SPEC® CFP2006 Result
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Sun Microsystems
Sun Fire X2250

$SPECfp^{®}2006 =$ 26.0
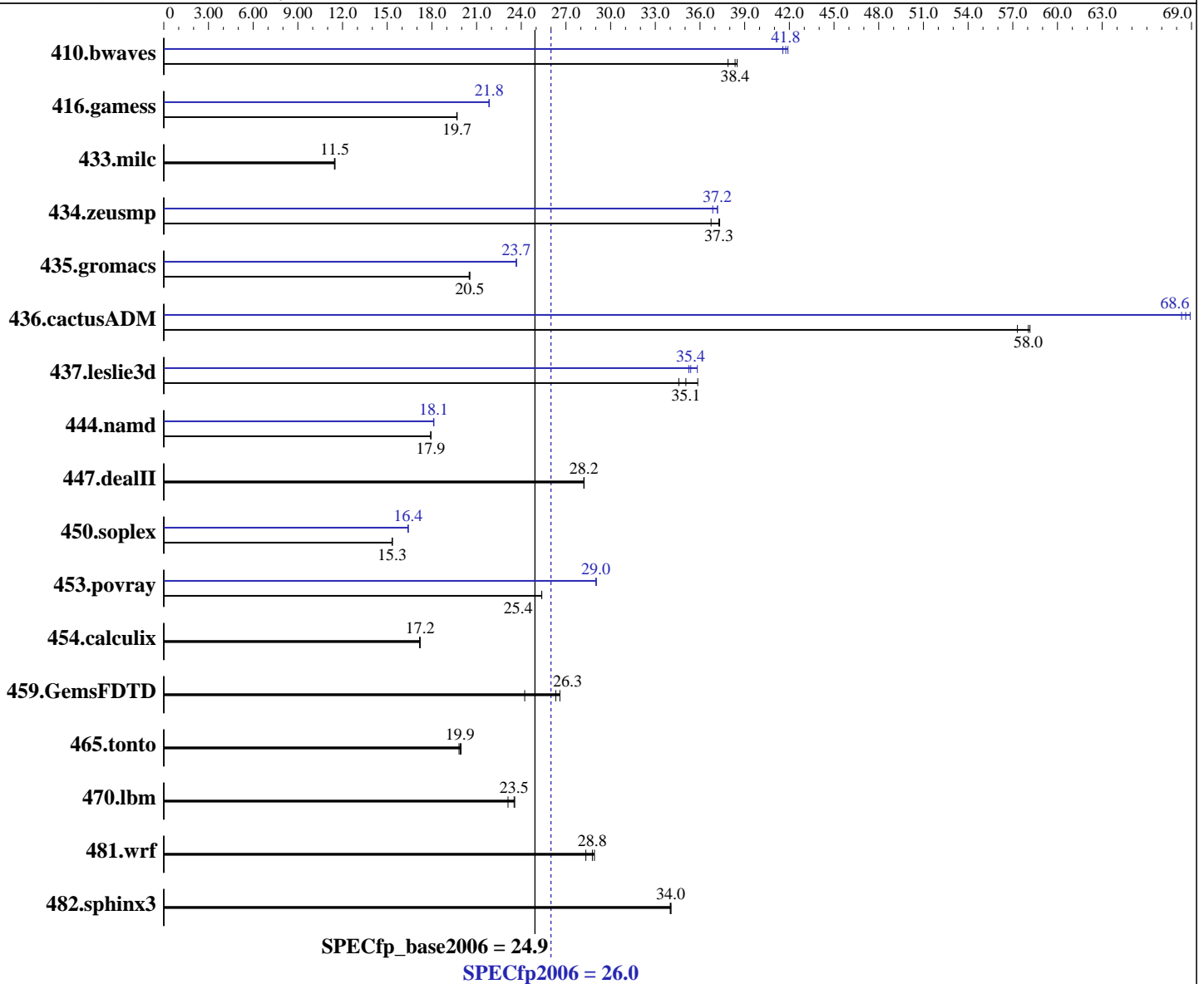
$SPECfp\_base2006 =$ 24.9

CPU2006 license: 6
Test sponsor: Sun Microsystems
Tested by: Sun Microsystems

Test date: Aug-2008
Hardware Availability: Aug-2008
Software Availability: Nov-2008

Benchmark	Result
410.bwaves	41.8 / 38.4
416.gamess	21.8 / 19.7
433.milc	11.5
434.zeusmp	37.2 / 37.3
435.gromacs	23.7 / 20.5
436.cactusADM	68.6 / 58.0
437.leslie3d	35.4 / 35.1
444.namd	18.1 / 17.9
447.dealII	28.2
450.soplex	16.4 / 15.3
453.povray	29.0 / 25.4
454.calculix	17.2
459.GemsFDTD	26.3
465.tonto	19.9
470.lbm	23.5
481.wrf	28.8
482.sphinx3	34.0

SPECfp_base2006 = 24.9
SPECfp2006 = 26.0

Hardware
CPU Name: Intel Xeon X5272
CPU Characteristics:
CPU MHz: 3400
FPU: Integrated
CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip
CPU(s) orderable: 1,2 (order by # of chips)
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 6 MB I+D on chip per chip

Continued on next page

Software
Operating System: OpenSolaris 2008.05
Compiler: Sun Studio Express 11/08
Auto Parallel: Yes
File System: OS on zfs, Benchmark on ufs
System State: Default
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

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L3 Cache: None
Other Cache: None
Memory: 16 GB (4*4GB Dual-rank PC2-6400 CL5-5-5 FB-DIMMs)
Disk Subsystem: 2 x 250 GB SATA 7200 RPM
Other Hardware: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	359	37.9	**354**	**38.4**	353	38.5	324	41.9	327	41.6	**325**	**41.8**
416.gamess	**995**	**19.7**	994	19.7	996	19.7	897	21.8	896	21.8	**896**	**21.8**
433.milc	801	11.5	**800**	**11.5**	798	11.5	801	11.5	**800**	**11.5**	798	11.5
434.zeusmp	248	36.7	**244**	**37.3**	244	37.3	247	36.9	245	37.2	**245**	**37.2**
435.gromacs	**348**	**20.5**	348	20.5	347	20.5	302	23.7	**302**	**23.7**	302	23.7
436.cactusADM	209	57.3	**206**	**58.0**	205	58.2	175	68.3	**174**	**68.6**	173	68.9
437.leslie3d	**268**	**35.1**	262	35.9	272	34.6	267	35.3	**266**	**35.4**	262	35.8
444.namd	447	17.9	447	17.9	**447**	**17.9**	443	18.1	442	18.1	**442**	**18.1**
447.dealII	406	28.2	**406**	**28.2**	405	28.2	406	28.2	**406**	**28.2**	405	28.2
450.soplex	**544**	**15.3**	543	15.3	544	15.3	508	16.4	**508**	**16.4**	509	16.4
453.povray	**210**	**25.4**	210	25.4	210	25.4	183	29.0	**183**	**29.0**	183	29.0
454.calculix	**480**	**17.2**	480	17.2	479	17.2	**480**	**17.2**	480	17.2	479	17.2
459.GemsFDTD	399	26.6	**403**	**26.3**	438	24.2	399	26.6	**403**	**26.3**	438	24.2
465.tonto	496	19.8	493	20.0	**494**	**19.9**	496	19.8	493	20.0	**494**	**19.9**
470.lbm	595	23.1	583	23.6	**584**	**23.5**	595	23.1	583	23.6	**584**	**23.5**
481.wrf	394	28.3	**388**	**28.8**	386	28.9	394	28.3	**388**	**28.8**	386	28.9
482.sphinx3	**573**	**34.0**	573	34.0	572	34.1	**573**	**34.0**	573	34.0	572	34.1

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Operating System Notes

```
Environment variable SUNW_MP_THR_IDLE set to SPIN
Environment variable OMP_NUM_THREADS set to 4
'ulimit -s unlimited' was used to set environment stack size

Added additional 8GB of swap from UFS filesystem, using following commands:
mkfile 8g /data1/swapfile;  swap -a /data1/swapfile

Kernel Parameters (/etc/system):
autoup=900
tune_t_fsflushr=1
```

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Platform Notes

```
  BIOS configuration:
  Hardware Prefetch : Enabled; Adjacent Sector Prefetch : Enabled
```

Base Compiler Invocation

C benchmarks:
    cc

C++ benchmarks:
    CC

Fortran benchmarks:
    f90

Benchmarks using both Fortran and C:
    cc f90

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
  436.cactusADM: -DSPEC_CPU_LP64
   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
  459.GemsFDTD: -DSPEC_CPU_LP64
     465.tonto: -DSPEC_CPU_LP64
      470.lbm: -DSPEC_CPU_LP64
      481.wrf: -DSPEC_CPU_LP64  -DSPEC_CPU_WORDS_LITTLEENDIAN
    482.sphinx3: -DSPEC_CPU_LP64
```

Base Optimization Flags

C benchmarks:
    -fast -xautopar -xipo=2 -xvector=simd -m64

C++ benchmarks:
    -fast -xipo=2 -xvector=simd -m64 -library=stlport4

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Base Optimization Flags (Continued)

Fortran benchmarks:
```
-fast -xautopar -xipo=2 -xvector=simd -m64
```

Benchmarks using both Fortran and C:
```
-fast(cc) -xautopar -xipo=2 -xvector=simd -m64 -fast(f90)
```

Base Other Flags

C benchmarks:
```
-V
```

C++ benchmarks:
```
-verbose=version
```

Fortran benchmarks:
```
-V
```

Benchmarks using both Fortran and C:
```
-V
```

Peak Compiler Invocation

C benchmarks:
```
cc
```

C++ benchmarks:
```
CC
```

Fortran benchmarks:
```
f90
```

Benchmarks using both Fortran and C:
```
cc f90
```

Peak Portability Flags

```
      433.milc: -DSPEC_CPU_LP64
 436.cactusADM: -DSPEC_CPU_LP64
    447.dealII: -DSPEC_CPU_LP64
   454.calculix: -DSPEC_CPU_LP64
   459.GemsFDTD: -DSPEC_CPU_LP64
      465.tonto: -DSPEC_CPU_LP64
       470.lbm: -DSPEC_CPU_LP64
```

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Peak Portability Flags (Continued)

```
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_WORDS_LITTLEENDIAN
482.sphinx3: -DSPEC_CPU_LP64
```

Peak Optimization Flags

C benchmarks:

```
433.milc: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes
```

C++ benchmarks:

```
444.namd: -xprofile=collect:./feedback(pass 1)
          -xprofile=use:./feedback(pass 2) -fast -xautopar -xipo=2
          -xvector=simd -m64 -library=stlport4

447.dealII: basepeak = yes

450.soplex: -fast -xipo=2 -m32 -library=stlport4

453.povray: -xprofile=collect:./feedback(pass 1)
            -xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
            -xvector=simd -lumem -xalias_level=compatible -xautopar
            -Qoption ube -fsimple=3 -library=stlport4
```

Fortran benchmarks:

```
410.bwaves: -fast -m64 -xipo=2 -xprefetch -xprefetch_level=2
            -xautopar -xreduction -Qoption ube -fsimple=3

416.gamess: -xprofile=collect:./feedback(pass 1)
            -xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
            -xdepend -xalias -stackvar -aligncommon=16
            -Qoption ube -fsimple=3

434.zeusmp: -fast -xautopar -xipo=2 -xvector=simd -m64

437.leslie3d: Same as 434.zeusmp

459.GemsFDTD: basepeak = yes

465.tonto: basepeak = yes
```

Benchmarks using both Fortran and C:

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Peak Optimization Flags (Continued)

```
435.gromacs: -xprofile=collect:./feedback(pass 1)
             -xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
             -xipo=2 -m64 -Wu,-fsimple=3 -Qoption ube -fsimple=3

436.cactusADM: -xprofile=collect:./feedback(pass 1)
               -xprofile=use:./feedback(pass 2) -fast(cc) -xautopar
               -xipo=2 -xvector=simd -m64 -xpagesize_heap=2m
               -Wu,-fsimple=3 -fast(f90) -Qoption ube -fsimple=3
               -Qoption iropt -Aujam:noinner

454.calculix: basepeak = yes

   481.wrf: basepeak = yes
```

Peak Other Flags

C benchmarks:
```
-V
```

C++ benchmarks:
```
-verbose=version
```

Fortran benchmarks:
```
-V
```

Benchmarks using both Fortran and C:
```
-V
```

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Sun-OpenSolaris-Studio-x86_64.20090714.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Sun-OpenSolaris-Studio-x86_64.20090714.xml

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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