



# SPEC<sup>®</sup> CINT2006 Result

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## IBM Corporation

**SPECint<sup>®</sup>2006 = 30.2**

### IBM BladeCenter HX5 (Intel Xeon L7555)

**SPECint\_base2006 = 26.6**

CPU2006 license: 11

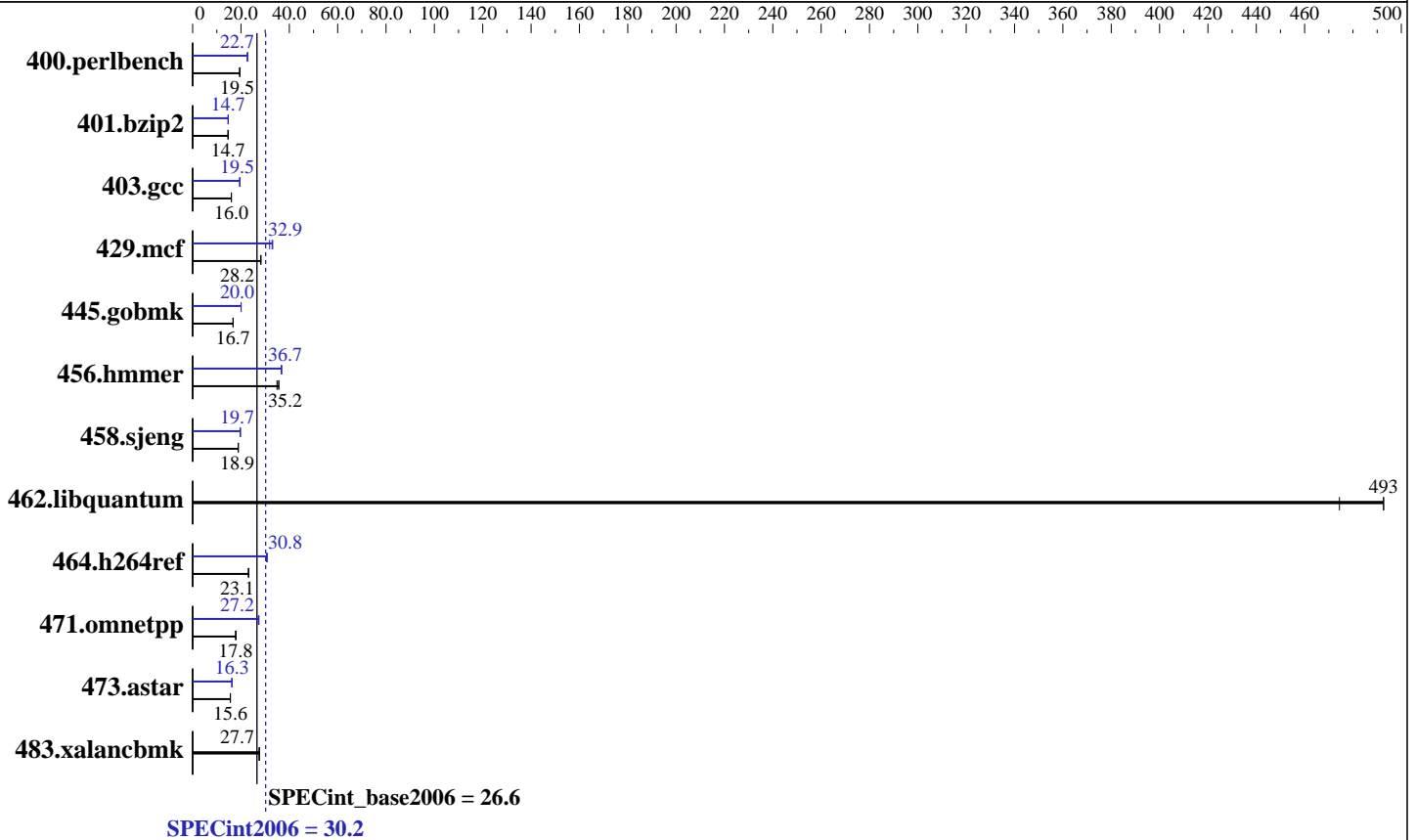
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Apr-2010

Hardware Availability: Jun-2010

Software Availability: Jan-2010



### Hardware

CPU Name: Intel Xeon L7555  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.53 GHz  
 CPU MHz: 1867  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 2 chips, 8 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: 24 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 128 GB (16 x 8 GB PC3-8500R, running at 978 MHz)  
 Disk Subsystem: 2 x 50 GB SATA, SSD  
 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	499	19.6	<b>500</b>	<b>19.5</b>	504	19.4	432	22.6	<b>430</b>	<b>22.7</b>	430	22.7
401.bzip2	658	14.7	<b>658</b>	<b>14.7</b>	658	14.7	<b>656</b>	<b>14.7</b>	656	14.7	656	14.7
403.gcc	503	16.0	<b>503</b>	<b>16.0</b>	502	16.0	412	19.5	413	19.5	<b>413</b>	<b>19.5</b>
429.mcf	<b>323</b>	<b>28.2</b>	323	28.2	324	28.1	286	31.8	<b>278</b>	<b>32.9</b>	275	33.1
445.gobmk	627	16.7	626	16.8	<b>627</b>	<b>16.7</b>	523	20.1	524	20.0	<b>523</b>	<b>20.0</b>
456.hammer	267	34.9	<b>265</b>	<b>35.2</b>	261	35.7	254	36.8	<b>254</b>	<b>36.7</b>	254	36.7
458.sjeng	640	18.9	643	18.8	<b>641</b>	<b>18.9</b>	613	19.8	614	19.7	<b>613</b>	<b>19.7</b>
462.libquantum	<b>42.1</b>	<b>493</b>	43.7	474	42.1	493	<b>42.1</b>	<b>493</b>	43.7	474	42.1	493
464.h264ref	958	23.1	<b>957</b>	<b>23.1</b>	956	23.1	718	30.8	723	30.6	<b>719</b>	<b>30.8</b>
471.omnetpp	351	17.8	348	18.0	<b>351</b>	<b>17.8</b>	<b>230</b>	<b>27.2</b>	228	27.4	230	27.2
473.astar	450	15.6	<b>450</b>	<b>15.6</b>	450	15.6	431	16.3	433	16.2	<b>432</b>	<b>16.3</b>
483.xalancbmk	<b>250</b>	<b>27.7</b>	251	27.4	249	27.7	<b>250</b>	<b>27.7</b>	251	27.4	249	27.7

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

## Platform Notes

Turbo Boost set to Traditional in BIOS  
Demand Scrub disabled in BIOS

## 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  
401.bzip2: -DSPEC\_CPU\_LP64  
403.gcc: -DSPEC\_CPU\_LP64

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## Base Portability Flags (Continued)

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  
 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

471.omnetpp: icpc -m32



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## 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-alloc
          -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: basepeak = yes

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

```

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

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## Peak Optimization Flags (Continued)

```
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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