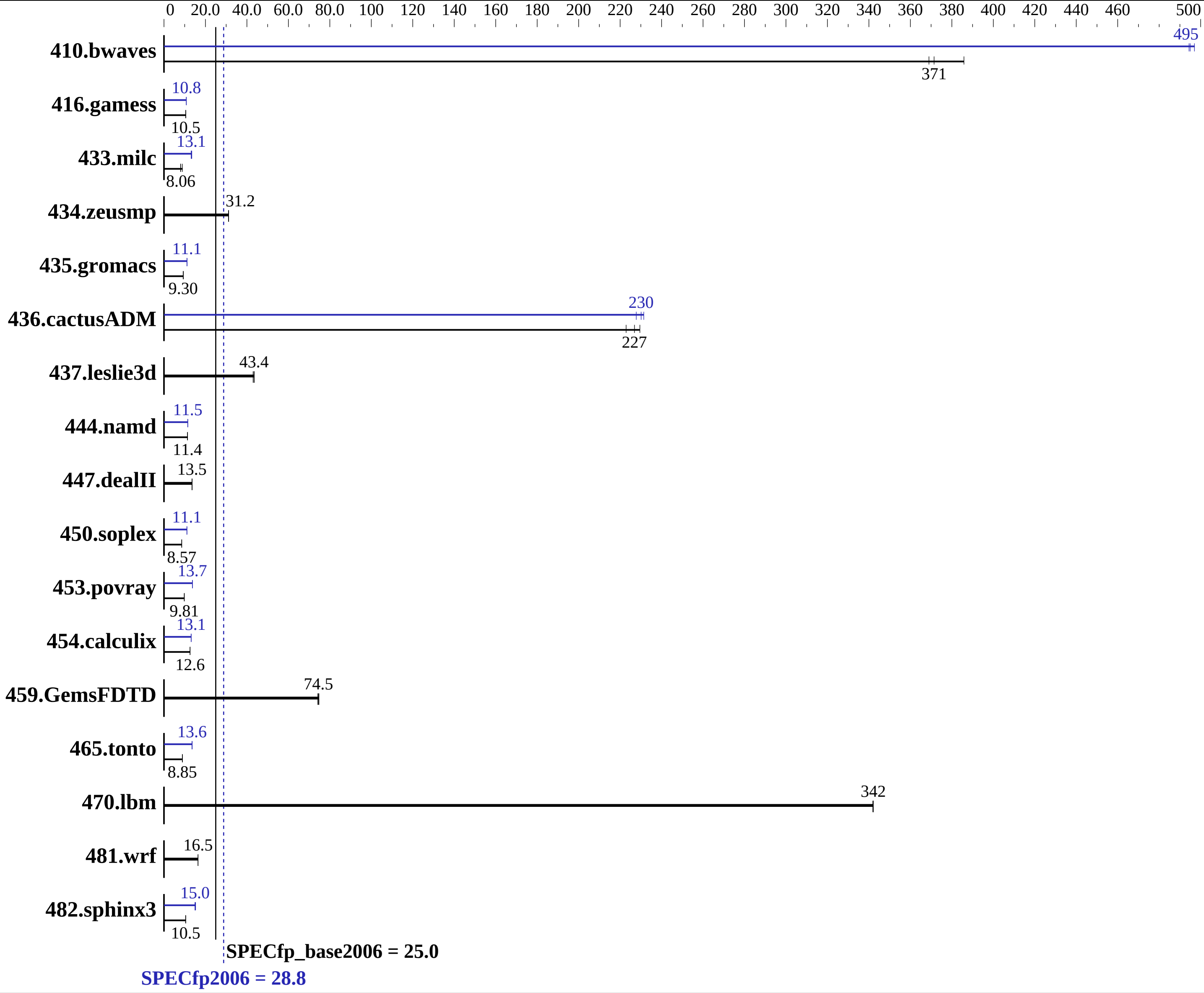
SPEC® CFP2006 Result

Sun Microsystems
Sun SPARC Enterprise M8000

SPECfp®2006 = 28.8

SPECfp_base2006 = 25.0

CPU2006 license: 6		**Test date:**	Jun-2008
Test sponsor:	Sun Microsystems	**Hardware Availability:**	Jul-2008
Tested by:	Sun Microsystems	**Software Availability:**	Jul-2008



Hardware

CPU Name:	SPARC64 VII
CPU Characteristics:	
CPU MHz:	2520
FPU:	Integrated
CPU(s) enabled:	64 cores, 16 chips, 4 cores/chip, 2 threads/core
CPU(s) orderable:	1 to 4 CMUs; each CMU contains 2 or 4 chips
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	6 MB I+D on chip per chip

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Software

Operating System:	Solaris 10 5/08 with Patch 137111-03
Compiler:	Sun Studio 12 with patches 124867-06, 124861-07, 124863-05, 127000-05 (see patch information below)
Auto Parallel:	Yes
File System:	ufs
System State:	Default
Base Pointers:	32-bit
Peak Pointers:	32-bit

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L3 Cache: None
Other Cache: None
Memory: 256 GB (128 x 2 GB)
Disk Subsystem: Fujitsu 73 GB 10000 RPM SAS
Other Hardware: None

Other Software: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	35.2	386	36.8	369	**36.6**	**371**	27.5	494	**27.5**	**495**	27.3	497
416.gamess	1868	10.5	**1869**	**10.5**	1869	10.5	**1814**	**10.8**	1816	10.8	1811	10.8
433.milc	1032	8.89	1141	8.05	**1139**	**8.06**	699	13.1	684	13.4	**698**	**13.1**
434.zeusmp	292	31.2	292	31.1	**292**	**31.2**	292	31.2	292	31.1	**292**	**31.2**
435.gromacs	**768**	**9.30**	767	9.30	768	9.30	**644**	**11.1**	644	11.1	644	11.1
436.cactusADM	53.6	223	52.1	230	**52.7**	**227**	52.5	228	**51.9**	**230**	51.6	231
437.leslie3d	216	43.5	219	43.0	**216**	**43.4**	216	43.5	219	43.0	**216**	**43.4**
444.namd	704	11.4	**704**	**11.4**	706	11.4	**699**	**11.5**	699	11.5	701	11.4
447.dealII	846	13.5	**846**	**13.5**	845	13.5	846	13.5	**846**	**13.5**	845	13.5
450.soplex	973	8.57	**973**	**8.57**	972	8.58	756	11.0	754	11.1	**755**	**11.1**
453.povray	543	9.79	542	9.82	**542**	**9.81**	389	13.7	**388**	**13.7**	388	13.7
454.calculix	**654**	**12.6**	654	12.6	654	12.6	**630**	**13.1**	631	13.1	630	13.1
459.GemsFDTD	143	74.2	142	74.7	**142**	**74.5**	143	74.2	142	74.7	**142**	**74.5**
465.tonto	1111	8.85	**1112**	**8.85**	1112	8.85	**725**	**13.6**	724	13.6	728	13.5
470.lbm	40.2	342	40.2	342	**40.2**	**342**	40.2	342	40.2	342	**40.2**	**342**
481.wrf	679	16.5	**679**	**16.5**	679	16.5	679	16.5	**679**	**16.5**	679	16.5
482.sphinx3	**1862**	**10.5**	1862	10.5	1871	10.4	**1299**	**15.0**	1278	15.3	1301	15.0

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

Compiler Invocation Notes

```
Sun Studio compiler patches are available at
    http://developers.sun.com/sunstudio/downloads/patches/ss12_patches.jsp
```

Operating System Notes

```
Environment Variable Settings:

The maximum number of threads a program can create was set with:
    OMP_NUM_THREADS=64

Program threads were bound to processors with:
```

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Operating System Notes (Continued)

```
    SUNW_MP_PROCBIND="  1  2  4  6  8 10 12 14 16 18 20 22 24 26 28 30 32 34
                       36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70
                       72 74 76 78 80 82 84 86 88 90 92 94 96 98 100 102 104
                       104 106 108 110 112 114 116 118 120 122 124 126 "

Behavior of parallel threads was set with:
    SUNW_MP_THR_IDLE=SPIN
SPIN specifies that an idle thread should spin while waiting at barrier
or waiting for new parallel regions to work on.


System Tunables (/etc/system parameters):

tune_t_fsflushr=10
    Controls how many seconds elapse between runs of the
    page flush daemon, fsflush.
autoup=300
    Causes pages older than the listed number of seconds to
    be written by fsflush.
bufhwm=3000
    Memory byte limit for caching I/O buffers
segmap_percent=3
    Set maximum percent memory for file system cache
lpg_alloc_prefer=1
    Set lgroup page allocation to strongly prefer local pages

Other System Settings:

The webconsole service was turned off using
    svcadm disable webconsole
```

Platform Notes

```
Memory is 8-way interleaved by filling all slots with
the same capacity DIMMs.

This result is measured on a Sun SPARC Enterprise M8000 Server.
Note that the Sun SPARC Enterprise M8000 and Fujitsu SPARC Enterprise
M8000 are electrically equivalent.
```

Base Compiler Invocation

C benchmarks:
    cc

Continued on next page

Base Compiler Invocation (Continued)

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

Fortran benchmarks:
```
f90
```

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

Base Optimization Flags

C benchmarks:
```
-fast -xipo=2 -fma=fused -xpagesize=4M -xprefetch=latx:2 -xautopar
-xreduction -xprefetch_level=3
-xprefetch_auto_type=indirect_array_access
```

C++ benchmarks:
```
-library=stlport4 -fast -xipo=2 -fma=fused -xpagesize=4M
-xprefetch=latx:2 -xautopar -xreduction -xprefetch_level=2
-xalias_level=compatible
```

Fortran benchmarks:
```
-fast -xipo=2 -fma=fused -xpagesize=4M -xprefetch=latx:2 -xautopar
-xreduction -xprefetch_level=2
```

Benchmarks using both Fortran and C:
```
-fast(cc) -fast(f90) -xipo=2 -fma=fused -xpagesize=4M
-xprefetch=latx:2 -xautopar -xreduction -xprefetch_level=3
-xprefetch_auto_type=indirect_array_access -xprefetch_level=2
```

Base Other Flags

C benchmarks:
```
-xjobs=64
```

C++ benchmarks:
```
-xjobs=64
```

Fortran benchmarks:
```
-xjobs=64
```

Benchmarks using both Fortran and C:
```
-xjobs=64
```

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Peak Compiler Invocation

C benchmarks:
cc

C++ benchmarks:
CC

Fortran benchmarks:
f90

Benchmarks using both Fortran and C:
cc f90

Peak Optimization Flags

C benchmarks:

433.milc: -fast -xipo=2 -fma=fused -xpagesize=4M -xprefetch=latx:2 -xalias_level=std -xprefetch_level=3 -xprefetch_auto_type=indirect_array_access -xalias_level=strong -xprefetch_level=2

470.lbm: basepeak = yes

482.sphinx3: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xipo=2 -fma=fused -xalias_level=std -xautopar -xreduction

C++ benchmarks:

444.namd: -library=stlport4 -fast -xipo=2 -fma=fused -xpagesize=4M -xprefetch=latx:2 -xalias_level=compatible -xdepend

447.dealII: basepeak = yes

450.soplex: -library=stlport4 -fast -xipo=2 -fma=fused -xpagesize=4M -xprefetch=latx:2 -xdepend -xprefetch_level=2 -xprefetch_auto_type=indirect_array_access -Qoption cg -Qlp-ol=1 -Qoption cg -Qlp-it=3 -Qoption cg -Qlp-imb=1 -Qoption iropt -Apf:pdl=3

453.povray: -library=stlport4 -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xipo=2 -fma=fused -xpagesize=4M -xprefetch=latx:2 -xalias_level=compatible -xdepend -xrestrict -xprefetch=latx:4.5

Fortran benchmarks:

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Peak Optimization Flags (Continued)

410.bwaves: -fast -xipo=2 -fma=fused -xpagesize=512K -xprefetch=latx:2 -xprefetch_level=2 -xautopar -xreduction

416.gamess: -fast -xipo=2 -fma=fused -xpagesize=4M -xprefetch=latx:2 -xprefetch_level=2

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

465.tonto: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xipo=2 -fma=fused -xpagesize=4M -xprefetch=latx:2 -xarch=v8plusa -xprefetch=latx:12 -lfast

Benchmarks using both Fortran and C:

435.gromacs: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90) -xipo=2 -fma=fused -xalias_level=std

436.cactusADM: -fast(cc) -fast(f90) -xipo=2 -fma=fused -xpagesize=4M -xprefetch=latx:2 -xalias_level=std -xprefetch_level=3 -xprefetch_auto_type=indirect_array_access -xautopar -xreduction

454.calculix: -fast(cc) -fast(f90) -xipo=2 -fma=fused -xalias_level=std

481.wrf: basepeak = yes

Peak Other Flags

C benchmarks:
-xjobs=64

C++ benchmarks:
-xjobs=64

Fortran benchmarks:
-xjobs=64

Benchmarks using both Fortran and C:
-xjobs=64

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12-and-gccfss4.2.20090713.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12-and-gccfss4.2.20090713.xml

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

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