SPEC® CFP2006 Result

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HITACHI

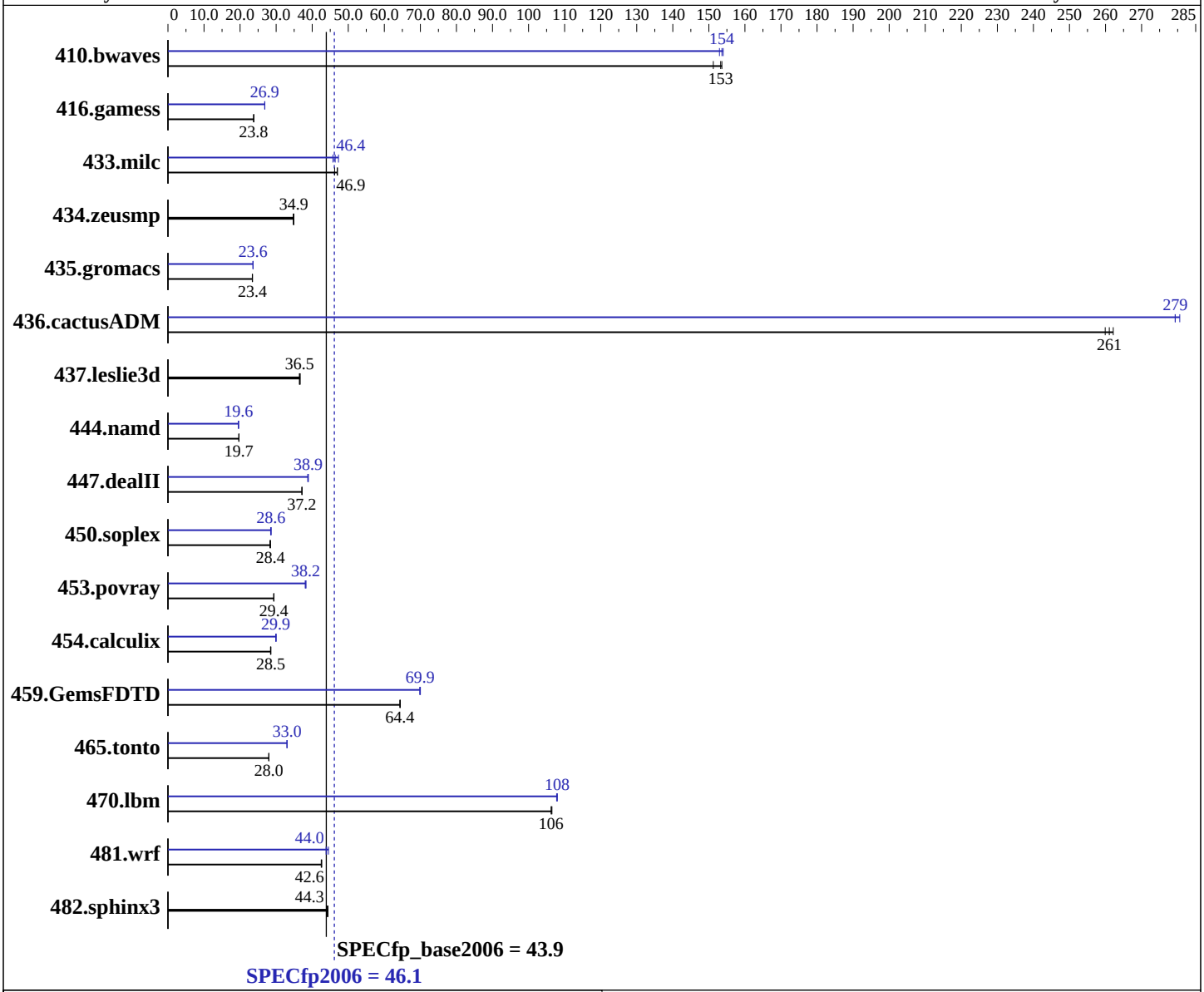
BladeSymphony 320 (Intel Xeon X5670)

SPECfp®2006 = 46.1

SPECfp_base2006 = 43.9

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

Test date: Sep-2010
Hardware Availability: Mar-2010
Software Availability: Dec-2009



Hardware

CPU Name:	Intel Xeon X5670
CPU Characteristics:	Intel Turbo Boost Technology up to 3.33 GHz
CPU MHz:	2933
FPU:	Integrated
CPU(s) enabled:	12 cores, 2 chips, 6 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:	SuSE Linux Enterprise Server 11 (x86_64), Kernel 2.6.27.19-5-default
Compiler:	Intel C++ Compiler 11.1 for Linux Build 20091130 Package ID: l_cproc_p_11.1.064 Intel Fortran Compiler 11.1 for Linux Build 20091130 Package ID: l_cprof_p_11.1.064
Auto Parallel:	Yes
File System:	ext3
System State:	Multi-user run level 3

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L3 Cache: 12 MB I+D on chip per chip
Other Cache: None
Memory: 48 GB(6 x 8 GB PC3-10600R, 2 rank, CL9-9-9)
Disk Subsystem: 2 x 146 GB 10000 rpm Fibre Channel 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	**88.7**	**153**	88.5	154	89.9	151	88.9	153	**88.5**	**154**	88.3	154
416.gamess	824	23.8	822	23.8	**823**	**23.8**	729	26.9	**729**	**26.9**	730	26.8
433.milc	199	46.2	**196**	**46.9**	195	47.0	194	47.3	201	45.7	**198**	**46.4**
434.zeusmp	262	34.7	261	34.9	**261**	**34.9**	262	34.7	261	34.9	**261**	**34.9**
435.gromacs	**305**	**23.4**	305	23.4	305	23.4	302	23.6	303	23.6	**302**	**23.6**
436.cactusADM	45.6	262	46.0	260	**45.8**	**261**	42.6	281	42.8	279	**42.8**	**279**
437.leslie3d	258	36.4	256	36.7	**257**	**36.5**	258	36.4	256	36.7	**257**	**36.5**
444.namd	**408**	**19.7**	408	19.7	407	19.7	409	19.6	**410**	**19.6**	411	19.5
447.dealII	308	37.2	308	37.2	**308**	**37.2**	**294**	**38.9**	295	38.8	294	38.9
450.soplex	294	28.4	295	28.3	**294**	**28.4**	292	28.6	293	28.5	**292**	**28.6**
453.povray	**181**	**29.4**	181	29.4	181	29.3	139	38.3	140	38.1	**139**	**38.2**
454.calculix	289	28.5	**289**	**28.5**	290	28.4	276	29.9	275	30.0	**276**	**29.9**
459.GemsFDTD	**165**	**64.4**	165	64.3	165	64.4	152	69.8	**152**	**69.9**	152	70.0
465.tonto	351	28.0	352	28.0	**352**	**28.0**	298	33.0	**298**	**33.0**	298	33.0
470.lbm	129	106	129	106	**129**	**106**	**127**	**108**	127	108	127	108
481.wrf	263	42.5	**262**	**42.6**	262	42.6	255	43.9	**254**	**44.0**	251	44.5
482.sphinx3	**440**	**44.3**	441	44.2	439	44.4	**440**	**44.3**	441	44.2	439	44.4

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
```

Platform Notes

```
BIOS Settings:
Intel HT Technology = Disabled
NUMA = Disabled
```

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:
```
-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:
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: -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: basepeak = yes

C++ benchmarks:

444.namd: -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) -fno-alias -auto-ilp32

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 -auto-ilp32

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

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Peak Optimization Flags (Continued)

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: `-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-prefetch -auto-ilp32`

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.20100929.03.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.20100929.03.xml`

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Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 14:48:44 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 12 October 2010.