



# SPEC<sup>®</sup> CFP2006 Result

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## HITACHI

SPECfp<sup>®</sup>2006 = **86.0**

BladeSymphony BS520H (Intel Xeon E5-2680)

SPECfp\_base2006 = **81.4**

CPU2006 license: 35

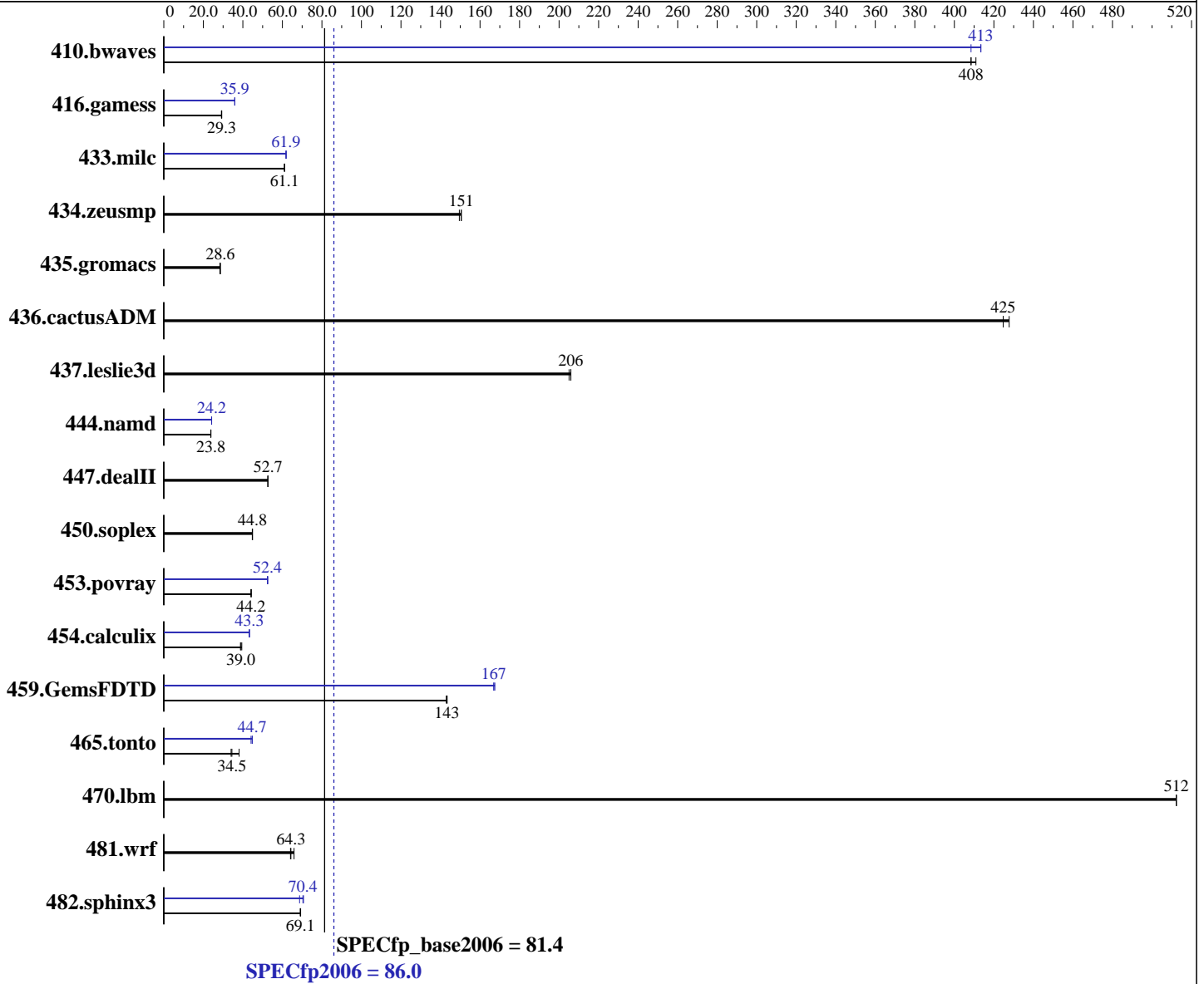
Test sponsor: HITACHI

Tested by: HITACHI

Test date: Mar-2012

Hardware Availability: Apr-2012

Software Availability: Feb-2012



### Hardware

CPU Name: Intel Xeon E5-2680  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz  
 CPU MHz: 2700  
 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

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### Software

Operating System: Red Hat Enterprise Linux Server release 6.2, Kernel 2.6.32-220.4.2.el6.x86\_64  
 Compiler: C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux;  
 Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux  
 Auto Parallel: Yes  
 File System: ext4  
 System State: Run level 3 (multi-user)

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L3 Cache: 20 MB I+D on chip per chip  
Other Cache: None  
Memory: 128 GB (16 x 8 GB 2Rx4 PC3L-12800R-11, ECC)  
Disk Subsystem: 1 x 146 GB SAS, 15000 RPM  
Other Hardware: None

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    | 33.3               | 408                | <b><u>33.3</u></b> | <b><u>408</u></b>  | 33.1               | 411                | 33.3               | 408                | 32.9              | 413                | <b><u>32.9</u></b> | <b><u>413</u></b>  |
| 416.gamess    | 672                | 29.1               | 669                | 29.3               | <b><u>669</u></b>  | <b><u>29.3</u></b> | 545                | 35.9               | <b><u>545</u></b> | <b><u>35.9</u></b> | 546                | 35.9               |
| 433.milc      | <b><u>150</u></b>  | <b><u>61.1</u></b> | 150                | 61.1               | 150                | 61.1               | 148                | 61.9               | <b><u>148</u></b> | <b><u>61.9</u></b> | 148                | 61.8               |
| 434.zeusmp    | 60.9               | 150                | 60.5               | 151                | <b><u>60.5</u></b> | <b><u>151</u></b>  | 60.9               | 150                | 60.5              | 151                | <b><u>60.5</u></b> | <b><u>151</u></b>  |
| 435.gromacs   | 251                | 28.4               | 250                | 28.6               | <b><u>250</u></b>  | <b><u>28.6</u></b> | 251                | 28.4               | 250               | 28.6               | <b><u>250</u></b>  | <b><u>28.6</u></b> |
| 436.cactusADM | <b><u>28.1</u></b> | <b><u>425</u></b>  | 28.1               | 425                | 27.9               | 428                | <b><u>28.1</u></b> | <b><u>425</u></b>  | 28.1              | 425                | 27.9               | 428                |
| 437.leslie3d  | <b><u>45.6</u></b> | <b><u>206</u></b>  | 45.8               | 205                | 45.6               | 206                | <b><u>45.6</u></b> | <b><u>206</u></b>  | 45.8              | 205                | 45.6               | 206                |
| 444.namd      | <b><u>337</u></b>  | <b><u>23.8</u></b> | 337                | 23.8               | 337                | 23.8               | 332                | 24.2               | 331               | 24.2               | <b><u>331</u></b>  | <b><u>24.2</u></b> |
| 447.dealII    | 217                | 52.6               | 217                | 52.7               | <b><u>217</u></b>  | <b><u>52.7</u></b> | 217                | 52.6               | 217               | 52.7               | <b><u>217</u></b>  | <b><u>52.7</u></b> |
| 450.soplex    | <b><u>186</u></b>  | <b><u>44.8</u></b> | 186                | 44.9               | 186                | 44.8               | <b><u>186</u></b>  | <b><u>44.8</u></b> | 186               | 44.9               | 186                | 44.8               |
| 453.povray    | 120                | 44.3               | <b><u>120</u></b>  | <b><u>44.2</u></b> | 121                | 44.1               | 101                | 52.6               | <b><u>101</u></b> | <b><u>52.4</u></b> | 102                | 52.4               |
| 454.calculix  | 209                | 39.5               | 213                | 38.8               | <b><u>211</u></b>  | <b><u>39.0</u></b> | 190                | 43.3               | 191               | 43.3               | <b><u>191</u></b>  | <b><u>43.3</u></b> |
| 459.GemsFDTD  | <b><u>74.0</u></b> | <b><u>143</u></b>  | 74.2               | 143                | 74.0               | 143                | <b><u>63.5</u></b> | <b><u>167</u></b>  | 63.3              | 168                | 63.5               | 167                |
| 465.tonto     | 258                | 38.1               | 289                | 34.1               | <b><u>286</u></b>  | <b><u>34.5</u></b> | 219                | 44.8               | <b><u>220</u></b> | <b><u>44.7</u></b> | 223                | 44.1               |
| 470.lbm       | 26.8               | 512                | 26.8               | 512                | <b><u>26.8</u></b> | <b><u>512</u></b>  | 26.8               | 512                | 26.8              | 512                | <b><u>26.8</u></b> | <b><u>512</u></b>  |
| 481.wrf       | 169                | 65.9               | 174                | 64.1               | <b><u>174</u></b>  | <b><u>64.3</u></b> | 169                | 65.9               | 174               | 64.1               | <b><u>174</u></b>  | <b><u>64.3</u></b> |
| 482.sphinx3   | 281                | 69.2               | 282                | 69.0               | <b><u>282</u></b>  | <b><u>69.1</u></b> | <b><u>277</u></b>  | <b><u>70.4</u></b> | 284               | 68.7               | 276                | 70.7               |

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

## Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

## Platform Notes

Sysinfo program /home/cpu2006/config/sysinfo.rev6800  
\$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3  
running on localhost.localdomain Mon Mar 19 10:01:15 2012

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:  
<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

From /proc/cpuinfo  
model name : Intel(R) Xeon(R) CPU E5-2680 0 @ 2.70GHz  
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**SPECfp\_base2006 = 81.4**

CPU2006 license: 35

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Test date: Mar-2012

Hardware Availability: Apr-2012

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### Platform Notes (Continued)

```

2 "physical id"s (chips)
32 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
caution.)
cpu cores : 8
siblings  : 16
physical 0: cores 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7
cache size : 20480 KB

```

```

From /proc/meminfo
MemTotal:      132137100 kB
HugePages_Total: 0
Hugepagesize:  2048 kB

```

```

/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.2 (Santiago)

```

```

From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

```

```

uname -a:
Linux localhost.localdomain 2.6.32-220.4.2.el6.x86_64 #1 SMP Mon Feb 6
16:39:28 EST 2012 x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Mar 19 09:56

(End of data from sysinfo program)

### General Notes

Environment variables set by runspec before the start of the run:

```

KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64"
OMP_NUM_THREADS = "16"

```

```

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
memory using RHEL5.5
Transparent Huge Pages disabled with:
echo never > /sys/kernel/mm/redhat_transparent_hugepage/enabled

```

HITACHI BladeSymphony BS520H and HITACHI Compute Blade 520H are electronically equivalent. The results have been measured on a HITACHI BladeSymphony BS520H.



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**Tested by:** HITACHI

**Software Availability:** Feb-2012

## 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.lelie3d: -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:

-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch  
-ansi-alias

C++ benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

Fortran benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch  
-ansi-alias



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Hardware Availability: Apr-2012

Tested by: HITACHI

Software Availability: Feb-2012

## Peak Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks:

icpc -m64

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

433.milc: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32  
-ansi-alias

470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias  
-parallel

C++ benchmarks:

444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -fno-alias  
-auto-ilp32

447.dealIII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

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

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## Peak Optimization Flags (Continued)

416.gamess: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2  
-inline-level=0 -scalar-rep- -static

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2  
-inline-level=0 -opt-prefetch -parallel

465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -inline-calloc  
-opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xAVX -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

481.wrf: basepeak = yes

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.html>

<http://www.spec.org/cpu2006/flags/PlatformHitachi-V1.2.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml>

<http://www.spec.org/cpu2006/flags/PlatformHitachi-V1.2.xml>

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

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