SPEC® CFP2006 Result

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HITACHI

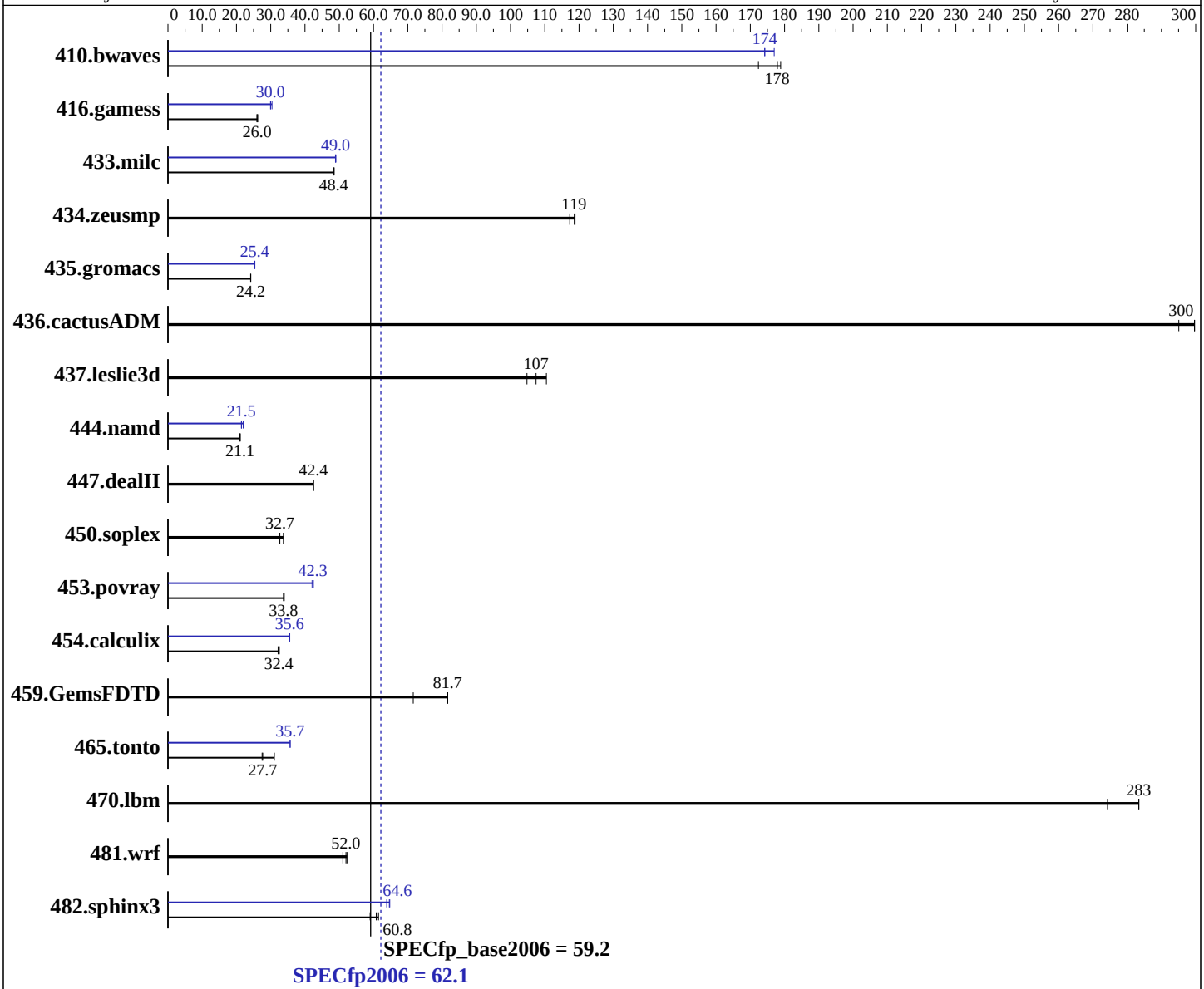
BladeSymphony BS2000 (Intel Xeon X5690)

SPECfp®2006 = 62.1

SPECfp_base2006 = 59.2

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 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 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	78.8	172	76.0	179	**76.4**	**178**	**78.0**	**174**	76.8	177	78.0	174
416.gamess	**753**	**26.0**	747	26.2	753	26.0	645	30.4	**653**	**30.0**	654	29.9
433.milc	189	48.5	190	48.3	**190**	**48.4**	188	48.9	**187**	**49.0**	187	49.0
434.zeusmp	77.6	117	76.6	119	**76.7**	**119**	77.6	117	76.6	119	**76.7**	**119**
435.gromacs	295	24.2	301	23.7	**296**	**24.2**	281	25.4	**282**	**25.4**	282	25.3
436.cactusADM	40.5	295	39.9	300	**39.9**	**300**	40.5	295	39.9	300	**39.9**	**300**
437.leslie3d	85.1	110	89.7	105	**87.5**	**107**	85.1	110	89.7	105	**87.5**	**107**
444.namd	**381**	**21.1**	381	21.1	381	21.0	**374**	**21.5**	365	22.0	374	21.4
447.dealII	270	42.4	**270**	**42.4**	269	42.5	270	42.4	**270**	**42.4**	269	42.5
450.soplex	248	33.7	**255**	**32.7**	256	32.5	248	33.7	**255**	**32.7**	256	32.5
453.povray	158	33.8	**158**	**33.8**	157	33.9	126	42.1	125	42.4	**126**	**42.3**
454.calculix	257	32.1	**255**	**32.4**	254	32.5	**232**	**35.6**	232	35.6	232	35.6
459.GemsFDTD	130	81.7	148	71.6	**130**	**81.7**	130	81.7	148	71.6	**130**	**81.7**
465.tonto	317	31.1	**356**	**27.7**	358	27.5	**276**	**35.7**	279	35.3	276	35.7
470.lbm	**48.5**	**283**	48.5	283	50.1	274	**48.5**	**283**	48.5	283	50.1	274
481.wrf	214	52.3	**215**	**52.0**	219	51.1	214	52.3	**215**	**52.0**	219	51.1
482.sphinx3	317	61.5	330	59.0	**321**	**60.8**	301	64.7	**302**	**64.6**	305	63.9

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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For other inquiries, please contact webmaster@spec.org.

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