SPEC® CFP2006 Result

Sun Microsystems
Sun Fire X4150

$SPECfp^{®}2006 =$ 23.7

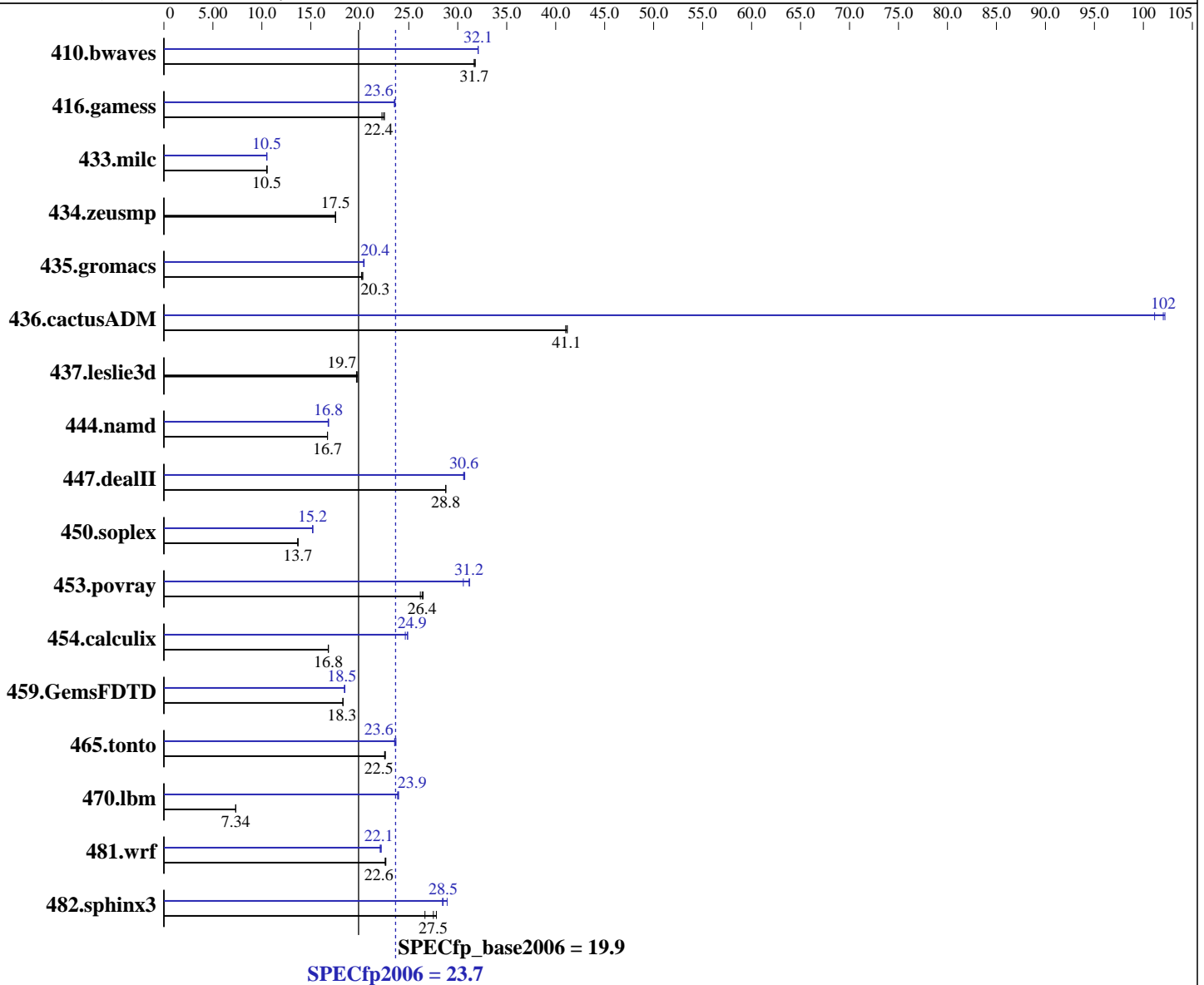$SPECfp\_base2006 =$ 19.9

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

Test date: Jan-2008
Hardware Availability: Feb-2008
Software Availability: Nov-2007

Benchmark	Value
410.bwaves	32.1 / 31.7
416.gamess	23.6 / 22.4
433.milc	10.5 / 10.5
434.zeusmp	17.5
435.gromacs	20.4 / 20.3
436.cactusADM	102 / 41.1
437.leslie3d	19.7
444.namd	16.8 / 16.7
447.dealII	30.6 / 28.8
450.soplex	15.2 / 13.7
453.povray	31.2 / 26.4
454.calculix	24.9 / 16.8
459.GemsFDTD	18.5 / 18.3
465.tonto	23.6 / 22.5
470.lbm	23.9 / 7.34
481.wrf	22.1 / 22.6
482.sphinx3	28.5 / 27.5

SPECfp_base2006 = 19.9
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Hardware

CPU Name: Intel Xeon X5460
CPU Characteristics: 3.16 GHz, 2x6 MB L2 shared, 1333 MHz system bus
CPU MHz: 3166
FPU: Integrated
CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip
CPU(s) orderable: 1,2 (order by number of chips)
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 12 MB I+D on chip per chip, 6 MB shared / 2 cores

Continued on next page

Software

Operating System: SUSE LINUX Enterprise Server 10 SP1 for x86_64
Compiler: Intel C++ and Fortran Compiler for Linux32 and Linux64 version 10.1 Build 20070913
Auto Parallel: Yes
File System: ReiserFS
System State: Multi-user, run level 3
Base Pointers: 64-bit
Peak Pointers: 32/64-bit

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L3 Cache:	None
Other Cache:	None
Memory:	16 GB (8x2GB DDR2 PC2-5300F 2rank CAS 5-5-5 with ECC)
Disk Subsystem:	SAS, 72 GB, 10K RPM
Other Hardware:	None

Other Software: SmartHeap library V8.1
Binutils 2.17.50.0.15

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	**429**	**31.7**	429	31.7	427	31.8	423	32.1	**424**	**32.1**	424	32.1
416.gamess	869	22.5	880	22.3	**873**	**22.4**	**830**	**23.6**	832	23.5	830	23.6
433.milc	874	10.5	**874**	**10.5**	871	10.5	**873**	**10.5**	875	10.5	873	10.5
434.zeusmp	519	17.5	519	17.5	**519**	**17.5**	519	17.5	519	17.5	**519**	**17.5**
435.gromacs	**352**	**20.3**	354	20.2	352	20.3	350	20.4	**350**	**20.4**	349	20.4
436.cactusADM	291	41.0	290	41.2	**291**	**41.1**	**117**	**102**	118	101	117	102
437.leslie3d	**478**	**19.7**	475	19.8	478	19.7	**478**	**19.7**	475	19.8	478	19.7
444.namd	**480**	**16.7**	480	16.7	480	16.7	477	16.8	478	16.8	**477**	**16.8**
447.dealII	397	28.8	**398**	**28.8**	398	28.8	374	30.6	372	30.7	**373**	**30.6**
450.soplex	609	13.7	**609**	**13.7**	610	13.7	549	15.2	**549**	**15.2**	548	15.2
453.povray	203	26.2	**202**	**26.4**	201	26.5	**171**	**31.2**	174	30.6	170	31.2
454.calculix	**492**	**16.8**	491	16.8	492	16.8	332	24.9	335	24.6	**332**	**24.9**
459.GemsFDTD	**580**	**18.3**	580	18.3	581	18.3	**575**	**18.5**	574	18.5	576	18.4
465.tonto	435	22.6	**436**	**22.5**	437	22.5	415	23.7	418	23.6	**417**	**23.6**
470.lbm	1872	7.34	**1873**	**7.34**	1875	7.33	574	24.0	**574**	**23.9**	576	23.9
481.wrf	**493**	**22.6**	493	22.7	495	22.6	503	22.2	**505**	**22.1**	506	22.1
482.sphinx3	701	27.8	731	26.7	**708**	**27.5**	685	28.4	674	28.9	**684**	**28.5**

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
OMP_NUM_THREADS set to 8
KMP_STACKSIZE set to 200M
KMP_AFFINITY set to physical,0
```

Platform Notes

```
Default BIOS configurations were used.
```

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General Notes

All benchmarks were compiled in 64-bit mode except 450.soplex,
470.lbm and 482.sphinx3 for peak were compiled in 32-bit mode

Base Compiler Invocation

C benchmarks:
     `icc`

C++ benchmarks:
     `icpc`

Fortran benchmarks:
     `ifort`

Benchmarks using both Fortran and C:
     `icc ifort`

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:
     `-fast -parallel`

C++ benchmarks:
     `-fast -parallel`

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Base Optimization Flags (Continued)

Fortran benchmarks:
```
-fast -parallel
```

Benchmarks using both Fortran and C:
```
-fast -parallel
```

Peak Compiler Invocation

C benchmarks (except as noted below):
```
/opt/intel/cc/10.1.008/bin/icc -L/opt/intel/cc/10.1.008/lib
-I/opt/intel/cc/10.1.008/include
```

　　433.milc: `icc`

C++ benchmarks (except as noted below):
```
icpc
```

　450.soplex: `/opt/intel/cc/10.1.008/bin/icpc -L/opt/intel/cc/10.1.008/lib`
`        -I/opt/intel/cc/10.1.008/include`

Fortran benchmarks:
```
ifort
```

Benchmarks using both Fortran and C:
```
icc ifort
```

Peak 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
     453.povray: -DSPEC_CPU_LP64
    454.calculix: -DSPEC_CPU_LP64 -nofor_main
   459.GemsFDTD: -DSPEC_CPU_LP64
      465.tonto: -DSPEC_CPU_LP64
       481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
```

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Peak Optimization Flags

C benchmarks:

      433.milc: `-prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias -auto-ilp32`

      470.lbm: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -scalar-rep- -prefetch -opt-malloc-options=3`

    482.sphinx3: `-fast -unroll2`

C++ benchmarks:

      444.namd: `-prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias -auto-ilp32`

      447.dealII: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -ansi-alias -scalar-rep-`

    450.soplex: `-prof-gen(pass 1) -prof-use(pass 2) -fast -opt-malloc-options=3`

    453.povray: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -ansi-alias`

Fortran benchmarks:

    410.bwaves: `-fast -prefetch -parallel`

    416.gamess: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0 -ansi-alias -scalar-rep-`

    434.zeusmp: `basepeak = yes`

    437.leslie3d: `basepeak = yes`

  459.GemsFDTD: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0 -prefetch -parallel`

     465.tonto: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -auto`

Benchmarks using both Fortran and C:

    435.gromacs: `-prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch -auto-ilp32`

  436.cactusADM: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -prefetch -parallel -auto-ilp32`

    454.calculix: `-fast -unroll-aggressive -auto-ilp32`

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Peak Optimization Flags (Continued)

481.wrf: `-fast -parallel -prefetch -auto-ilp32`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic10.1-FP-intel64-linux-flags.20090714.19.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic10.1-FP-intel64-linux-flags.20090714.19.xml`

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

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