



# SPEC<sup>®</sup> CFP2006 Result

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## HITACHI

SPECfp<sup>®</sup>2006 = **68.2**

BladeSymphony BS520H (Intel Xeon E5-2637)

SPECfp\_base2006 = **66.3**

CPU2006 license: 35

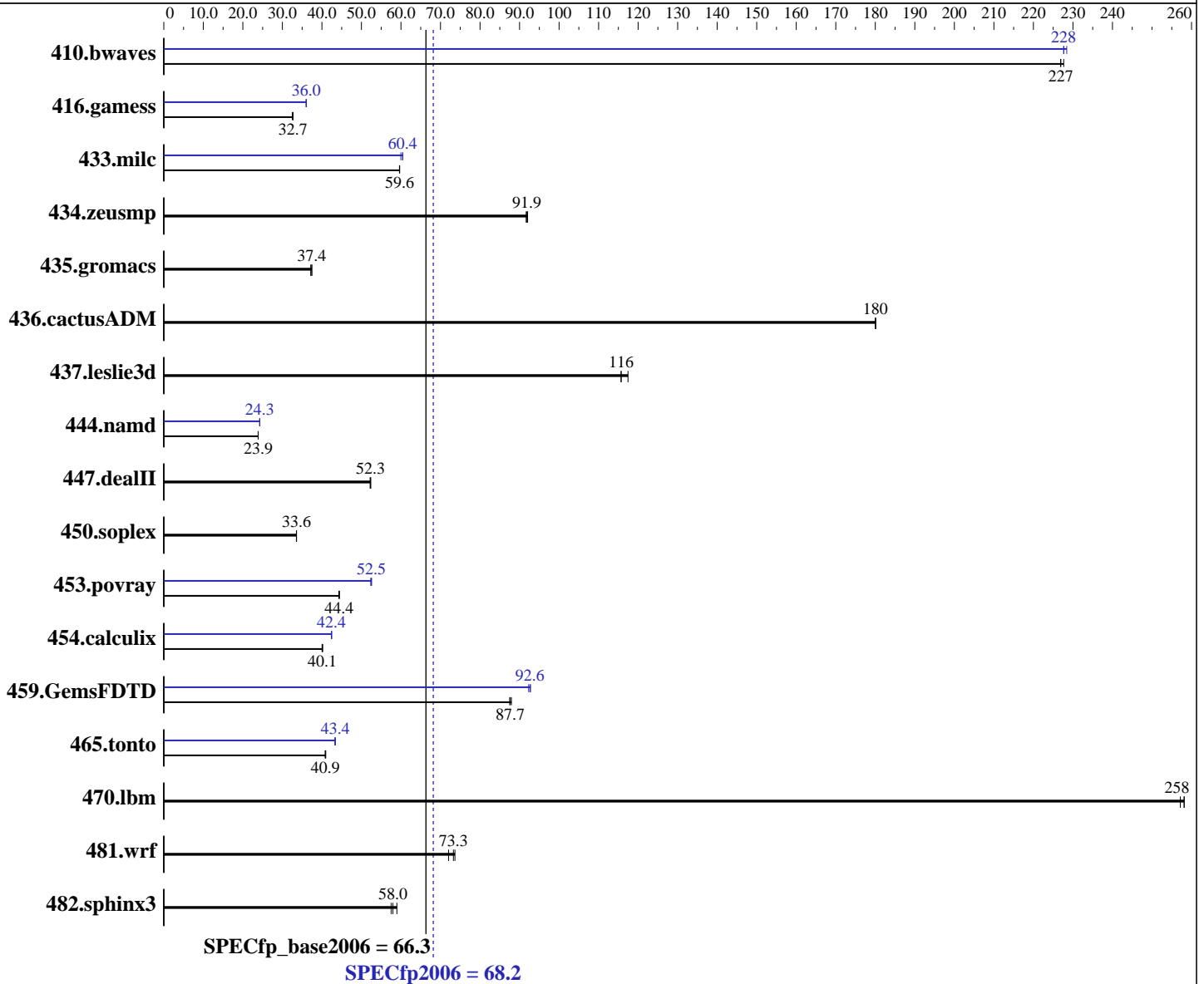
Test sponsor: HITACHI

Tested by: HITACHI

Test date: Oct-2012

Hardware Availability: Nov-2012

Software Availability: Feb-2012



### Hardware

CPU Name: Intel Xeon E5-2637  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz  
 CPU MHz: 3000  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 2 chips, 2 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: 5 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	<u>59.9</u>	<u>227</u>	59.9	227	59.7	228	59.7	228	<u>59.7</u>	<u>228</u>	59.5	228
416.gamess	<u>599</u>	<u>32.7</u>	599	32.7	602	32.5	543	36.1	<u>543</u>	<u>36.0</u>	544	36.0
433.milc	154	59.7	<u>154</u>	<u>59.6</u>	154	59.6	152	60.4	<u>152</u>	<u>60.4</u>	153	60.0
434.zeusmp	99.3	91.7	98.9	92.0	<u>99.1</u>	<u>91.9</u>	99.3	91.7	98.9	92.0	<u>99.1</u>	<u>91.9</u>
435.gromacs	192	37.2	191	37.4	<u>191</u>	<u>37.4</u>	192	37.2	191	37.4	<u>191</u>	<u>37.4</u>
436.cactusADM	66.4	180	66.4	180	<u>66.4</u>	<u>180</u>	66.4	180	66.4	180	<u>66.4</u>	<u>180</u>
437.leslie3d	81.2	116	<u>81.2</u>	<u>116</u>	80.0	117	81.2	116	<u>81.2</u>	<u>116</u>	80.0	117
444.namd	336	23.9	<u>336</u>	<u>23.9</u>	336	23.9	<u>331</u>	<u>24.3</u>	330	24.3	331	24.3
447.dealII	219	52.3	219	52.2	<u>219</u>	<u>52.3</u>	219	52.3	219	52.2	<u>219</u>	<u>52.3</u>
450.soplex	<u>249</u>	<u>33.6</u>	248	33.6	249	33.5	<u>249</u>	<u>33.6</u>	248	33.6	249	33.5
453.povray	<u>120</u>	<u>44.4</u>	120	44.3	120	44.4	102	52.3	<u>101</u>	<u>52.5</u>	101	52.6
454.calculix	205	40.2	206	40.0	<u>206</u>	<u>40.1</u>	<u>195</u>	<u>42.4</u>	194	42.5	195	42.4
459.GemsFDTD	121	87.5	<u>121</u>	<u>87.7</u>	121	87.9	115	92.3	<u>115</u>	<u>92.6</u>	114	92.8
465.tonto	<u>241</u>	<u>40.9</u>	241	40.8	240	41.0	<u>227</u>	<u>43.4</u>	227	43.4	227	43.3
470.lbm	53.2	258	<u>53.2</u>	<u>258</u>	53.4	257	53.2	258	<u>53.2</u>	<u>258</u>	53.4	257
481.wrf	155	72.0	<u>152</u>	<u>73.3</u>	152	73.7	155	72.0	<u>152</u>	<u>73.3</u>	152	73.7
482.sphinx3	339	57.5	<u>336</u>	<u>58.0</u>	331	59.0	339	57.5	<u>336</u>	<u>58.0</u>	331	59.0

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 Sat Oct 27 02:14:04 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 E5-2637 0 @ 3.00GHz  
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### Platform Notes (Continued)

```

2 "physical id"s (chips)
8 "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 : 2
siblings  : 4
physical 0: cores 0 1
physical 1: cores 0 1
cache size : 5120 KB

From /proc/meminfo
MemTotal:      132136072 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 Oct 27 00:39

(End of data from sysinfo program)

```

### General Notes

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

KMP\_AFFINITY = "granularity=fine,compact,1,0"

LD\_LIBRARY\_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64"

OMP\_NUM\_THREADS = "4"

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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## 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:

-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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## 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: basepeak = yes

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.dealII: 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-linux64.20120829.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-linux64.20120829.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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