SPEC® CFP2006 Result

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HITACHI

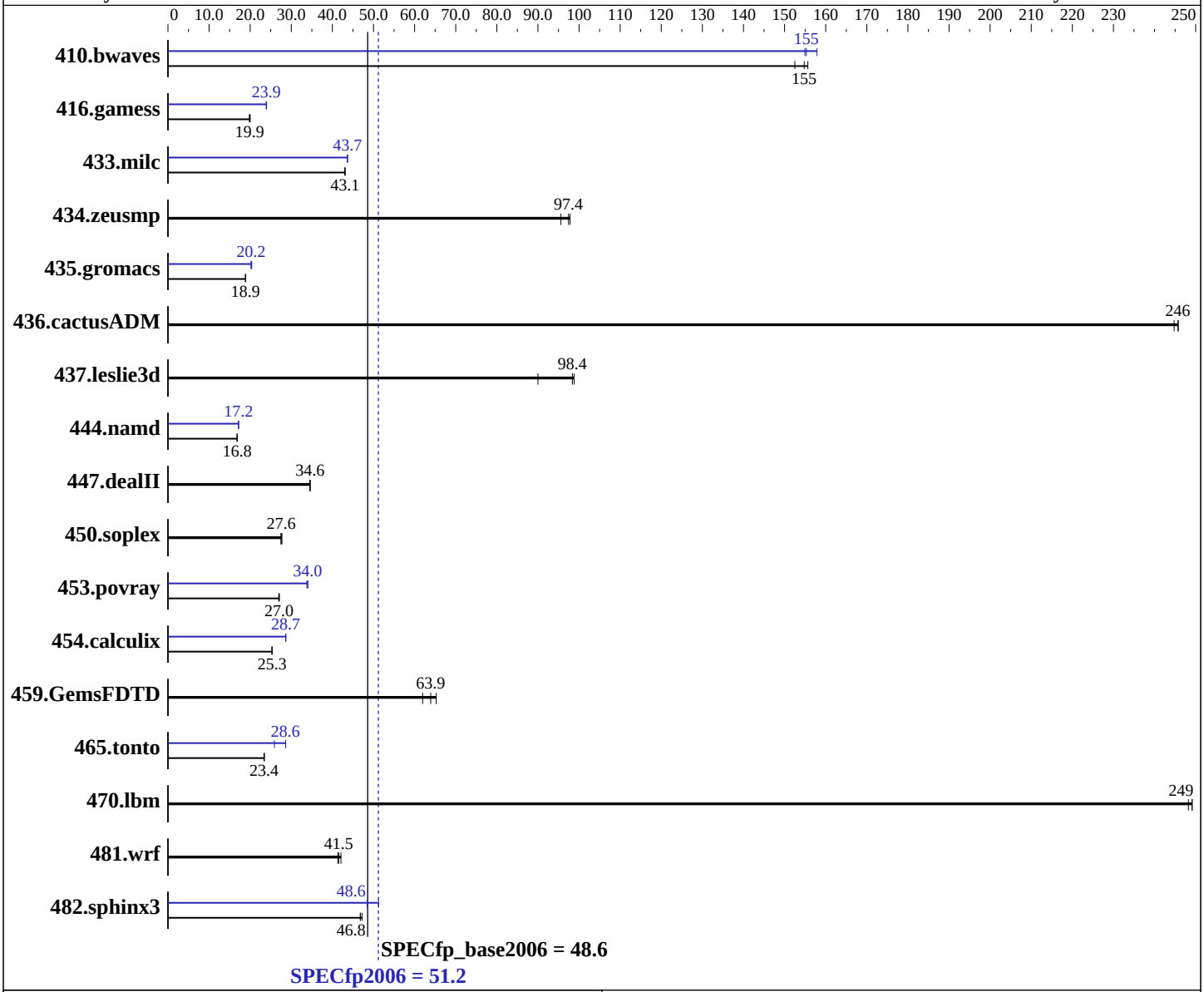
BladeSymphony BS2000 (Intel Xeon E5649)

SPECfp®2006 = 51.2

SPECfp_base2006 = 48.6

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

Test date: May-2011
Hardware Availability: Feb-2011
Software Availability: Jan-2011



Hardware

CPU Name:	Intel Xeon E5649
CPU Characteristics:	Intel Turbo Boost Technology up to 2.93 GHz
CPU MHz:	2533
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:	Red Hat Enterprise Linux Server release 5.4.3, Advanced Platform, Kernel 2.6.18-164.9.1.el5 on an x86_64
Compiler:	Intel C++ Compiler XE for Linux Version 12.0.3.174 Build 20110309 Intel Fortran Compiler XE for Linux Version 12.0.3.174 Build 20110309
Auto Parallel:	Yes
File System:	ext3

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L3 Cache: 12 MB I+D on chip per chip
Other Cache: None
Memory: 48 GB (6 x 8 GB 2Rx4 PC3-10600R-9, ECC)
Disk Subsystem: 2 x 146 GB 10000 rpm SAS RAID1 configuration
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	89.1	152	**87.8**	**155**	87.3	156	87.7	155	**87.5**	**155**	86.1	158
416.gamess	979	20.0	988	19.8	**986**	**19.9**	816	24.0	**818**	**23.9**	819	23.9
433.milc	213	43.1	**213**	**43.1**	213	43.0	211	43.6	**210**	**43.7**	210	43.7
434.zeusmp	**93.4**	**97.4**	95.2	95.6	93.0	97.8	**93.4**	**97.4**	95.2	95.6	93.0	97.8
435.gromacs	377	18.9	379	18.8	**378**	**18.9**	350	20.4	**353**	**20.2**	354	20.2
436.cactusADM	**48.6**	**246**	48.6	246	48.8	245	**48.6**	**246**	48.6	246	48.8	245
437.leslie3d	104	90.0	**95.6**	**98.4**	95.2	98.8	104	90.0	**95.6**	**98.4**	95.2	98.8
444.namd	477	16.8	476	16.8	**477**	**16.8**	**467**	**17.2**	467	17.2	467	17.2
447.dealII	331	34.5	331	34.6	**331**	**34.6**	331	34.5	331	34.6	**331**	**34.6**
450.soplex	**303**	**27.6**	303	27.5	301	27.7	**303**	**27.6**	303	27.5	301	27.7
453.povray	196	27.1	197	26.9	**197**	**27.0**	**156**	**34.0**	156	34.0	157	33.8
454.calculix	**326**	**25.3**	325	25.4	326	25.3	288	28.6	288	28.7	**288**	**28.7**
459.GemsFDTD	**166**	**63.9**	171	62.0	163	65.3	**166**	**63.9**	171	62.0	163	65.3
465.tonto	419	23.5	**421**	**23.4**	421	23.3	344	28.6	**344**	**28.6**	380	25.9
470.lbm	55.4	248	55.1	249	**55.2**	**249**	55.4	248	55.1	249	**55.2**	**249**
481.wrf	270	41.3	265	42.1	**269**	**41.5**	270	41.3	265	42.1	**269**	**41.5**
482.sphinx3	417	46.8	**416**	**46.8**	413	47.2	380	51.3	**401**	**48.6**	402	48.5

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
Hugepages was enabled with the following:
'nodev   /mnt/hugepages   hugetlbfs  defaults   0 0' added to /etc/fstab
echo 900 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

Platform Notes

```
BIOS Settings:
Intel HT Technology = Disabled
Data Reuse Optimization = 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
-ansi-alias

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

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
-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: -xSSE4.2(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: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias -parallel

C++ benchmarks:

444.namd: -xSSE4.2(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: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

Fortran benchmarks:

Continued on next page

Peak Optimization Flags (Continued)

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

416.gamess: `-xSSE4.2`(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: `basepeak = yes`

465.tonto: `-xSSE4.2`(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 -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT`

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) `-prof-use`(pass 2) `-static -auto-ilp32 -ansi-alias`

436.cactusADM: `basepeak = yes`

454.calculix: `-xSSE4.2 -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-ic12.0-linux64-revB.html`
`http://www.spec.org/cpu2006/flags/PlatformHitachi.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml`
`http://www.spec.org/cpu2006/flags/PlatformHitachi.xml`

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Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 17:53:30 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 7 June 2011.