SPEC® CFP2006 Result

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HITACHI

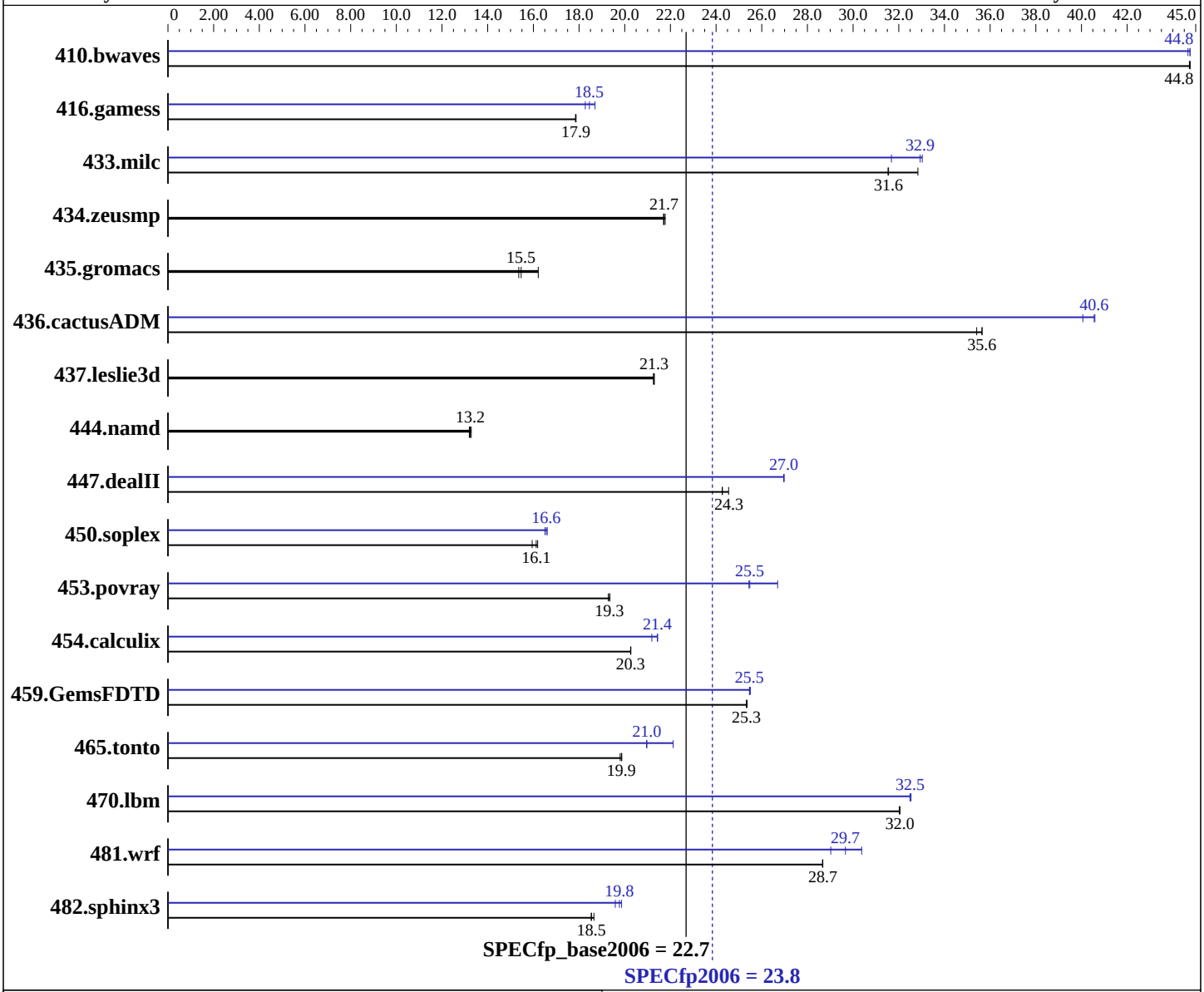
HA8000-bd (Intel Core i5-520E)

SPECfp®2006 = 23.8

SPECfp_base2006 = 22.7

CPU2006 license: 872
Test sponsor: HITACHI
Tested by: HITACHI

Test date: Jun-2010
Hardware Availability: Jul-2010
Software Availability: Dec-2009



Hardware

CPU Name:	Intel Core i5-520E
CPU Characteristics:	Intel Turbo Boost Technology disabled
CPU MHz:	2400
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 5.4, Advanced Platform, Kernel 2.6.18-164.el5 on an x86_64
Compiler:	Intel C++ Compiler 11.1 for Linux Build 20091012 Package ID: l_cproc_p_11.1.059 Intel Fortran Compiler 11.1 for Linux Build 20091012 Package ID: l_cprof_p_11.1.059
Auto Parallel:	Yes
File System:	ext3

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L3 Cache: 3 MB I+D on chip per chip
Other Cache: None
Memory: 8 GB(2 x 4 GB PC3-8500U, 2 rank, CL7)
Disk Subsystem: 1 x 500 GB 7200 rpm SATA2
Other Hardware: None

System State: Multi-user run level 3
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	304	44.7	**304**	**44.8**	304	44.8	304	44.8	304	44.7	**304**	**44.8**
416.gamess	**1096**	**17.9**	1097	17.8	1096	17.9	**1061**	**18.5**	1072	18.3	1047	18.7
433.milc	280	32.8	**291**	**31.6**	291	31.5	290	31.7	278	33.0	**279**	**32.9**
434.zeusmp	418	21.8	**419**	**21.7**	419	21.7	418	21.8	**419**	**21.7**	419	21.7
435.gromacs	440	16.2	**462**	**15.5**	465	15.4	440	16.2	**462**	**15.5**	465	15.4
436.cactusADM	335	35.6	337	35.4	**335**	**35.6**	294	40.6	**295**	**40.6**	298	40.1
437.leslie3d	**442**	**21.3**	441	21.3	442	21.3	**442**	**21.3**	441	21.3	442	21.3
444.namd	604	13.3	608	13.2	**606**	**13.2**	604	13.3	608	13.2	**606**	**13.2**
447.dealII	466	24.5	471	24.3	**471**	**24.3**	424	27.0	**424**	**27.0**	424	27.0
450.soplex	515	16.2	523	15.9	**517**	**16.1**	505	16.5	**503**	**16.6**	502	16.6
453.povray	**275**	**19.3**	276	19.3	275	19.4	209	25.4	**209**	**25.5**	199	26.7
454.calculix	407	20.3	407	20.3	**407**	**20.3**	389	21.2	385	21.4	**385**	**21.4**
459.GemsFDTD	**419**	**25.3**	418	25.4	419	25.3	416	25.5	417	25.5	**417**	**25.5**
465.tonto	**496**	**19.9**	495	19.9	497	19.8	**469**	**21.0**	445	22.1	470	21.0
470.lbm	429	32.0	429	32.0	**429**	**32.0**	**423**	**32.5**	422	32.5	423	32.5
481.wrf	**390**	**28.7**	390	28.7	390	28.7	**377**	**29.7**	385	29.0	368	30.4
482.sphinx3	1052	18.5	1045	18.7	**1051**	**18.5**	981	19.9	995	19.6	**986**	**19.8**

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

Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
```

Base Compiler Invocation

C benchmarks:

```
icc -m64
```

C++ benchmarks:

```
icpc -m64
```

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Base Compiler Invocation (Continued)

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:
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

C++ benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Fortran benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Peak Compiler Invocation

C benchmarks (except as noted below):
icc -m64

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Peak Compiler Invocation (Continued)

482.sphinx3: `icc -m32`

C++ benchmarks (except as noted below):
`icpc -m64`

450.soplex: `icpc -m32`

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`
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`

Peak Optimization Flags

C benchmarks:

433.milc: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2) `-no-prec-div`(pass 2) `-static`(pass 2) `-prof-use`(pass 2) `-ansi-alias`

470.lbm: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2) `-no-prec-div`(pass 2) `-static`(pass 2) `-prof-use`(pass 2) `-parallel -ansi-alias -auto-ilp32`

482.sphinx3: `-xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2`

Continued on next page

Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: basepeak = yes

447.dealII: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll2 -ansi-alias -scalar-rep- -auto-ilp32

450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -opt-malloc-options=3

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -parallel

416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll2 -Ob0 -ansi-alias -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll2 -Ob0 -opt-prefetch -parallel

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(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: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll2 -opt-prefetch -parallel -auto-ilp32

454.calculix: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

481.wrf: Same as 454.calculix

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.xml

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Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 13:09:27 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 8 July 2010.