



# SPEC<sup>®</sup> CFP2006 Result

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## HITACHI

SPECfp<sup>®</sup>2006 = 47.1

### BladeSymphony BS320 (Intel Xeon X5680)

SPECfp\_base2006 = 44.6

CPU2006 license: 872

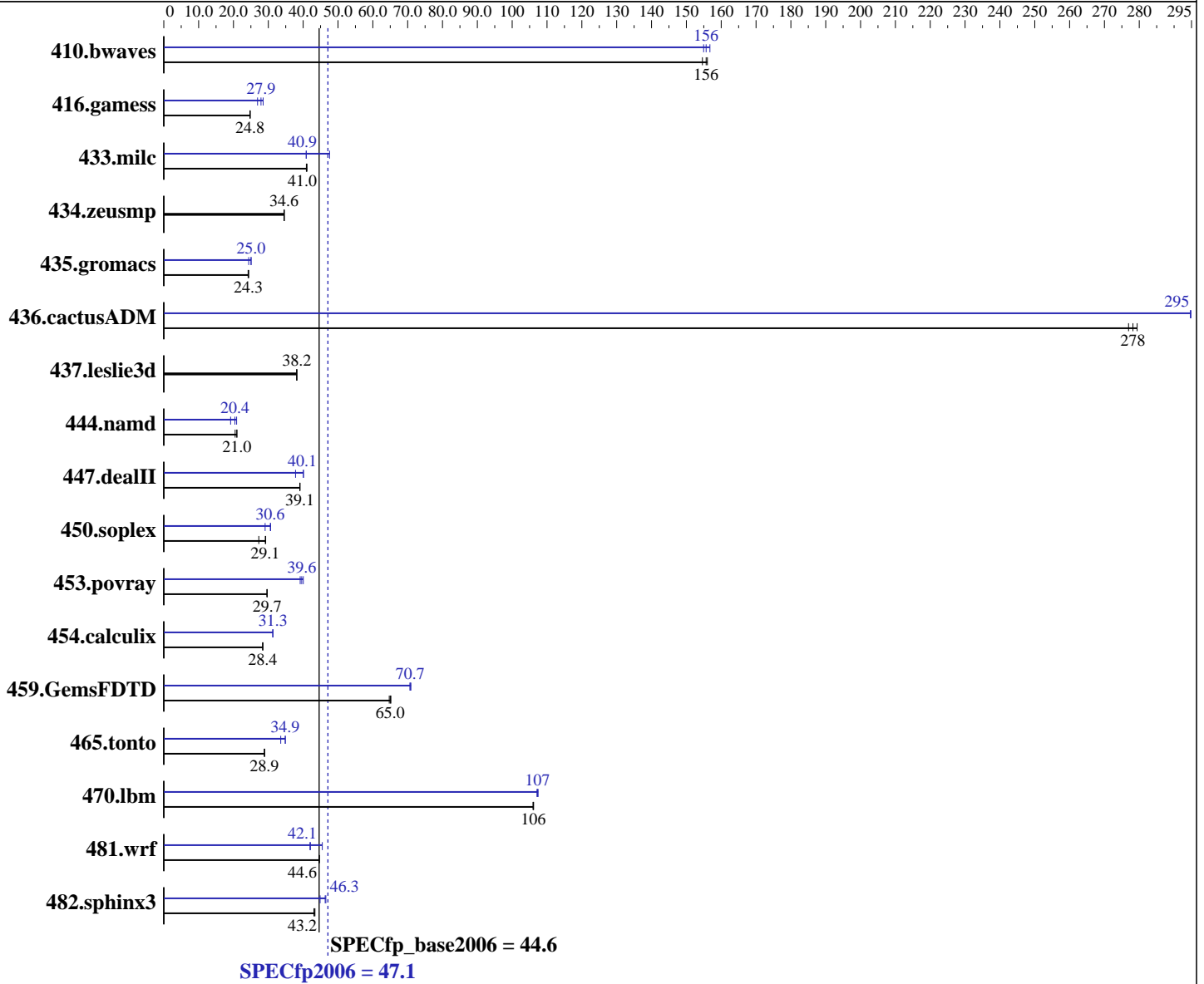
Test sponsor: HITACHI

Tested by: HITACHI

Test date: May-2010

Hardware Availability: May-2010

Software Availability: Dec-2009



**Hardware**

CPU Name: Intel Xeon X5680  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz  
 CPU MHz: 3333  
 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

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**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  
 Intel Fortran Compiler 11.1 for Linux Build 20091012 Package ID: l\_cprof\_p\_11.1.059  
 Auto Parallel: Yes  
 File System: ext3

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L3 Cache: 12 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 48 GB(6 x 8 GB PC3-10600R,  
 2 rank, CL9-9-9)  
 Disk Subsystem: 2 x 146 GB 10000 rpm Fibre Channel  
 RAID1 configuration  
 Other Hardware: None

System State: Multi-user run level 3  
 Base Pointers: 64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: None

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	87.9	155	87.1	156	<b>87.3</b>	<b>156</b>	86.7	157	<b>87.3</b>	<b>156</b>	87.7	155
416.gamess	<b>791</b>	<b>24.8</b>	791	24.7	790	24.8	728	26.9	<b>702</b>	<b>27.9</b>	687	28.5
433.milc	223	41.1	224	40.9	<b>224</b>	<b>41.0</b>	193	47.6	<b>224</b>	<b>40.9</b>	225	40.9
434.zeusmp	264	34.5	263	34.6	<b>263</b>	<b>34.6</b>	264	34.5	263	34.6	<b>263</b>	<b>34.6</b>
435.gromacs	293	24.4	295	24.2	<b>294</b>	<b>24.3</b>	<b>285</b>	<b>25.0</b>	285	25.1	293	24.4
436.cactusADM	42.8	279	<b>43.0</b>	<b>278</b>	43.2	277	40.5	295	<b>40.5</b>	<b>295</b>	40.5	295
437.leslie3d	246	38.2	246	38.2	<b>246</b>	<b>38.2</b>	246	38.2	246	38.2	<b>246</b>	<b>38.2</b>
444.namd	392	20.5	<b>382</b>	<b>21.0</b>	382	21.0	418	19.2	384	20.9	<b>393</b>	<b>20.4</b>
447.dealII	293	39.0	293	39.1	<b>293</b>	<b>39.1</b>	<b>285</b>	<b>40.1</b>	303	37.8	285	40.1
450.soplex	<b>286</b>	<b>29.1</b>	285	29.2	306	27.3	272	30.7	<b>273</b>	<b>30.6</b>	287	29.1
453.povray	180	29.6	<b>179</b>	<b>29.7</b>	179	29.7	<b>134</b>	<b>39.6</b>	136	39.2	133	40.0
454.calculix	291	28.4	290	28.4	<b>291</b>	<b>28.4</b>	<b>263</b>	<b>31.3</b>	263	31.3	264	31.3
459.GemsFDTD	163	65.2	164	64.7	<b>163</b>	<b>65.0</b>	150	70.6	<b>150</b>	<b>70.7</b>	150	70.9
465.tonto	340	28.9	341	28.9	<b>341</b>	<b>28.9</b>	293	33.6	282	34.9	<b>282</b>	<b>34.9</b>
470.lbm	<b>129</b>	<b>106</b>	129	106	130	106	128	107	<b>128</b>	<b>107</b>	128	107
481.wrf	<b>251</b>	<b>44.6</b>	251	44.6	250	44.7	246	45.5	<b>265</b>	<b>42.1</b>	266	42.0
482.sphinx3	<b>451</b>	<b>43.2</b>	449	43.4	452	43.1	419	46.5	<b>421</b>	<b>46.3</b>	434	44.9

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  
 NUMA = Disabled



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**CPU2006 license:** 872

**Test sponsor:** HITACHI

**Tested by:** HITACHI

**Test date:** May-2010

**Hardware Availability:** May-2010

**Software Availability:** Dec-2009

## Base Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks:

icpc -m64

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

## Base Portability Flags

410.bwaves: -DSPEC\_CPU\_LP64  
416.gamess: -DSPEC\_CPU\_LP64  
433.milc: -DSPEC\_CPU\_LP64  
434.zeusmp: -DSPEC\_CPU\_LP64  
435.gromacs: -DSPEC\_CPU\_LP64 -nofor\_main  
436.cactusADM: -DSPEC\_CPU\_LP64 -nofor\_main  
437.leslie3d: -DSPEC\_CPU\_LP64  
444.namd: -DSPEC\_CPU\_LP64  
447.dealII: -DSPEC\_CPU\_LP64  
450.soplex: -DSPEC\_CPU\_LP64  
453.povray: -DSPEC\_CPU\_LP64  
454.calculix: -DSPEC\_CPU\_LP64 -nofor\_main  
459.GemsFDTD: -DSPEC\_CPU\_LP64  
465.tonto: -DSPEC\_CPU\_LP64  
470.lbm: -DSPEC\_CPU\_LP64  
481.wrf: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_CASE\_FLAG -DSPEC\_CPU\_LINUX  
482.sphinx3: -DSPEC\_CPU\_LP64

## 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 -static -parallel -opt-prefetch

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

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



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**Software Availability:** Dec-2009

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

482.sphinx3: icc -m32

C++ benchmarks (except as noted below):

icpc -m64

450.soplex: icpc -m32

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

## Peak Portability Flags

410.bwaves: -DSPEC\_CPU\_LP64  
 416.gamess: -DSPEC\_CPU\_LP64  
 433.milc: -DSPEC\_CPU\_LP64  
 434.zeusmp: -DSPEC\_CPU\_LP64  
 435.gromacs: -DSPEC\_CPU\_LP64 -nofor\_main  
 436.cactusADM: -DSPEC\_CPU\_LP64 -nofor\_main  
 437.leslie3d: -DSPEC\_CPU\_LP64  
 444.namd: -DSPEC\_CPU\_LP64  
 447.dealII: -DSPEC\_CPU\_LP64  
 453.povray: -DSPEC\_CPU\_LP64  
 454.calculix: -DSPEC\_CPU\_LP64 -nofor\_main  
 459.GemsFDTD: -DSPEC\_CPU\_LP64  
 465.tonto: -DSPEC\_CPU\_LP64  
 470.lbm: -DSPEC\_CPU\_LP64  
 481.wrf: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_CASE\_FLAG -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

433.milc: -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

470.lbm: -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)  
 -parallel -ansi-alias -auto-ilp32

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## Peak Optimization Flags (Continued)

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2

### C++ benchmarks:

444.namd: -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)  
-fno-alias -auto-ilp32

447.dealII: -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 -scalar-rep- -auto-ilp32

450.soplex: -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)  
-opt-malloc-options=3

453.povray: -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 -ansi-alias

### Fortran benchmarks:

410.bwaves: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch  
-parallel

416.gamess: -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 -Ob0 -ansi-alias -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -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 -Ob0 -opt-prefetch -parallel

465.tonto: -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)  
-inline-calloc -opt-malloc-options=3 -auto -unroll4

### Benchmarks using both Fortran and C:

435.gromacs: -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)  
-opt-prefetch -auto-ilp32

436.cactusADM: -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 -opt-prefetch -parallel -auto-ilp32

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## Peak Optimization Flags (Continued)

454.calculix: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

481.wrf: Same as 454.calculix

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.20100427.00.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.20100427.00.xml>

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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.1.  
Report generated on Wed Jul 23 09:07:57 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 9 June 2010.