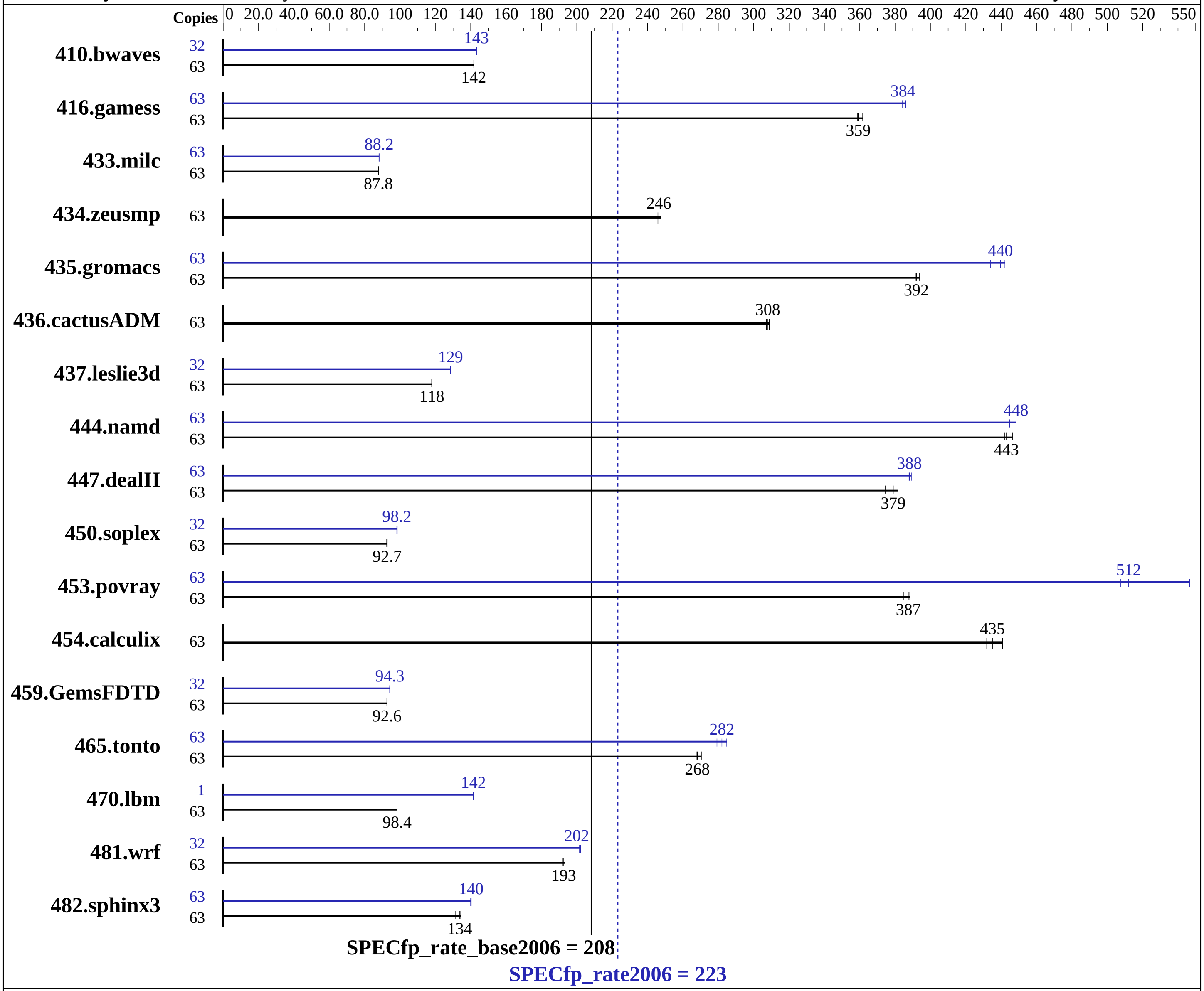
SPEC® CFP2006 Result

Sun Microsystems
Sun SPARC Enterprise M5000

SPECfp®_rate2006 = 223

SPECfp_rate_base2006 = 208

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:	2400
FPU:	Integrated
CPU(s) enabled:	32 cores, 8 chips, 4 cores/chip, 2 threads/core
CPU(s) orderable:	1 to 4 CMU; each CMU contains 2 CPU chips
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	5 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: 128 GB (64 x 2 GB)
Disk Subsystem: 158 GB RAID 0 Solaris Volume
3 x Seagate 73 GB 10000 RPM
Stripe interlace 512 Kbytes
Other Hardware: None

Other Software: None

Results Table

	Base							Peak						
Benchmark	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	63	6040	142	6040	142	**6040**	**142**	32	3035	143	3036	143	**3036**	**143**
416.gamess	63	3439	359	**3434**	**359**	3411	362	63	3211	384	3196	386	**3208**	**384**
433.milc	63	6583	87.9	**6585**	**87.8**	6587	87.8	63	6563	88.1	**6559**	**88.2**	6558	88.2
434.zeusmp	63	2315	248	**2327**	**246**	2332	246	63	2315	248	**2327**	**246**	2332	246
435.gromacs	63	1149	391	1142	394	**1147**	**392**	63	1017	442	1037	434	**1023**	**440**
436.cactusADM	63	2437	309	**2444**	**308**	2450	307	63	2437	309	**2444**	**308**	2450	307
437.leslie3d	63	**5017**	**118**	5013	118	5022	118	32	2339	129	2339	129	**2339**	**129**
444.namd	63	1143	442	1132	446	**1141**	**443**	63	**1127**	**448**	1127	448	1136	445
447.dealII	63	1924	375	1889	382	**1902**	**379**	63	1858	388	**1857**	**388**	1852	389
450.soplex	63	**5667**	**92.7**	5699	92.2	5662	92.8	32	**2716**	**98.2**	2717	98.2	2711	98.4
453.povray	63	**865**	**387**	863	388	871	385	63	613	547	**655**	**512**	660	508
454.calculix	63	1204	432	**1195**	**435**	1179	441	63	1204	432	**1195**	**435**	1179	441
459.GemsFDTD	63	7208	92.7	7220	92.6	**7215**	**92.6**	32	3606	94.2	3598	94.4	**3600**	**94.3**
465.tonto	63	2314	268	**2311**	**268**	2292	270	63	2220	279	2177	285	**2198**	**282**
470.lbm	63	**8800**	**98.4**	8800	98.4	8800	98.4	1	97.1	142	**97.1**	**142**	97.1	141
481.wrf	63	3641	193	**3654**	**193**	3672	192	32	**1769**	**202**	1774	202	1769	202
482.sphinx3	63	9138	134	**9176**	**134**	9337	132	63	**8757**	**140**	8752	140	8788	140

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
```

Submit Notes

```
Processes were assigned to specific processors using 'pbind' commands.  The
config file option 'submit' was used, along with a list of processors in the
'BIND' variable, to generate the pbind commands.  (For details, please see
the config file.)
```

Operating System Notes

```
Environment Variable Settings:

The maximum number of threads a program can create was set with:
    OMP_NUM_THREADS=63

Program threads were bound to processors with:
    SUNW_MP_PROCBIND="1-63"

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.

ulimit -s 131072 was used to limit the space consumed
    by the stack (making more space available for the heap)

System Tunables (/etc/system parameters):

tune_t_fsflushr=10
    Controls how many seconds elapse between runs of the
    page flush daemon, fsflush.
autoup=600
    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=1
    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 M5000 Server.
Note that the Sun SPARC Enterprise M5000 and Fujitsu SPARC Enterprise
M5000 are electrically equivalent.
```

Base Compiler Invocation

C benchmarks:
`cc`

C++ benchmarks:
`CC`

Fortran benchmarks:
`f90`

Benchmarks using both Fortran and C:
`cc f90`

Base Optimization Flags

C benchmarks:
`-fast -fma=fused -xipo=2 -xpagesize=4M -xprefetch_level=1`
`-xalias_level=std -xprefetch_auto_type=indirect_array_access`

C++ benchmarks:
`-xdepend -library=stlport4 -fast -fma=fused -xipo=2 -xpagesize=4M`
`-xprefetch_level=1 -xalias_level=compatible`

Fortran benchmarks:
`-fast -fma=fused -xipo=2 -xpagesize=4M -xprefetch_level=1`

Benchmarks using both Fortran and C:
`-fast`(cc) `-fast`(f90) `-fma=fused -xipo=2 -xpagesize=4M`
`-xprefetch_level=1 -xalias_level=std`
`-xprefetch_auto_type=indirect_array_access`

Base Other Flags

C benchmarks:
`-xjobs=16 -V -#`

C++ benchmarks:
`-xjobs=16 -verbose=diags,version`

Fortran benchmarks:
`-xjobs=16 -V -v`

Benchmarks using both Fortran and C:
`-xjobs=16 -V -# -v`

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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 -xpagesize=4M -xipo=2 -xprefetch_level=2 -fsimple=1 -xprefetch_auto_type=indirect_array_access -W2,-Ainline:rs=400 -xalias_level=std -fma=fused`

470.lbm: `-fast -xpagesize=4M -xprefetch_level=3 -xipo=2 -fma=fused -xvector -xarch=generic -xautopar -xreduction`

482.sphinx3: `-xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=4M -xinline= -xprefetch=no -xalias_level=strong -fma=fused -lfast -ll2amm`

C++ benchmarks:

444.namd: `-xdepend -library=stlport4 -fast -xpagesize=4M -xalias_level=compatible -xprefetch_level=1 -fma=fused`

447.dealII: `-xdepend -library=stlport4 -xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=4M -xalias_level=compatible -xipo=2 -xrestrict -fma=fused`

450.soplex: `-xdepend -library=stlport4 -xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=4M -xalias_level=compatible -xipo=2 -xprefetch=no -fsimple=0 -xrestrict`

453.povray: `Same as 447.dealII`

Fortran benchmarks:

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Peak Optimization Flags (Continued)

410.bwaves: -fast -xpagesize=4M -xipo=2 -xprefetch_level=2 -fma=fused

416.gamess: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -xipo=2 -xprefetch_level=2 -fma=fused

434.zeusmp: basepeak = yes

437.leslie3d: -fast -xpagesize=4M -xprefetch=no

459.GemsFDTD: -fast -xpagesize=4M -fsimple=1 -xprefetch=no -fma=fused

465.tonto: -fast -xpagesize=4M -xipo=2 -lfast -ll2amm

Benchmarks using both Fortran and C:

435.gromacs: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90) -xpagesize=4M -xipo=2 -xinline= -xchip=generic -fsimple=0 -fma=fused

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90) -xpagesize=4M -xipo=2 -xprefetch_level=2

Peak Other Flags

C benchmarks:
-xjobs=16 -V -#

C++ benchmarks:
-xjobs=16 -verbose=diags,version

Fortran benchmarks:
-xjobs=16 -V -v

Benchmarks using both Fortran and C:
-xjobs=16 -V -# -v

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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