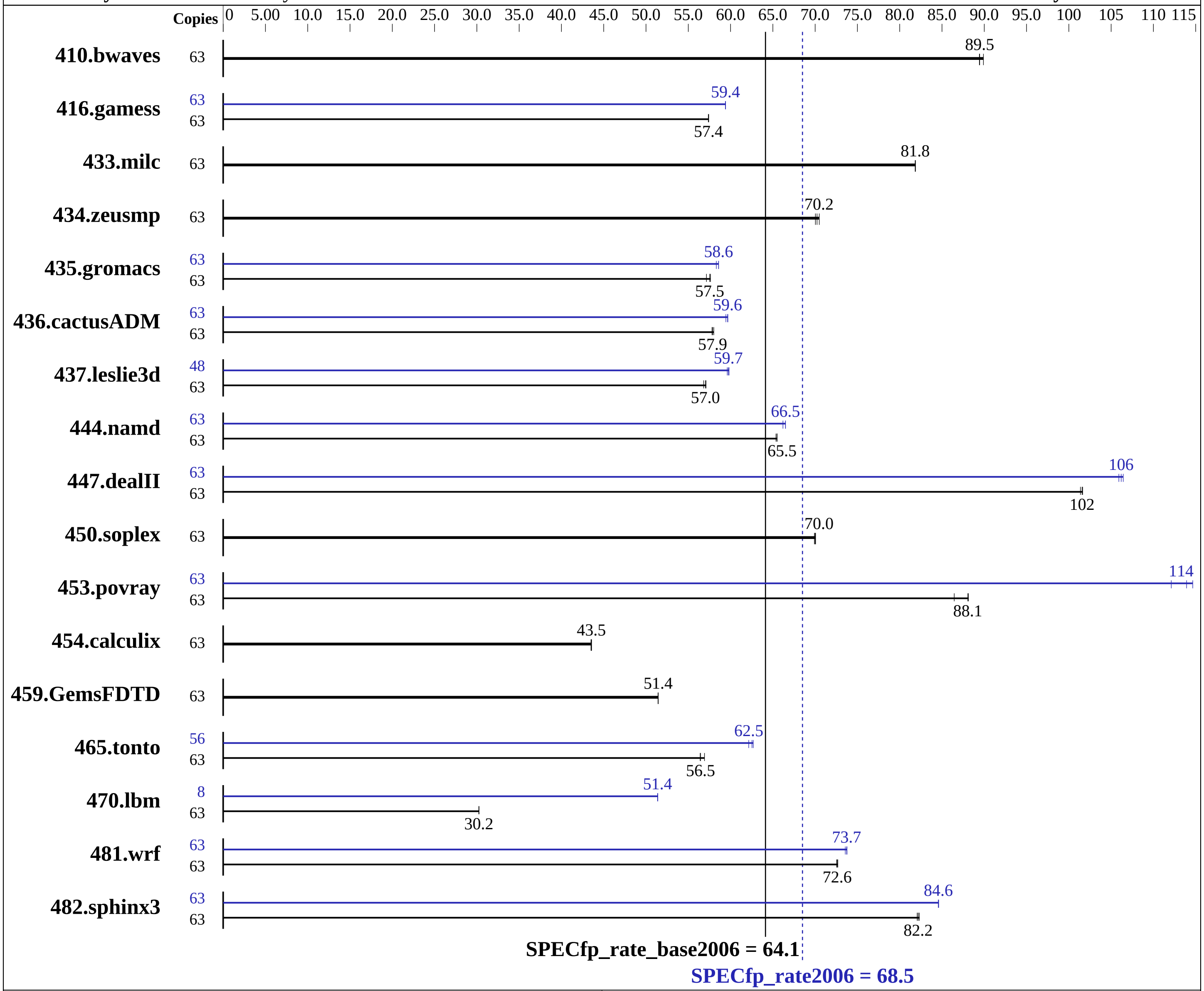
SPEC® CFP2006 Result

Sun Microsystems
Sun SPARC Enterprise T5120

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: 142 GB Solaris Volume Manager RAID 0 on 4x 72 GB Sun 10K RPM SAS block size 384 KB
Other Hardware: None

Other Software: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	63	9523	89.9	9574	89.4	**9571**	**89.5**	63	9523	89.9	9574	89.4	**9571**	**89.5**
416.gamess	63	21500	57.4	21484	57.4	**21495**	**57.4**	63	20761	59.4	**20765**	**59.4**	20767	59.4
433.milc	63	**7066**	**81.8**	7067	81.8	7064	81.9	63	**7066**	**81.8**	7067	81.8	7064	81.9
434.zeusmp	63	8186	70.0	8133	70.5	**8164**	**70.2**	63	8186	70.0	8133	70.5	**8164**	**70.2**
435.gromacs	63	7806	57.6	**7818**	**57.5**	7871	57.1	63	**7679**	**58.6**	7677	58.6	7713	58.3
436.cactusADM	63	12977	58.0	13023	57.8	**13005**	**57.9**	63	12664	59.4	**12622**	**59.6**	12614	59.7
437.leslie3d	63	10422	56.8	**10384**	**57.0**	10372	57.1	48	7569	59.6	**7553**	**59.7**	7543	59.8
444.namd	63	7729	65.4	7713	65.5	**7714**	**65.5**	63	**7598**	**66.5**	7633	66.2	7598	66.5
447.dealII	63	**7096**	**102**	7110	101	7091	102	63	6805	106	**6787**	**106**	6772	106
450.soplex	63	7515	69.9	7500	70.1	**7506**	**70.0**	63	7515	69.9	7500	70.1	**7506**	**70.0**
453.povray	63	3877	86.4	3803	88.1	**3806**	**88.1**	63	2989	112	**2942**	**114**	2923	115
454.calculix	63	11931	43.6	11950	43.5	**11936**	**43.5**	63	11931	43.6	11950	43.5	**11936**	**43.5**
459.GemsFDTD	63	12996	51.4	12993	51.4	**12994**	**51.4**	63	12996	51.4	12993	51.4	**12994**	**51.4**
465.tonto	63	10891	56.9	**10981**	**56.5**	10990	56.4	56	8791	62.7	**8812**	**62.5**	8867	62.1
470.lbm	63	**28620**	**30.2**	28613	30.3	28627	30.2	8	**2139**	**51.4**	2139	51.4	2140	51.4
481.wrf	63	**9690**	**72.6**	9700	72.5	9682	72.7	63	9540	73.8	9566	73.6	**9544**	**73.7**
482.sphinx3	63	14916	82.3	**14940**	**82.2**	14961	82.1	63	**14518**	**84.6**	14512	84.6	14518	84.6

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 75 GB of swap space.
```

Platform Notes

```
This result was measured on a Sun SPARC Enterprise
T5220.  All of these are electronically equivalent:
  - Sun SPARC Enterprise T5120
  - Sun SPARC Enterprise T5220
  - Fujitsu SPARC Enterprise T5120
  - Fujitsu SPARC Enterprise T5220
A SPARC Enterprise 5120 can hold up to 4 disks, and a
5220 can hold up to 8.  This system was tested with 4
disks; therefore, this result applies to both the 5120
and the 5220.
```

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:
`-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`

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`

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Peak Optimization Flags (Continued)

Fortran benchmarks:

410.bwaves: `basepeak = yes`

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: `basepeak = yes`

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`

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Peak Other Flags (Continued)

447.dealII: -v

Fortran benchmarks:
-xjobs=32 -V -v

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.

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