



# SPEC® CINT2006 Result

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## HITACHI

**SPECint®2006 = 38.9**

BladeSymphony BS2000 (Intel Xeon X5670)

**SPECint\_base2006 = 35.4**

CPU2006 license: 872

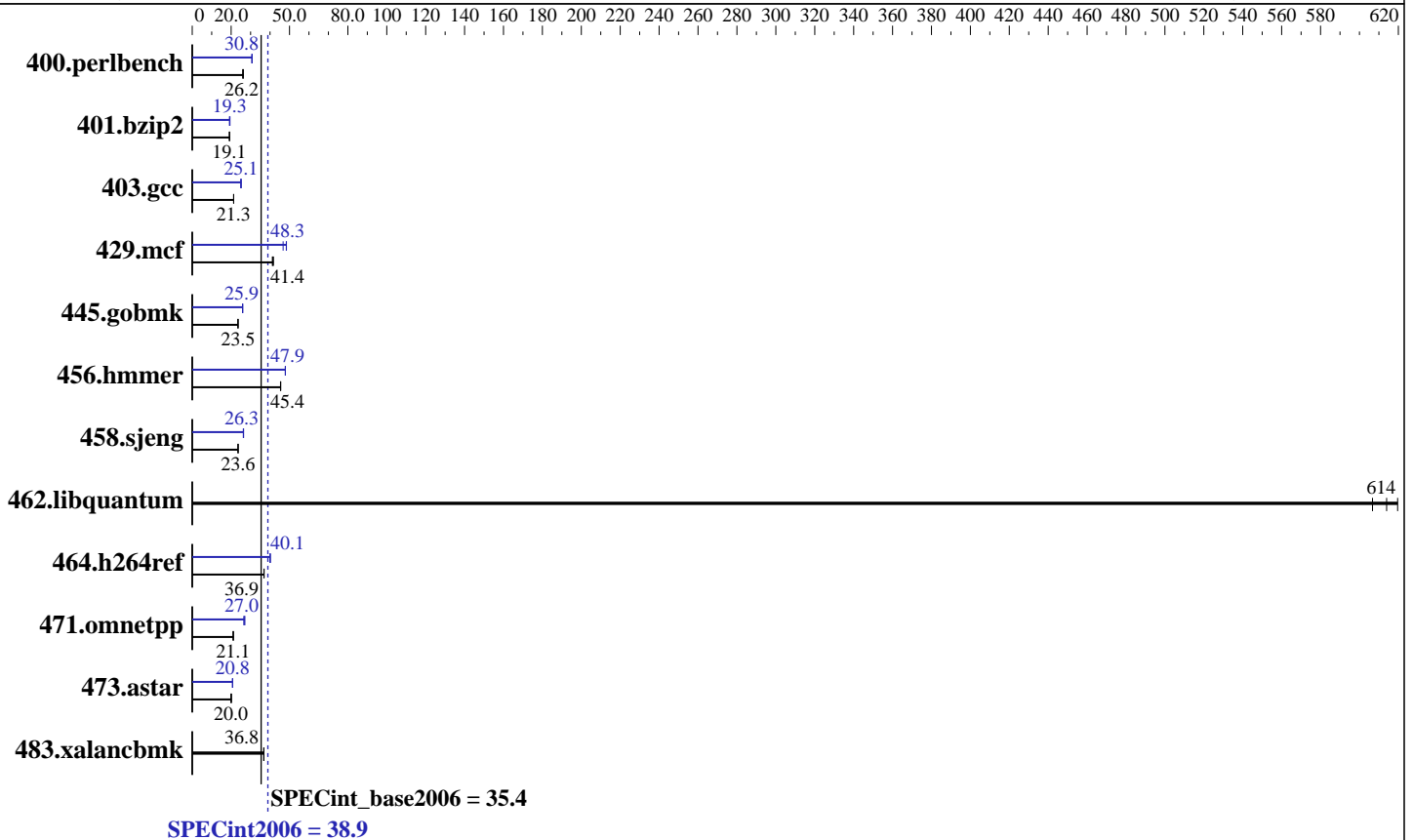
Test sponsor: HITACHI

Tested by: HITACHI

Test date: Nov-2010

Hardware Availability: Apr-2010

Software Availability: Dec-2009



### Hardware

CPU Name: Intel Xeon X5670  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.33 GHz  
 CPU MHz: 2933  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip  
 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: 48 GB (6 x 8 GB 2Rx4 PC3-10600R-9, ECC)  
 Disk Subsystem: 2 x 146 GB 10000 rpm SAS RAID1 configuration  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 5.4.3, Advanced Platform, Kernel 2.6.18-164.9.1.el5 on an x86\_64  
 Compiler: Intel C++ Compiler 11.1 for Linux Build 20091012 Package ID: l\_cproc\_p\_11.1.059  
 Auto Parallel: Yes  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V8.1



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## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	376	26.0	372	26.3	<b><u>374</u></b>	<b><u>26.2</u></b>	317	30.8	<b><u>317</u></b>	<b><u>30.8</u></b>	320	30.6
401.bzip2	502	19.2	<b><u>505</u></b>	<b><u>19.1</u></b>	505	19.1	504	19.2	<b><u>501</u></b>	<b><u>19.3</u></b>	497	19.4
403.gcc	378	21.3	378	21.3	<b><u>378</u></b>	<b><u>21.3</u></b>	320	25.2	323	24.9	<b><u>320</u></b>	<b><u>25.1</u></b>
429.mcf	221	41.2	218	41.8	<b><u>221</u></b>	<b><u>41.4</u></b>	195	46.7	<b><u>189</u></b>	<b><u>48.3</u></b>	188	48.4
445.gobmk	445	23.6	447	23.5	<b><u>446</u></b>	<b><u>23.5</u></b>	<b><u>405</u></b>	<b><u>25.9</u></b>	405	25.9	405	25.9
456.hammer	206	45.4	205	45.5	<b><u>205</u></b>	<b><u>45.4</u></b>	195	47.9	195	47.9	<b><u>195</u></b>	<b><u>47.9</u></b>
458.sjeng	513	23.6	<b><u>514</u></b>	<b><u>23.6</u></b>	514	23.6	<b><u>460</u></b>	<b><u>26.3</u></b>	458	26.4	460	26.3
462.libquantum	<b><u>33.7</u></b>	<b><u>614</u></b>	33.4	620	34.2	607	<b><u>33.7</u></b>	<b><u>614</u></b>	33.4	620	34.2	607
464.h264ref	600	36.9	599	36.9	<b><u>599</u></b>	<b><u>36.9</u></b>	554	39.9	551	40.1	<b><u>552</u></b>	<b><u>40.1</u></b>
471.omnetpp	298	21.0	295	21.2	<b><u>296</u></b>	<b><u>21.1</u></b>	<b><u>232</u></b>	<b><u>27.0</u></b>	232	27.0	236	26.5
473.astar	353	19.9	348	20.2	<b><u>351</u></b>	<b><u>20.0</u></b>	<b><u>338</u></b>	<b><u>20.8</u></b>	337	20.8	340	20.6
483.xalancbmk	187	36.8	<b><u>187</u></b>	<b><u>36.8</u></b>	187	36.8	187	36.8	<b><u>187</u></b>	<b><u>36.8</u></b>	187	36.8

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

## Operating System Notes

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

## Platform Notes

BIOS Settings:  
Intel HT Technology = Disabled  
Data Reuse Optimization = Disabled

## 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

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## Base Portability Flags (Continued)

```

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
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/bsc/smartheap/lib -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_X64
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/bsc/smartheap/lib -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/bsc/smartheap/lib -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.20100929.03.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.20100929.03.xml>

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

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