5667  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.46 GHz  
 CPU MHz: 3067  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip, 2 threads/core  
 CPU(s) orderable: 1,2 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 256 KB I+D on chip per core  
 L3 Cache: 12 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 24 GB (12 x 2 GB PC3-10600R)  
 Disk Subsystem: 1 x 73 GB SAS, 15000 RPM  
 Other Hardware: None

### Software

Operating System: SuSE Linux Enterprise Server 11 (x86\_64), Kernel 2.6.27.19-5-default  
 Compiler: Intel C++ Professional Compiler for IA32 and Intel 64, Version 11.1  
 Build 20091130 Package ID: l\_cproc\_p\_11.1.064  
 Auto Parallel: Yes  
 File System: ext3  
 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  | 364               | 26.9               | 364                | 26.8               | <b><u>364</u></b> | <b><u>26.9</u></b> | 312                | 31.3               | 312               | 31.3               | <b><u>312</u></b> | <b><u>31.3</u></b> |
| 401.bzip2      | <b><u>473</u></b> | <b><u>20.4</u></b> | 473                | 20.4               | 473               | 20.4               | 472                | 20.4               | 472               | 20.4               | <b><u>472</u></b> | <b><u>20.4</u></b> |
| 403.gcc        | 318               | 25.3               | <b><u>319</u></b>  | <b><u>25.3</u></b> | 319               | 25.2               | 285                | 28.3               | 282               | 28.5               | <b><u>282</u></b> | <b><u>28.5</u></b> |
| 429.mcf        | 206               | 44.4               | 205                | 44.5               | <b><u>205</u></b> | <b><u>44.5</u></b> | <b><u>185</u></b>  | <b><u>49.2</u></b> | 186               | 49.0               | 183               | 49.8               |
| 445.gobmk      | 420               | 25.0               | <b><u>419</u></b>  | <b><u>25.0</u></b> | 419               | 25.0               | <b><u>382</u></b>  | <b><u>27.4</u></b> | 382               | 27.4               | 382               | 27.4               |
| 456.hammer     | <b><u>191</u></b> | <b><u>49.0</u></b> | 190                | 49.1               | 193               | 48.4               | <b><u>185</u></b>  | <b><u>50.5</u></b> | 185               | 50.5               | 185               | 50.5               |
| 458.sjeng      | <b><u>454</u></b> | <b><u>26.7</u></b> | 453                | 26.7               | 455               | 26.6               | 435                | 27.8               | 435               | 27.8               | <b><u>435</u></b> | <b><u>27.8</u></b> |
| 462.libquantum | 36.8              | 563                | <b><u>36.0</u></b> | <b><u>575</u></b>  | 36.0              | 575                | <b><u>35.8</u></b> | <b><u>578</u></b>  | 36.8              | 563                | 35.2              | 588                |
| 464.h264ref    | 574               | 38.5               | <b><u>576</u></b>  | <b><u>38.4</u></b> | 577               | 38.4               | 523                | 42.3               | 524               | 42.3               | <b><u>523</u></b> | <b><u>42.3</u></b> |
| 471.omnetpp    | 279               | 22.4               | 279                | 22.4               | <b><u>279</u></b> | <b><u>22.4</u></b> | 221                | 28.2               | 222               | 28.2               | <b><u>221</u></b> | <b><u>28.2</u></b> |
| 473.astar      | 331               | 21.2               | <b><u>330</u></b>  | <b><u>21.2</u></b> | 330               | 21.3               | 317                | 22.1               | <b><u>317</u></b> | <b><u>22.1</u></b> | 319               | 22.0               |
| 483.xalancbmk  | 178               | 38.7               | <b><u>178</u></b>  | <b><u>38.7</u></b> | 178               | 38.7               | 178                | 38.7               | <b><u>178</u></b> | <b><u>38.7</u></b> | 178               | 38.7               |

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

## Platform Notes

Turbo Mode enabled  
Turbo Boost set to Traditional  
Power C-states enabled  
Demand Scrub disabled

## General Notes

'ulimit -s unlimited' was used to set the stack size to unlimited prior to run  
OMP\_NUM\_THREADS set to number of cores  
KMP\_AFFINITY set to granularity=fine,scatter

## Base Compiler Invocation

C benchmarks:  
icc -m64  
  
C++ benchmarks:  
icpc -m64

## Base Portability Flags

400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64

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## Base Portability Flags (Continued)

```

401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmr: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
471.omnetpp: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

```

## Base Optimization Flags

C benchmarks:

```
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
```

C++ benchmarks:

```
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-64bit -lsmartheap64
```

## Base Other Flags

C benchmarks:

```
403.gcc: -Dalloca=_alloca
```

## Peak Compiler Invocation

C benchmarks (except as noted below):

```
icc -m64
```

```
400.perlbench: icc -m32
```

```
429.mcf: icc -m32
```

```
445.gobmk: icc -m32
```

```
464.h264ref: icc -m32
```

C++ benchmarks (except as noted below):

```
icpc -m64
```

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## Peak Compiler Invocation (Continued)

471.omnetpp: icpc -m32

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
 401.bzip2: -DSPEC\_CPU\_LP64  
 403.gcc: -DSPEC\_CPU\_LP64  
 456.hmmer: -DSPEC\_CPU\_LP64  
 458.sjeng: -DSPEC\_CPU\_LP64  
 462.libquantum: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX  
 473.astar: -DSPEC\_CPU\_LP64  
 483.xalancbmk: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

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

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

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div -static -inline-calloc  
 -opt-malloc-options=3 -auto-ilp32

429.mcf: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

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

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2  
 -ansi-alias -auto-ilp32

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

462.libquantum: -xSSE4.2 -ipo -O3 -no-prec-div -static -parallel  
 -opt-prefetch -par-schedule-static=32768 -ansi-alias

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

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## Peak Optimization Flags (Continued)

C++ benchmarks:

471.omnetpp: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs  
-L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-32bit -lsmartheap

473.astar: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-ansi-alias -opt-ra-region-strategy=routine -Wl,-z,muldefs  
-L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-64bit -lsmartheap64

483.xalancbmk: basepeak = yes

## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100330.03.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100330.03.xml>

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

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