



SPEC[®] CFP2006 Result

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HITACHI

SPECfp[®]2006 = 74.4

BladeSymphony BS2000 (Intel Xeon E5-2640)

SPECfp_base2006 = 70.8

CPU2006 license: 35

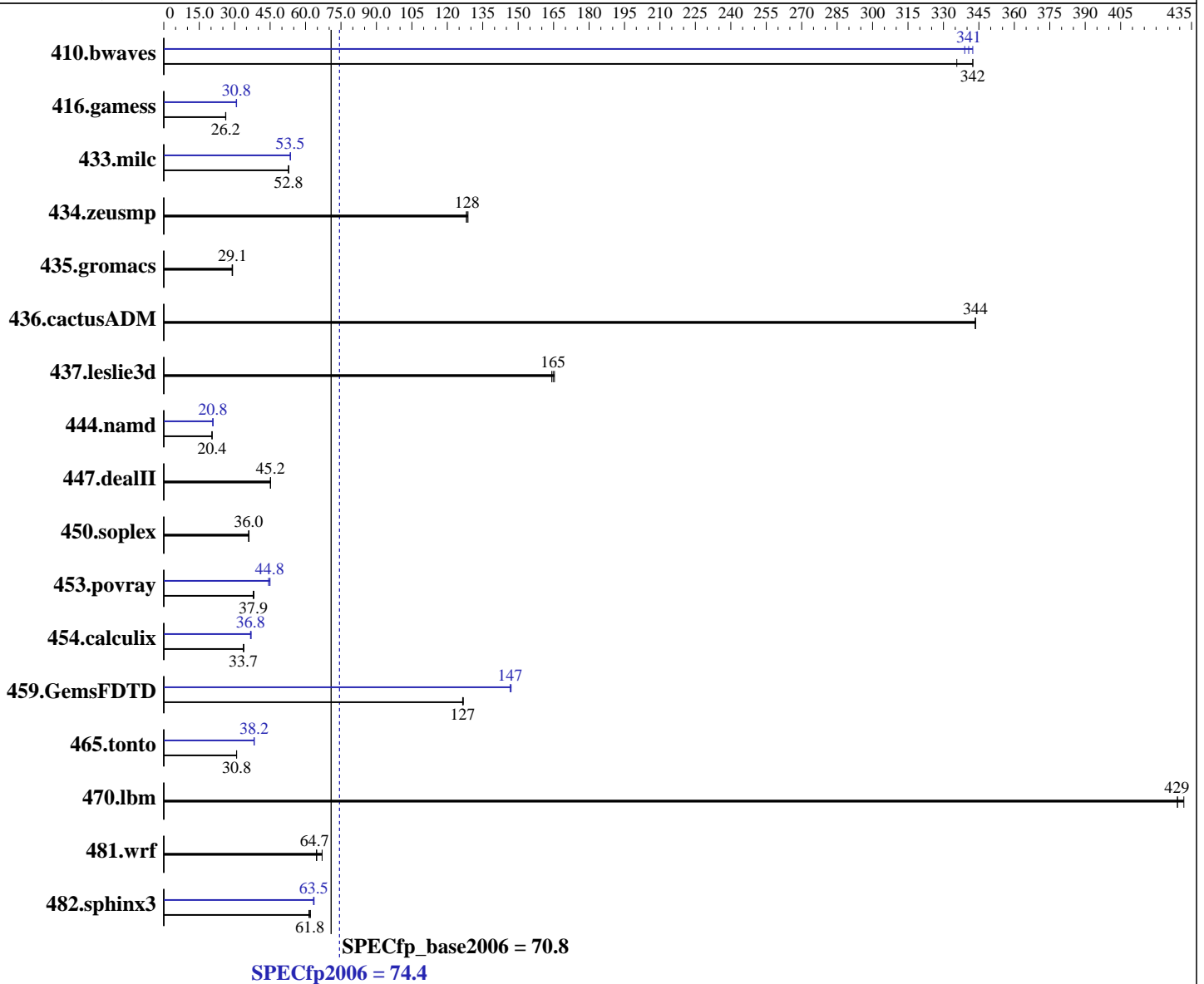
Test sponsor: HITACHI

Tested by: HITACHI

Test date: Apr-2012

Hardware Availability: Apr-2012

Software Availability: Feb-2012



Hardware

CPU Name: Intel Xeon E5-2640
 CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz
 CPU MHz: 2500
 FPU: Integrated
 CPU(s) enabled: 12 cores, 2 chips, 6 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: 15 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (16 x 8 GB 2Rx4 PC3L-10600R-9, ECC)
Disk Subsystem: 2 x 300 GB SAS, 10000 RPM RAID1 configuration
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	40.5	336	<u>39.7</u>	<u>342</u>	39.7	342	40.1	339	39.7	342	<u>39.9</u>	<u>341</u>
416.gamess	<u>747</u>	<u>26.2</u>	746	26.3	748	26.2	<u>636</u>	<u>30.8</u>	639	30.7	635	30.8
433.milc	174	52.8	<u>174</u>	<u>52.8</u>	174	52.8	171	53.5	171	53.6	<u>171</u>	<u>53.5</u>
434.zeusmp	71.1	128	<u>70.9</u>	<u>128</u>	70.7	129	71.1	128	<u>70.9</u>	<u>128</u>	70.7	129
435.gromacs	<u>246</u>	<u>29.1</u>	245	29.1	247	28.9	<u>246</u>	<u>29.1</u>	245	29.1	247	28.9
436.cactusADM	34.8	344	34.8	344	<u>34.8</u>	<u>344</u>	34.8	344	34.8	344	<u>34.8</u>	<u>344</u>
437.leslie3d	<u>57.0</u>	<u>165</u>	56.8	165	57.2	164	<u>57.0</u>	<u>165</u>	56.8	165	57.2	164
444.namd	392	20.4	393	20.4	<u>393</u>	<u>20.4</u>	386	20.8	<u>386</u>	<u>20.8</u>	386	20.8
447.dealII	254	45.1	253	45.2	<u>253</u>	<u>45.2</u>	254	45.1	253	45.2	<u>253</u>	<u>45.2</u>
450.soplex	232	35.9	231	36.1	<u>232</u>	<u>36.0</u>	232	35.9	231	36.1	<u>232</u>	<u>36.0</u>
453.povray	<u>140</u>	<u>37.9</u>	139	38.2	141	37.8	<u>119</u>	<u>44.8</u>	118	45.0	120	44.3
454.calculix	244	33.9	<u>245</u>	<u>33.7</u>	245	33.7	<u>224</u>	<u>36.8</u>	223	37.0	225	36.7
459.GemsFDTD	<u>83.9</u>	<u>127</u>	83.7	127	83.9	127	<u>72.4</u>	<u>147</u>	72.2	147	72.4	147
465.tonto	<u>319</u>	<u>30.8</u>	319	30.8	320	30.8	257	38.3	258	38.2	<u>257</u>	<u>38.2</u>
470.lbm	31.8	432	32.0	429	<u>32.0</u>	<u>429</u>	31.8	432	32.0	429	<u>32.0</u>	<u>429</u>
481.wrf	<u>173</u>	<u>64.7</u>	173	64.6	167	67.0	<u>173</u>	<u>64.7</u>	173	64.6	167	67.0
482.sphinx3	314	62.1	<u>315</u>	<u>61.8</u>	317	61.4	<u>307</u>	<u>63.5</u>	308	63.4	306	63.6

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 Settings:

Adjacent Cache Line Prefetch = Enabled

Sysinfo program /home/cpu2006/config/sysinfo.rev6800

\$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3

running on localhost.localdomain Wed Apr 18 08:18:40 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>

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<http://www.spec.org/>

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Platform Notes (Continued)

```

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E5-2640 0 @ 2.50GHz
 2 "physical id"s (chips)
24 "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 : 6
  siblings  : 12
  physical 0: cores 0 1 2 3 4 5
  physical 1: cores 0 1 2 3 4 5
cache size : 15360 KB

```

```

From /proc/meminfo
MemTotal:      132148312 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 18 08:15

(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 = "12"

```

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 BS2000 and HITACHI Compute Blade 2000 are electronically equivalent. The results have been measured on a HITACHI BladeSymphony BS2000.



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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.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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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 questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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