



SPEC[®] CFP2006 Result

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HITACHI

SPECfp[®]2006 = **108**

BladeSymphony BS2500 (Intel Xeon E5-2660 v3)

SPECfp_base2006 = **104**

CPU2006 license: 35

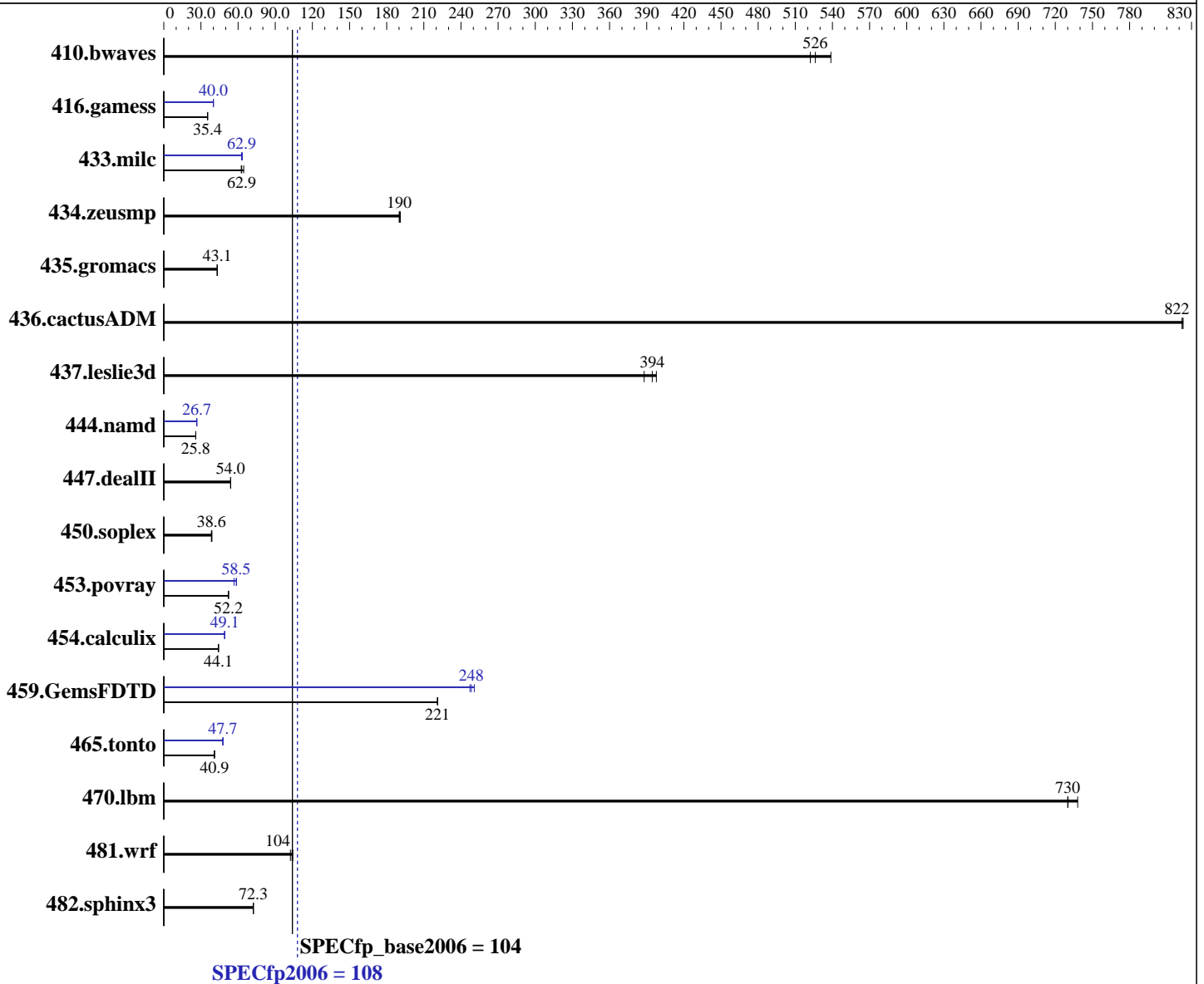
Test sponsor: HITACHI

Tested by: HITACHI

Test date: Jan-2015

Hardware Availability: Dec-2014

Software Availability: Nov-2013



Hardware

CPU Name: Intel Xeon E5-2660 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
 CPU MHz: 2600
 FPU: Integrated
 CPU(s) enabled: 20 cores, 2 chips, 10 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 6.5 (Santiago)
 2.6.32-431.el6.x86_64
 Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux;
 Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux
 Auto Parallel: Yes
 File System: ext4

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L3 Cache: 25 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
Disk Subsystem: 2 x 600 GB SAS, 10000 RPM, RAID1
Other Hardware: None

System State: Run level 3 (multi-user)
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	25.2	539	<u>25.8</u>	<u>526</u>	26.0	522	25.2	539	<u>25.8</u>	<u>526</u>	26.0	522
416.gamess	<u>554</u>	<u>35.4</u>	553	35.4	554	35.3	<u>489</u>	<u>40.0</u>	489	40.0	489	40.1
433.milc	142	64.6	<u>146</u>	<u>62.9</u>	147	62.6	145	63.5	<u>146</u>	<u>62.9</u>	146	62.8
434.zeusmp	47.6	191	47.8	190	<u>47.8</u>	<u>190</u>	47.6	191	47.8	190	<u>47.8</u>	<u>190</u>
435.gromacs	166	43.1	165	43.2	<u>166</u>	<u>43.1</u>	166	43.1	165	43.2	<u>166</u>	<u>43.1</u>
436.cactusADM	14.5	823	14.5	822	<u>14.5</u>	<u>822</u>	14.5	823	14.5	822	<u>14.5</u>	<u>822</u>
437.leslie3d	24.2	388	23.6	398	<u>23.8</u>	<u>394</u>	24.2	388	23.6	398	<u>23.8</u>	<u>394</u>
444.namd	310	25.8	<u>311</u>	<u>25.8</u>	311	25.8	301	26.7	<u>301</u>	<u>26.7</u>	301	26.7
447.dealII	212	54.0	<u>212</u>	<u>54.0</u>	212	54.0	212	54.0	<u>212</u>	<u>54.0</u>	212	54.0
450.soplex	<u>216</u>	<u>38.6</u>	217	38.5	214	38.9	<u>216</u>	<u>38.6</u>	217	38.5	214	38.9
453.povray	102	52.4	<u>102</u>	<u>52.2</u>	102	52.1	90.5	58.8	<u>91.0</u>	<u>58.5</u>	93.8	56.7
454.calculix	188	44.0	<u>187</u>	<u>44.1</u>	186	44.3	168	49.2	<u>168</u>	<u>49.1</u>	168	49.1
459.GemsFDTD	48.0	221	48.0	221	<u>48.0</u>	<u>221</u>	42.3	251	<u>42.7</u>	<u>248</u>	42.9	247
465.tonto	241	40.9	<u>240</u>	<u>40.9</u>	240	40.9	<u>206</u>	<u>47.7</u>	207	47.6	206	47.9
470.lbm	18.8	730	<u>18.8</u>	<u>730</u>	18.6	738	18.8	730	<u>18.8</u>	<u>730</u>	18.6	738
481.wrf	109	102	107	104	<u>108</u>	<u>104</u>	109	102	107	104	<u>108</u>	<u>104</u>
482.sphinx3	<u>269</u>	<u>72.3</u>	270	72.3	269	72.4	<u>269</u>	<u>72.3</u>	270	72.3	269	72.4

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

BIOS configuration:
Patrol Scrub = Disable
Per Core P-state = Disable

Sysinfo program /home/speccpu2006/cpu2006/config/sysinfo.rev6818
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191
running on 520Hx36564 Sun Jan 25 23:30:54 2015

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:

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Platform Notes (Continued)

<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

```

From /proc/cpuinfo
  model name : Intel(R) Xeon(R) CPU E5-2660 v3 @ 2.60GHz
    2 "physical id"s (chips)
    40 "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 : 10
    siblings  : 20
  physical 0: cores 0 1 2 3 4 8 9 10 11 12
  physical 1: cores 0 1 2 3 4 8 9 10 11 12
  cache size : 25600 KB

```

```

From /proc/meminfo
MemTotal:      263989936 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

```

```

/usr/bin/lsb_release -d
  Red Hat Enterprise Linux Server release 6.5 (Santiago)

```

```

From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

```

```

uname -a:
Linux 520Hx36564 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54 EST 2013
x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Jan 25 17:49

```

SPEC is set to: /home/speccpu2006/cpu2006
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/mapper/vg_520hx36564-lv_home ext4      485G  5.5G  455G   2% /home

```

```

Additional information from dmidecode:
BIOS HITACHI 08-20 01/06/2015
Memory:
  8x NO DIMM Unknown
  16x Samsung M393A2G40DB0-CPB 16 GB 2133 MHz 2 rank

```

(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/speccpu2006/cpu2006/libs/32:/home/speccpu2006/cpu2006/libs/64:/home/speccpu2006/cpu2006/sh"

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General Notes (Continued)

OMP_NUM_THREADS = "20"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.4

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled

runspec command invoked through numactl i.e.:

numactl --interleave=all runspec <etc>

BladeSymphony BS520H, Hitachi Compute Blade 520H and BladeSymphony BS2500 HC0A1 are electronically equivalent.

The results have been measured on a Hitachi Compute Blade 520H.

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



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Base Optimization Flags

C benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

Fortran benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias

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: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-auto-ilp32 -ansi-alias

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

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Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: -xCORE-AVX2(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: -xCORE-AVX2(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: basepeak = yes

416.gamess: -xCORE-AVX2(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-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xCORE-AVX2(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: -xCORE-AVX2(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: -xCORE-AVX2 -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-ic14.0-official-linux64-revC.html>

<http://www.spec.org/cpu2006/flags/PlatformHitachi-V1.2.20150127.html>



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

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64-revC.xml>

<http://www.spec.org/cpu2006/flags/PlatformHitachi-V1.2.20150127.xml>

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