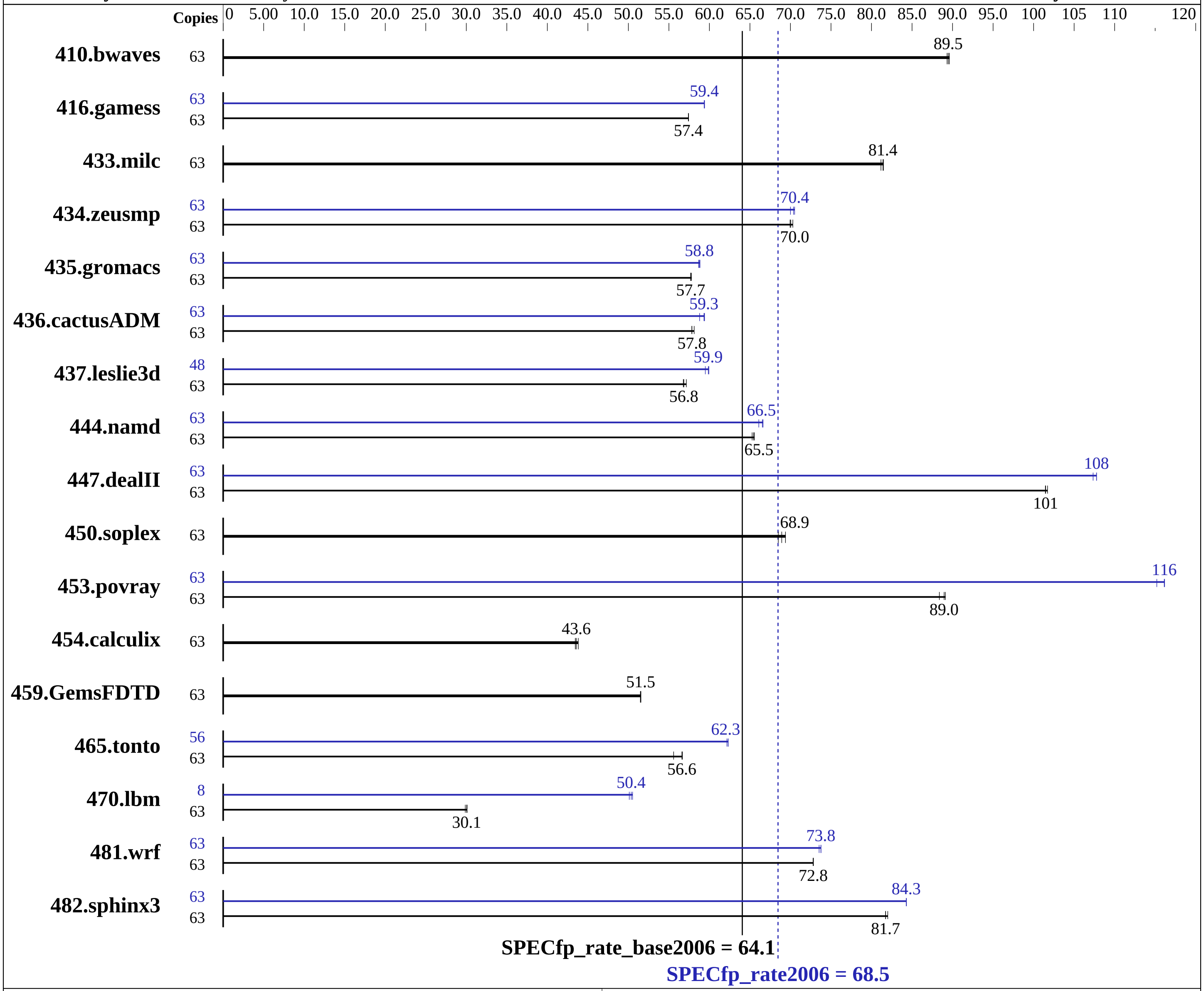
SPEC® CFP2006 Result

Sun Microsystems
Sun Blade T6320

SPECfp®_rate2006 = 68.5

SPECfp_rate_base2006 = 64.1

CPU2006 license: 6		**Test date:**	Jan-2009
Test sponsor:	Sun Microsystems	**Hardware Availability:**	Jul-2009
Tested by:	Sun Microsystems	**Software Availability:**	Nov-2008



Hardware

CPU Name:	UltraSPARC T2
CPU Characteristics:	
CPU MHz:	1582
FPU:	Integrated
CPU(s) enabled:	8 cores, 1 chip, 8 cores/chip, 8 threads/core
CPU(s) orderable:	1 chips
Primary Cache:	16 KB I + 8 KB D on chip per core
Secondary Cache:	4 MB I+D on chip per chip

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Software

Operating System:	Solaris 10 10/08
Compiler:	Sun Studio 12 and gccfss V4.2.1 (see additional detail below)
Auto Parallel:	No
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: 64 GB (16 x 4 GB)
Disk Subsystem: 1 x 146 GB Sun 10K RPM SAS
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	9585	89.3	9555	89.6	**9569**	**89.5**	63	9585	89.3	9555	89.6	**9569**	**89.5**
416.gamess	63	**21485**	**57.4**	21483	57.4	21491	57.4	63	**20779**	**59.4**	20781	59.4	20767	59.4
433.milc	63	7098	81.5	**7104**	**81.4**	7126	81.2	63	7098	81.5	**7104**	**81.4**	7126	81.2
434.zeusmp	63	**8185**	**70.0**	8195	70.0	8156	70.3	63	8130	70.5	**8146**	**70.4**	8190	70.0
435.gromacs	63	7785	57.8	**7796**	**57.7**	7798	57.7	63	7667	58.7	7646	58.8	**7656**	**58.8**
436.cactusADM	63	12954	58.1	13018	57.8	**13014**	**57.8**	63	12675	59.4	12806	58.8	**12689**	**59.3**
437.leslie3d	63	10430	56.8	**10417**	**56.8**	10362	57.2	48	7584	59.5	**7538**	**59.9**	7529	59.9
444.namd	63	7741	65.3	**7720**	**65.5**	7709	65.5	63	7645	66.1	**7595**	**66.5**	7584	66.6
447.dealII	63	7085	102	7104	101	**7101**	**101**	63	6714	107	6688	108	**6688**	**108**
450.soplex	63	**7623**	**68.9**	7572	69.4	7671	68.5	63	**7623**	**68.9**	7572	69.4	7671	68.5
453.povray	63	3761	89.1	**3768**	**89.0**	3793	88.4	63	2885	116	**2886**	**116**	2909	115
454.calculix	63	**11927**	**43.6**	11962	43.5	11862	43.8	63	**11927**	**43.6**	11962	43.5	11862	43.8
459.GemsFDTD	63	12967	51.5	**12974**	**51.5**	12984	51.5	63	12967	51.5	**12974**	**51.5**	12984	51.5
465.tonto	63	**10952**	**56.6**	11152	55.6	10940	56.7	56	8842	62.3	**8843**	**62.3**	8865	62.2
470.lbm	63	28972	29.9	28759	30.1	**28802**	**30.1**	8	2176	50.5	**2183**	**50.4**	2194	50.1
481.wrf	63	**9664**	**72.8**	9668	72.8	9662	72.8	63	**9542**	**73.8**	9570	73.5	9540	73.8
482.sphinx3	63	15022	81.7	**15020**	**81.7**	14973	82.0	63	14568	84.3	**14568**	**84.3**	14565	84.3

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
The tested configuration included patch 124867-08, 124861-09,
124863-08, 127000-06

Peak also uses "GCC for SPARC Systems 4.2.1", which
combines gcc with the Sun Code Generator for SPARC
systems.  It is invoked as "gcc", and accepts source
code compatible with GCC 4.2.
For more information, including support, see
     http://cooltools.sunsource.net/gcc/
```

Submit Notes

```
A processor set was created using
  psrset -c 1-63
and the runspec process was placed into the set using
  psrset -e 1
The config file option 'submit' was used to select specific
processors within the set, along with the pbind command.
```

Operating System Notes

```
ulimit -s 131072 was used to allow the stack to grow
up to 131072 KB (aka 128 MB).  Note that saying "131072"
is preferable to "unlimited", because there is a tradeoff
between space for the stack vs. space for the heap.


/etc/system parameters
   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
   tune_t_fsflushr=10
      Controls how many seconds elapse between runs of the
      page flush daemon, fsflush.
   tsb_rss_factor=128
      Suggests that the the size of the TSB (Translation Storage Buffer)
      may be increased if it is more than 25% (128/512) full.  Doing so
      may reduce TSB traps, at the cost of additional kernel memory.

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

The system had 68 GB of swap space.
```

Base Compiler Invocation

C benchmarks:
    cc

C++ benchmarks:
    CC

Fortran benchmarks:
    f90

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Base Compiler Invocation (Continued)

Benchmarks using both Fortran and C:
    cc f90

Base Optimization Flags

C benchmarks:
    -g -fast -xipo=2 -xpagesize=4M -xprefetch_level=2 -xalias_level=std
    -xprefetch_level=3 -xprefetch_auto_type=indirect_array_access
    -M /usr/lib/ld/map.bssalign

C++ benchmarks:
    -g0 -library=stlport4 -fast -xipo=2 -xpagesize=4M -xprefetch_level=2
    -xdepend -xalias_level=compatible -M /usr/lib/ld/map.bssalign

Fortran benchmarks:
    -g -fast -xipo=2 -xpagesize=4M -xprefetch_level=2
    -M /usr/lib/ld/map.bssalign

Benchmarks using both Fortran and C:
    -g -fast(cc) -fast(f90) -xipo=2 -xpagesize=4M -xprefetch_level=2
    -xalias_level=std -xprefetch_level=3
    -xprefetch_auto_type=indirect_array_access -M /usr/lib/ld/map.bssalign

Base Other Flags

C benchmarks:
    -xjobs=32 -V -#

C++ benchmarks:
    -xjobs=32 -verbose=diags,version

Fortran benchmarks:
    -xjobs=32 -V -v

Benchmarks using both Fortran and C:
    -xjobs=32 -V -# -v

Peak Compiler Invocation

C benchmarks:
    cc

C++ benchmarks (except as noted below):
    CC

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Peak Compiler Invocation (Continued)

447.dealII: `g++`

Fortran benchmarks:
`f90`

Benchmarks using both Fortran and C:
`cc f90`

Peak Optimization Flags

C benchmarks:

433.milc: `basepeak = yes`

470.lbm: `-g -xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=4M -M /usr/lib/ld/map.bssalign -xprefetch_level=3 -xipo=2 -xrestrict`

482.sphinx3: `-g -xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=4M -M /usr/lib/ld/map.bssalign -xinline= -xprefetch_level=2 -Wc,-Qlp-ol=1 -xrestrict -xalias_level=strong -fsimple=1 -xlinkopt=2 -lfast`

C++ benchmarks:

444.namd: `-g0 -library=stlport4 -xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=4M -xdepend -xalias_level=compatible -M /usr/lib/ld/map.bssalign -xprefetch_level=1 -xlinkopt=2`

447.dealII: `-xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=4M -xdepend -Wl,-M,/usr/lib/ld/map.bssalign -xipo=2 -xrestrict -xalias_level=std`

450.soplex: `basepeak = yes`

453.povray: `-g0 -library=stlport4 -xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=64K -xdepend -xalias_level=compatible -xipo=2 -xrestrict -xlinkopt=2`

Fortran benchmarks:

410.bwaves: `basepeak = yes`

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Peak Optimization Flags (Continued)

416.gamess: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-M /usr/lib/ld/map.bssalign -xlinkopt=2

434.zeusmp: -g -fast -xpagesize=4M -M /usr/lib/ld/map.bssalign -xipo=1
-qoption cg -Qeps:enabled=1 -qoption cg -Qeps:ws=8 -lmopt

437.leslie3d: -g -fast -xpagesize_heap=4M -xpagesize_stack=64K
-M /usr/lib/ld/map.bssalign -xprefetch_level=3
-xprefetch=latx:1.6 -qoption cg -Qlp=1 -qoption cg -Qlp-fa=0
-qoption cg -Qlp-fl=1 -qoption cg -Qlp-av=448
-qoption cg -Qlp-t=4

459.GemsFDTD: basepeak = yes

465.tonto: -g -fast -xpagesize=4M -M /usr/lib/ld/map.bssalign -xipo=2
-lfast

Benchmarks using both Fortran and C:

435.gromacs: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
-xpagesize=4M -M /usr/lib/ld/map.bssalign -xipo=1 -xinline=
-xarch=generic -xchip=generic -fsimple=0

436.cactusADM: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
-xpagesize=4M -M /usr/lib/ld/map.bssalign -xipo=2
-fsimple=1 -xlinkopt=2

454.calculix: basepeak = yes

481.wrf: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
-xpagesize=4M -M /usr/lib/ld/map.bssalign -xlinkopt=2

Peak Other Flags

C benchmarks:
-xjobs=32 -V -#

C++ benchmarks (except as noted below):
-xjobs=32 -verbose=diags,version

447.dealII: -v

Fortran benchmarks:
-xjobs=32 -V -v

Continued on next page

Peak Other Flags (Continued)

Benchmarks using both Fortran and C:
`-xjobs=32 -V -# -v`

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12-12u1-and-gccfss4.2.r3.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12-12u1-and-gccfss4.2.r3.xml

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

Tested with SPEC CPU2006 v1.1.
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