SPEC® CFP2006 Result

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HITACHI

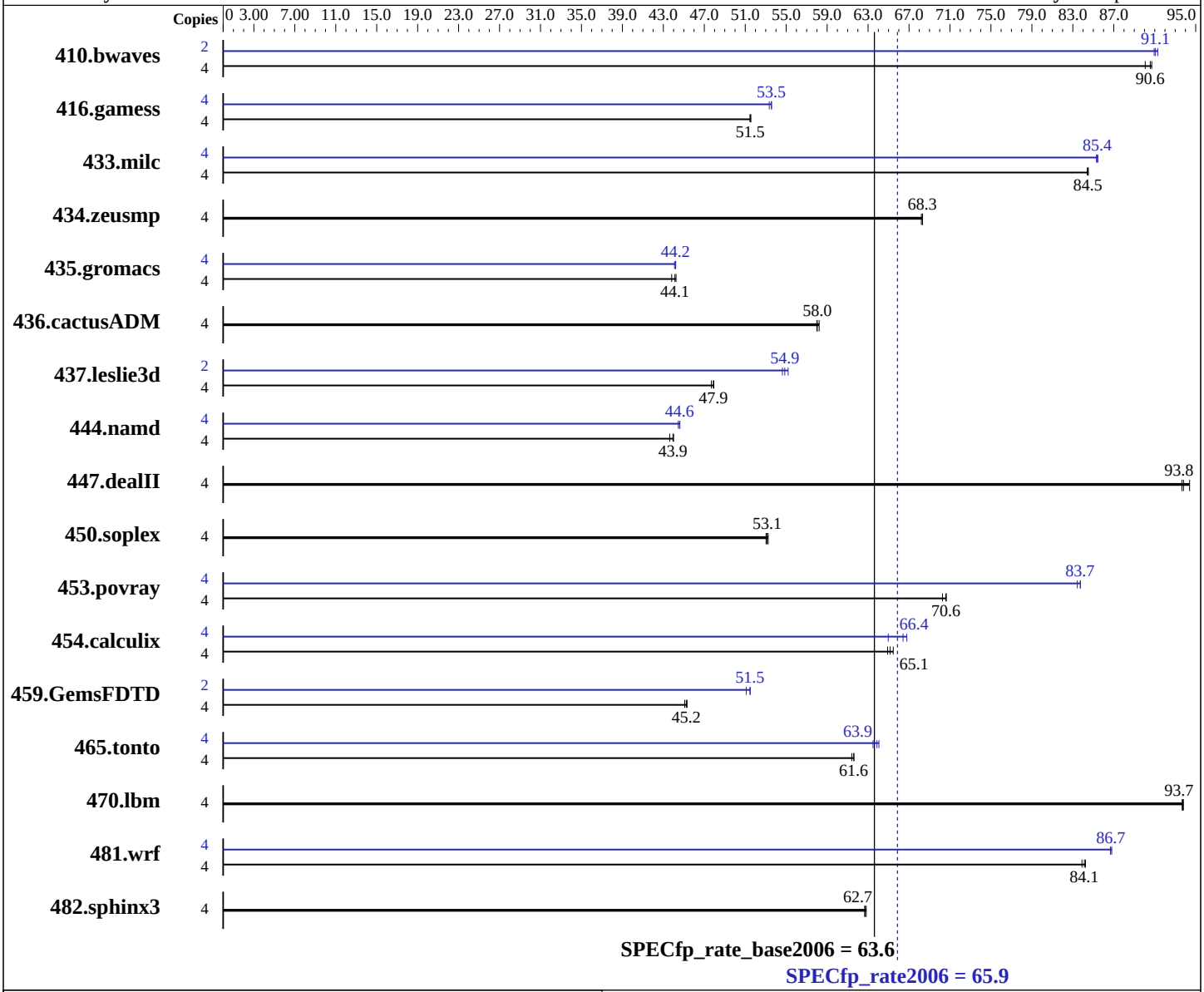
HA8000-bd (Intel Xeon E3-1220L)

SPECfp®_rate2006 = 65.9

SPECfp_rate_base2006 = 63.6

CPU2006 license: 35
Test sponsor: HITACHI
Tested by: HITACHI

Test date: Dec-2011
Hardware Availability: Feb-2012
Software Availability: Sep-2011



Hardware

CPU Name:	Intel Xeon E3-1220L
CPU Characteristics:	Intel Turbo Boost Technology up to 3.40 GHz
CPU MHz:	2200
FPU:	Integrated
CPU(s) enabled:	2 cores, 1 chip, 2 cores/chip, 2 threads/core
CPU(s) orderable:	1 chip
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 6.1, Kernel 2.6.32-131.0.15.el6.x86_64
Compiler:	C/C++/Fortran: Version 12.1.0.225 of Intel Compiler XE for Linux
Auto Parallel:	No
File System:	ext4
System State:	Run level 3 (multi-user)
Base Pointers:	32/64-bit

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L3 Cache: 3 MB I+D on chip per chip
Other Cache: None
Memory: 8 GB (2 x 4 GB 2Rx8 PC3-10600E-9, ECC)
Disk Subsystem: 1 x 250 GB SATA2, 7200 RPM
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	599	90.7	**600**	**90.6**	604	90.1	2	299	90.9	298	91.3	**298**	**91.1**
416.gamess	4	**1521**	**51.5**	1519	51.6	1522	51.5	4	**1463**	**53.5**	1462	53.6	1468	53.3
433.milc	4	**435**	**84.5**	434	84.5	435	84.4	4	430	85.3	430	85.4	**430**	**85.4**
434.zeusmp	4	534	68.2	533	68.3	**533**	**68.3**	4	534	68.2	533	68.3	**533**	**68.3**
435.gromacs	4	646	44.2	652	43.8	**647**	**44.1**	4	648	44.1	646	44.2	**646**	**44.2**
436.cactusADM	4	**824**	**58.0**	824	58.0	821	58.2	4	**824**	**58.0**	824	58.0	821	58.2
437.leslie3d	4	788	47.7	**785**	**47.9**	784	47.9	2	341	55.2	344	54.6	**343**	**54.9**
444.namd	4	735	43.6	**730**	**43.9**	729	44.0	4	722	44.5	**720**	**44.6**	719	44.6
447.dealII	4	485	94.4	489	93.7	**488**	**93.8**	4	485	94.4	489	93.7	**488**	**93.8**
450.soplex	4	627	53.2	629	53.0	**628**	**53.1**	4	627	53.2	629	53.0	**628**	**53.1**
453.povray	4	301	70.6	303	70.3	**301**	**70.6**	4	254	83.7	**254**	**83.7**	255	83.4
454.calculix	4	504	65.5	**507**	**65.1**	508	64.9	4	**497**	**66.4**	494	66.8	508	65.0
459.GemsFDTD	4	941	45.1	937	45.3	**938**	**45.2**	2	412	51.5	**412**	**51.5**	415	51.1
465.tonto	4	639	61.6	641	61.4	**639**	**61.6**	4	**616**	**63.9**	620	63.5	614	64.1
470.lbm	4	587	93.7	586	93.8	**586**	**93.7**	4	587	93.7	586	93.8	**586**	**93.7**
481.wrf	4	533	83.9	530	84.2	**531**	**84.1**	4	516	86.7	**515**	**86.7**	515	86.8
482.sphinx3	4	1244	62.7	1241	62.8	**1244**	**62.7**	4	1244	62.7	1241	62.8	**1244**	**62.7**

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

Submit Notes

```
The taskset mechanism was used to bind copies to processors. The config file option 'submit'
was used to generate taskset commands to bind each copy to a specific processor.
For details, please see the config file.
```

Operating System Notes

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

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64"

 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
```

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 -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

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Base Optimization Flags (Continued)

C++ benchmarks:
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

Fortran benchmarks:
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch

Benchmarks using both Fortran and C:
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

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

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
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

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 -opt-mem-layout-trans=3

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(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -static

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

459.GemsFDTD: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3

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

Benchmarks using both Fortran and C:

435.gromacs: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch -static -auto-ilp32 -opt-mem-layout-trans=3

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Peak Optimization Flags (Continued)

436.cactusADM: `basepeak = yes`

454.calculix: `-xAVX -ipo -O3 -no-prec-div -static -auto-ilp32 -opt-mem-layout-trans=3`

481.wrf: `Same as 454.calculix`

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.

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