SPEC® CFP2006 Result

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Oracle Corporation

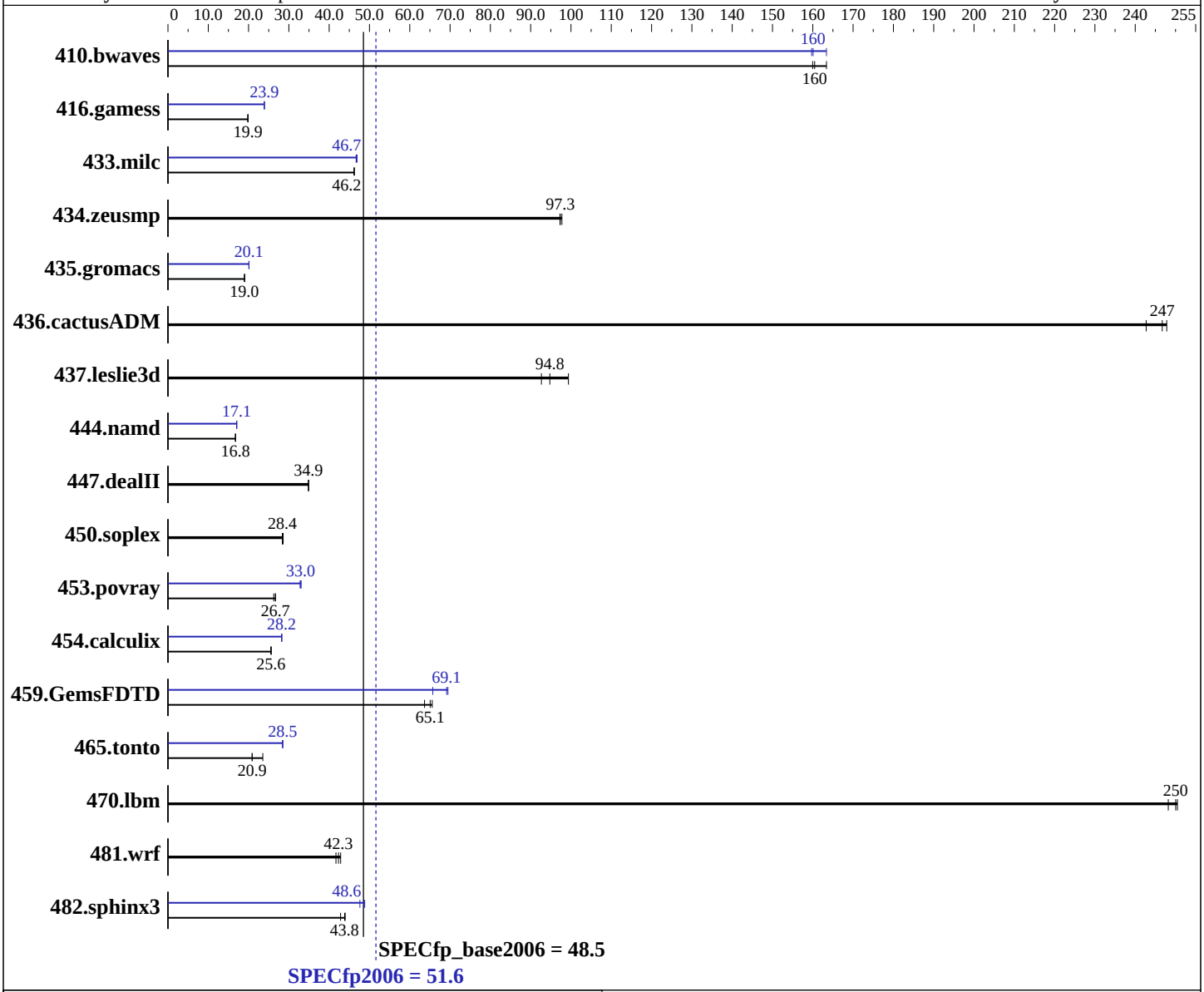
Sun Fire X2270 M2 (Intel Xeon E5649 2.53 GHz)

SPECfp®2006 = 51.6

SPECfp_base2006 = 48.5

CPU2006 license: 6
Test sponsor: Oracle Corporation
Tested by: Oracle Corporation

Test date: Feb-2011
Hardware Availability: Mar-2011
Software Availability: Nov-2010



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, 2 threads/core
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:	Oracle Linux 5.5 kernel 2.6.18-194.el5
Compiler:	Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64 Version 12 Alpha Build 20110105
Auto Parallel:	Yes
File System:	ext3
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit

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L3 Cache: 12 MB I+D on chip per chip
Other Cache: None
Memory: 48 GB (12 x 4 GB 2Rx4 PC3-10600R-9, ECC)
Disk Subsystem: 1 x 1 TB, SATA, 7200 RPM
Other Hardware: None

Peak Pointers: 64-bit
Other Software: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	84.9	160	**84.7**	**160**	83.2	163	85.1	160	83.2	163	**84.9**	**160**
416.gamess	984	19.9	**986**	**19.9**	989	19.8	818	23.9	819	23.9	**819**	**23.9**
433.milc	199	46.2	199	46.2	**199**	**46.2**	196	46.9	**196**	**46.7**	197	46.7
434.zeusmp	93.6	97.3	93.1	97.8	**93.5**	**97.3**	93.6	97.3	93.1	97.8	**93.5**	**97.3**
435.gromacs	375	19.0	376	19.0	**376**	**19.0**	355	20.1	**355**	**20.1**	356	20.1
436.cactusADM	**48.4**	**247**	48.2	248	49.2	243	**48.4**	**247**	48.2	248	49.2	243
437.leslie3d	101	92.7	**99.2**	**94.8**	94.6	99.4	101	92.7	**99.2**	**94.8**	94.6	99.4
444.namd	**478**	**16.8**	478	16.8	480	16.7	470	17.1	470	17.0	**470**	**17.1**
447.dealII	328	34.9	**328**	**34.9**	328	34.9	328	34.9	**328**	**34.9**	328	34.9
450.soplex	294	28.4	292	28.6	**293**	**28.4**	294	28.4	292	28.6	**293**	**28.4**
453.povray	199	26.7	**200**	**26.7**	203	26.2	161	33.0	**161**	**33.0**	162	32.8
454.calculix	322	25.6	323	25.5	**322**	**25.6**	292	28.2	**292**	**28.2**	292	28.2
459.GemsFDTD	**163**	**65.1**	162	65.6	167	63.7	161	65.7	153	69.5	**153**	**69.1**
465.tonto	418	23.5	**471**	**20.9**	471	20.9	345	28.5	346	28.4	**346**	**28.5**
470.lbm	55.4	248	54.9	250	**55.0**	**250**	55.4	248	54.9	250	**55.0**	**250**
481.wrf	**264**	**42.3**	261	42.9	268	41.7	**264**	**42.3**	261	42.9	268	41.7
482.sphinx3	443	44.0	**445**	**43.8**	455	42.8	409	47.6	**401**	**48.6**	399	48.8

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

Platform Notes

Load Default BIOS Settings and then change the following
  Data Reuse Optimization Enabled
  Intel Hyperthreading Options Disabled

General Notes

OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
KMP_STACKSIZE set to 200M

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General Notes (Continued)

```
 Though binaries were linked with hugepages, this result did not use hugepages.
Binaries were compiled on RHEL5.5 with Binutils binutils-2.17.50.0.6-14.el5
```

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
```

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Base Optimization Flags (Continued)

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`

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Peak Optimization Flags (Continued)

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

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: -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 -opt-prefetch -parallel -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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-revA.html
http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.20101027.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revA.xml
http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.20101027.xml

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

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