SPEC® CFP2006 Result

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HITACHI

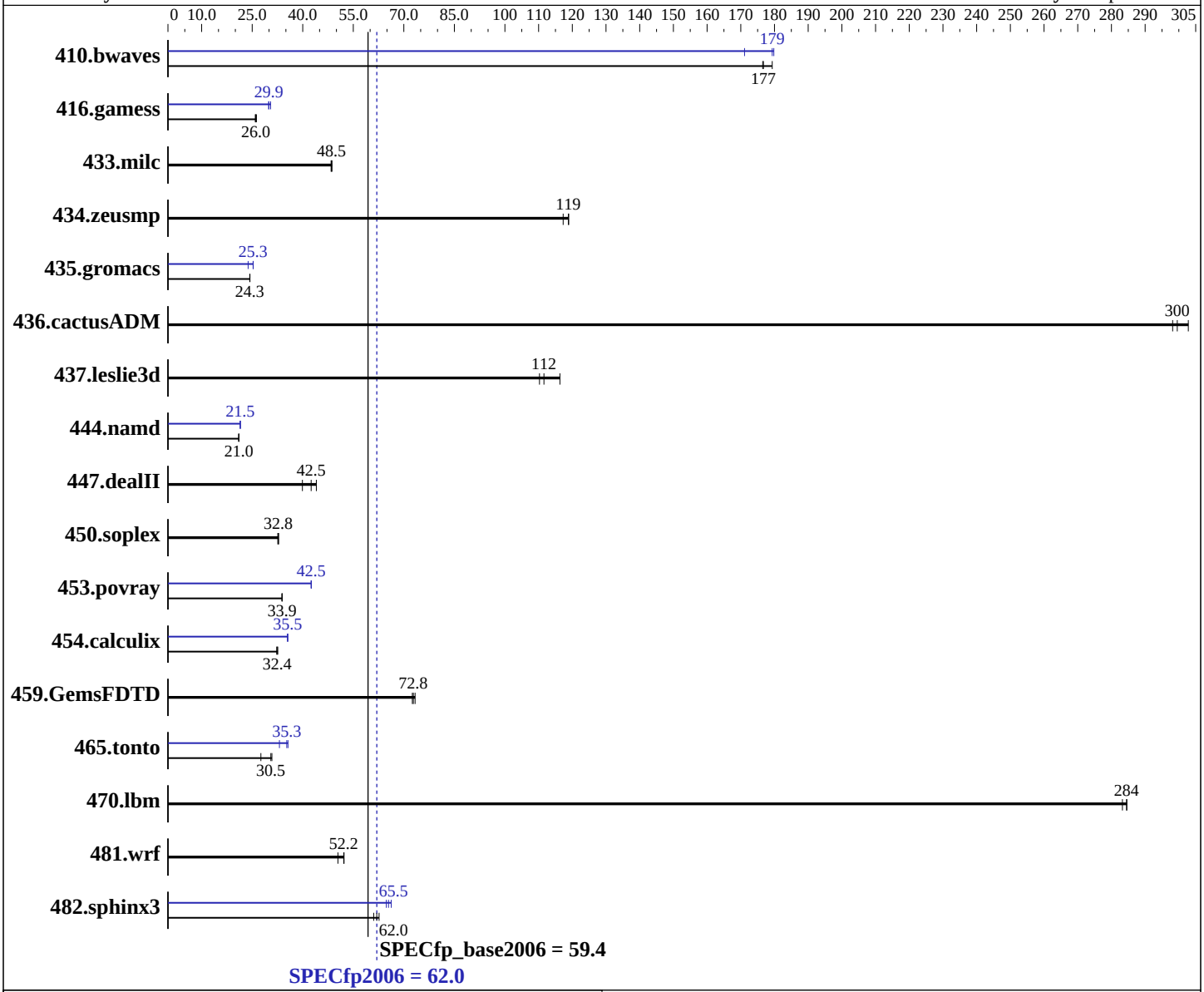
BladeSymphony BS320 (Intel Xeon X5690)

SPECfp®2006 = 62.0

SPECfp_base2006 = 59.4

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

Test date: Apr-2011
Hardware Availability: Mar-2011
Software Availability: Apr-2011



Hardware

CPU Name:	Intel Xeon X5690
CPU Characteristics:	Intel Turbo Boost Technology up to 3.73 GHz
CPU MHz:	3466
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 Fibre Channel 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	77.0	177	75.8	179	**76.9**	**177**	79.4	171	75.6	180	**75.8**	**179**
416.gamess	746	26.3	755	25.9	**752**	**26.0**	**654**	**29.9**	643	30.5	655	29.9
433.milc	190	48.4	189	48.7	**189**	**48.5**	190	48.4	189	48.7	**189**	**48.5**
434.zeusmp	76.5	119	77.6	117	**76.6**	**119**	76.5	119	77.6	117	**76.6**	**119**
435.gromacs	**294**	**24.3**	293	24.3	294	24.3	282	25.3	**283**	**25.3**	300	23.8
436.cactusADM	**39.9**	**300**	39.5	303	40.1	298	**39.9**	**300**	39.5	303	40.1	298
437.leslie3d	80.8	116	**84.2**	**112**	85.3	110	80.8	116	**84.2**	**112**	85.3	110
444.namd	382	21.0	**381**	**21.0**	381	21.0	374	21.5	**374**	**21.5**	374	21.5
447.dealII	**269**	**42.5**	287	39.9	260	44.0	**269**	**42.5**	287	39.9	260	44.0
450.soplex	**254**	**32.8**	256	32.6	254	32.8	**254**	**32.8**	256	32.6	254	32.8
453.povray	**157**	**33.9**	157	33.8	157	33.9	**125**	**42.5**	125	42.6	125	42.5
454.calculix	253	32.6	**255**	**32.4**	256	32.3	232	35.5	232	35.5	**232**	**35.5**
459.GemsFDTD	146	72.5	**146**	**72.8**	145	73.3	146	72.5	**146**	**72.8**	145	73.3
465.tonto	**322**	**30.5**	319	30.8	357	27.6	276	35.6	297	33.1	**279**	**35.3**
470.lbm	**48.3**	**284**	48.3	285	48.5	283	**48.3**	**284**	48.3	285	48.5	283
481.wrf	**214**	**52.2**	221	50.4	214	52.3	**214**	**52.2**	221	50.4	214	52.3
482.sphinx3	319	61.1	311	62.7	**315**	**62.0**	**298**	**65.5**	294	66.3	301	64.8

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
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: basepeak = yes

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:

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

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Peak Optimization Flags (Continued)

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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