



# SPEC® CFP2006 Result

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## HITACHI

SPECfp®2006 = 47.0

BladeSymphony BS520H (Intel Xeon E5-2603)

SPECfp\_base2006 = 44.9

CPU2006 license: 35

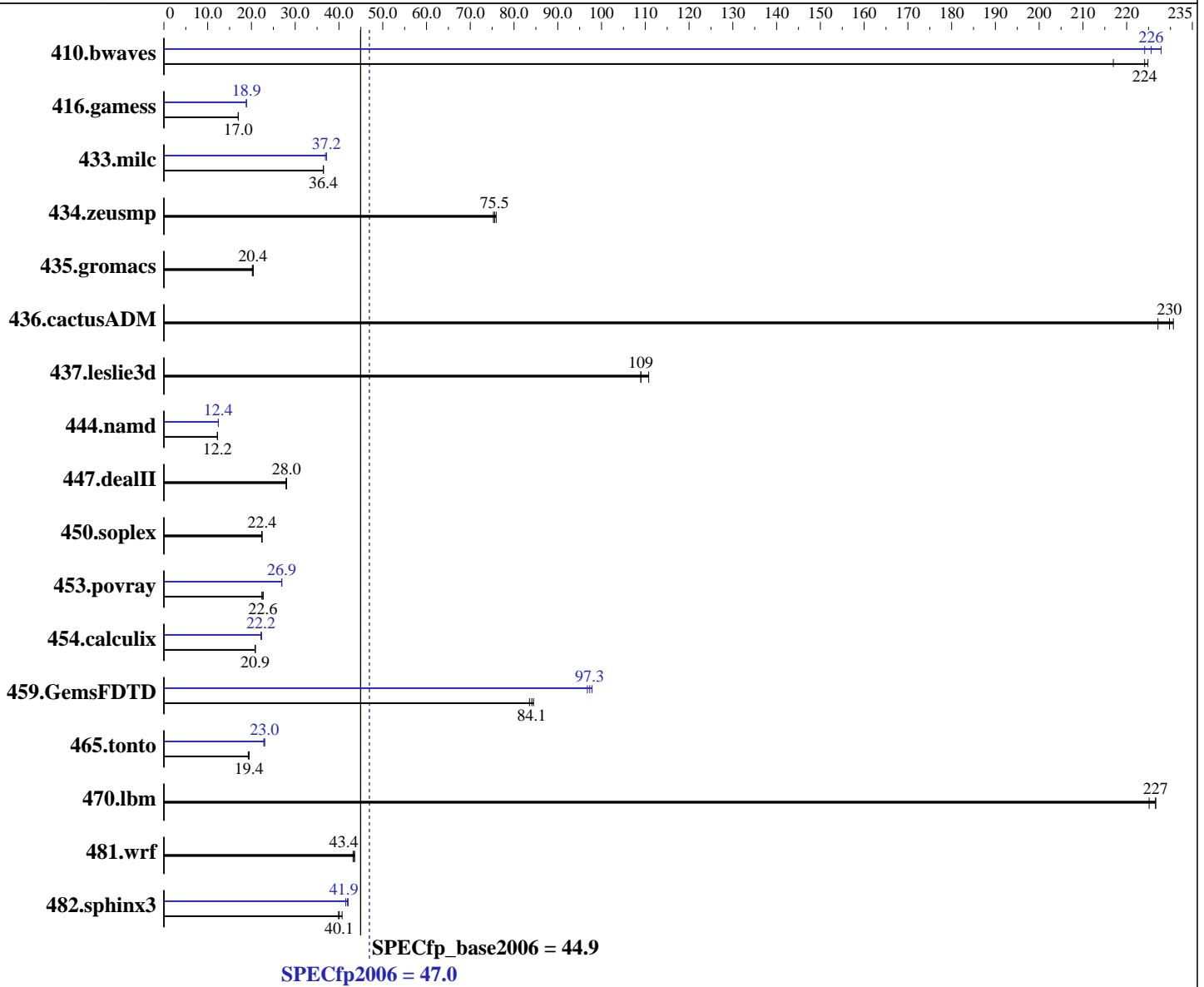
Test date: Apr-2012

Test sponsor: HITACHI

Hardware Availability: Apr-2012

Tested by: HITACHI

Software Availability: Feb-2012



### Hardware

CPU Name: Intel Xeon E5-2603  
 CPU Characteristics:  
 CPU MHz: 1800  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 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 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: 10 MB I+D on chip per chip  
Other Cache: None  
Memory: 128 GB (16 x 8 GB 2Rx4 PC3L-10600R-9, ECC, running at 1066 MHz)  
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	62.6	217	60.4	225	<b>60.6</b>	<b>224</b>	60.6	224	59.6	228	<b>60.2</b>	<b>226</b>
416.gamess	1154	17.0	<b>1151</b>	<b>17.0</b>	1150	17.0	1039	18.8	<b>1038</b>	<b>18.9</b>	1038	18.9
433.milc	252	36.4	<b>252</b>	<b>36.4</b>	252	36.4	249	36.9	<b>247</b>	<b>37.2</b>	247	37.2
434.zeusmp	<b>120</b>	<b>75.5</b>	120	75.9	121	75.3	<b>120</b>	<b>75.5</b>	120	75.9	121	75.3
435.gromacs	350	20.4	353	20.2	<b>351</b>	<b>20.4</b>	350	20.4	353	20.2	<b>351</b>	<b>20.4</b>
436.cactusADM	52.6	227	51.8	231	<b>52.0</b>	<b>230</b>	52.6	227	51.8	231	<b>52.0</b>	<b>230</b>
437.leslie3d	84.9	111	86.3	109	<b>86.3</b>	<b>109</b>	84.9	111	86.3	109	<b>86.3</b>	<b>109</b>
444.namd	<b>656</b>	<b>12.2</b>	656	12.2	655	12.2	644	12.5	<b>645</b>	<b>12.4</b>	645	12.4
447.dealII	408	28.0	<b>408</b>	<b>28.0</b>	410	27.9	408	28.0	<b>408</b>	<b>28.0</b>	410	27.9
450.soplex	373	22.4	<b>372</b>	<b>22.4</b>	372	22.4	373	22.4	<b>372</b>	<b>22.4</b>	372	22.4
453.povray	234	22.7	238	22.4	<b>235</b>	<b>22.6</b>	197	27.0	<b>198</b>	<b>26.9</b>	198	26.9
454.calculix	395	20.9	<b>395</b>	<b>20.9</b>	396	20.8	372	22.2	<b>372</b>	<b>22.2</b>	369	22.3
459.GemsFDTD	<b>126</b>	<b>84.1</b>	126	84.5	127	83.5	110	96.8	<b>109</b>	<b>97.3</b>	108	97.8
465.tonto	510	19.3	506	19.5	<b>506</b>	<b>19.4</b>	427	23.0	<b>428</b>	<b>23.0</b>	431	22.8
470.lbm	61.0	225	60.6	227	<b>60.6</b>	<b>227</b>	61.0	225	60.6	227	<b>60.6</b>	<b>227</b>
481.wrf	256	43.6	<b>258</b>	<b>43.4</b>	258	43.2	256	43.6	<b>258</b>	<b>43.4</b>	258	43.2
482.sphinx3	479	40.7	<b>486</b>	<b>40.1</b>	489	39.9	<b>465</b>	<b>41.9</b>	463	42.1	469	41.5

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 Tue Apr 3 19:36:38 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

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CPU2006 license: 35

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Test date: Apr-2012

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### Platform Notes (Continued)

```

model name : Intel(R) Xeon(R) CPU E5-2603 0 @ 1.80GHz
  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 : 4
  siblings  : 4
  physical 0: cores 0 1 2 3
  physical 1: cores 0 1 2 3
cache size : 10240 KB

```

```

From /proc/meminfo
MemTotal:      132140016 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 Apr 3 19:05

(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 = "8"

```

```

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
memory using RHEL5.5
Transparent Huge Pages enabled with:
echo always > /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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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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