SPEC® CFP2006 Result

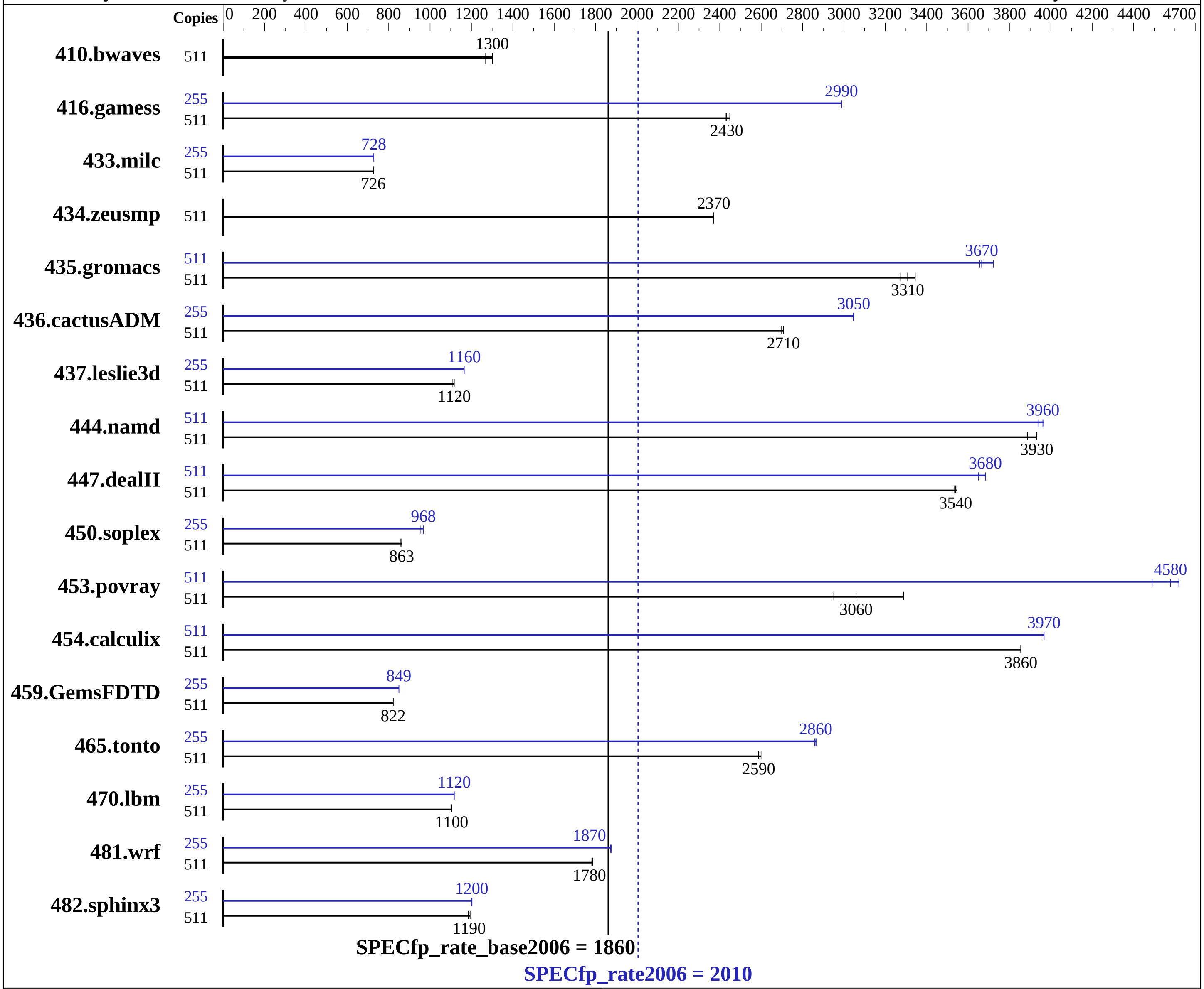
Sun Microsystems
Sun SPARC Enterprise M9000

SPECfp®_rate2006 = 2010

SPECfp_rate_base2006 = 1860

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

Test date: Jul-2008
Hardware Availability: Jul-2008
Software Availability: Jul-2008



Hardware

CPU Name:	SPARC64 VII
CPU Characteristics:	
CPU MHz:	2520
FPU:	Integrated
CPU(s) enabled:	256 cores, 64 chips, 4 cores/chip, 2 threads/core
CPU(s) orderable:	1 to 16 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:	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: 1 TB (512 x 2 GB)
Disk Subsystem: 12 TB RAID 0 Solaris Volume
24 x 500 GB 15000 RPM disk
Stripe interlace size 128Kbytes
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	511	5485	1270	5337	1300	**5338**	**1300**	511	5485	1270	5337	1300	**5338**	**1300**
416.gamess	511	4117	2430	**4112**	**2430**	4087	2450	255	**1671**	**2990**	1671	2990	1670	2990
433.milc	511	6463	726	**6464**	**726**	6464	726	255	3215	728	**3215**	**728**	3215	728
434.zeusmp	511	1961	2370	**1961**	**2370**	1964	2370	511	1961	2370	**1961**	**2370**	1964	2370
435.gromacs	511	1091	3340	1114	3270	**1103**	**3310**	511	998	3660	980	3720	**995**	**3670**
436.cactusADM	511	2264	2700	2255	2710	**2255**	**2710**	255	1000	3050	**1000**	**3050**	1001	3050
437.leslie3d	511	**4303**	**1120**	4300	1120	4327	1110	255	2059	1160	2057	1170	**2058**	**1160**
444.namd	511	1054	3890	1042	3930	**1042**	**3930**	511	1034	3960	**1035**	**3960**	1041	3940
447.dealII	511	**1651**	**3540**	1654	3530	1649	3550	511	1602	3650	1587	3680	**1587**	**3680**
450.soplex	511	4964	859	4928	865	**4940**	**863**	255	2227	955	2197	968	**2198**	**968**
453.povray	511	**889**	**3060**	827	3290	921	2950	511	605	4490	**594**	**4580**	589	4620
454.calculix	511	**1094**	**3860**	1094	3850	1093	3860	511	1062	3970	**1063**	**3970**	1063	3970
459.GemsFDTD	511	6599	822	**6598**	**822**	6595	822	255	3185	850	**3185**	**849**	3186	849
465.tonto	511	1944	2590	**1943**	**2590**	1934	2600	255	878	2860	876	2870	**876**	**2860**
470.lbm	511	6357	1100	**6358**	**1100**	6360	1100	255	3136	1120	3138	1120	**3138**	**1120**
481.wrf	511	**3200**	**1780**	3197	1790	3204	1780	255	1522	1870	1519	1880	**1520**	**1870**
482.sphinx3	511	8342	1190	8403	1190	**8377**	**1190**	255	4139	1200	**4137**	**1200**	4131	1200

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:

export LD_PRELOAD=mpss.so.1:madv.so.1
export MPSSHEAP=4MB
export MPSSSTACK=4MB
    Requests system to use 4 MB pages when possible.
export MADV access_lwp
    access_lwp requests that the next light weight process to touch
    the specified address range will access it most heavily.
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):

autoup=200
    Causes pages older than the listed number of seconds to
    be written by fsflush.
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

The SPEC toolset was bound to processors 1-511 using processor sets:
    psrset -c 1-511
    psrset -e 1 ksh
```

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 M9000 Server.
Note that the Sun SPARC Enterprise M9000 and Fujitsu SPARC Enterprise
M9000 are electrically equivalent.
```

Base Compiler Invocation

C benchmarks:
    cc

C++ benchmarks:
    CC

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Base Compiler Invocation (Continued)

Fortran benchmarks:
`f90`

Benchmarks using both Fortran and C:
`cc f90`

Base Optimization Flags

C benchmarks:
`-fast -xipo=2 -xpagesize=4M -xprefetch_level=1 -fma=fused -xalias_level=std -xprefetch_auto_type=indirect_array_access -ll2amm`

C++ benchmarks:
`-library=stlport4 -fast -xipo=2 -xpagesize=4M -xprefetch_level=1 -fma=fused -xalias_level=compatible -ll2amm`

Fortran benchmarks:
`-fast -xipo=2 -xpagesize=4M -xprefetch_level=1 -fma=fused -ll2amm`

Benchmarks using both Fortran and C:
`-fast`(cc) `-fast`(f90) `-xipo=2 -xpagesize=4M -xprefetch_level=1 -fma=fused -xalias_level=std -xprefetch_auto_type=indirect_array_access -ll2amm`

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 -xpagesize=4M -fma=fused -xalias_level=strong -xprefetch_level=2 -xprefetch_auto_type=indirect_array_access -xprefetch=latx:5`

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Peak Optimization Flags (Continued)

433.milc (continued):
-ll2amm

470.lbm: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xrestrict -xipo=2
-xprefetch_level=2 -xarch=v8plusb -ll2amm

482.sphinx3: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xpagesize=4M -fma=fused -xinline= -xalias_level=strong
-xprefetch_level=2 -lfast -ll2amm

C++ benchmarks:

444.namd: -library=stlport4 -fast -xipo=2 -xpagesize=4M -fma=fused
-xdepend -xalias_level=compatible -xprefetch_level=1
-xprefetch=latx:0.5 -ll2amm

447.dealII: -library=stlport4 -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xpagesize=4M -fma=fused -xdepend -xalias_level=compatible
-xrestrict -xprefetch=no -ll2amm

450.soplex: -library=stlport4 -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xpagesize=4M -fma=fused -xdepend -xalias_level=compatible
-fsimple=0 -xrestrict -xprefetch=no -ll2amm

453.povray: -library=stlport4 -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xpagesize=4M -fma=fused -xdepend -xalias_level=compatible
-xprefetch=latx:5.0 -ll2amm

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xpagesize=4M -fma=fused -xprefetch_level=1 -ll2amm

434.zeusmp: basepeak = yes

437.leslie3d: -fast -xipo=2 -xpagesize=4M -fma=fused -xprefetch=latx:5.0
-ll2amm

459.GemsFDTD: -fast -xipo=2 -xpagesize=4M -fma=fused -fsimple=1
-xprefetch=no -ll2amm

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Peak Optimization Flags (Continued)

465.tonto: -fast -xipo=2 -xpagesize=4M -fma=fused -xprefetch=no -lfast -ll2amm

Benchmarks using both Fortran and C:

435.gromacs: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90) -xipo=2 -xpagesize=4M -fma=fused -fsimple=0 -xprefetch=latx:0.5 -xarch=generic -xchip=generic

436.cactusADM: -fast(cc) -fast(f90) -xipo=2 -xpagesize=4M -fma=fused -ll2amm

454.calculix: -fast(cc) -fast(f90) -xipo=2 -xpagesize=4M -fma=fused -xprefetch=latx:3.0 -ll2amm

481.wrf: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90) -xipo=2 -xpagesize=4M -fma=fused -xprefetch=no -ll2amm

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12-and-gccfss4.2.20090713.00.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12-and-gccfss4.2.20090713.00.xml

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

Tested with SPEC CPU2006 v1.1.
Report generated on Tue Jul 22 18:47:26 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 5 August 2008.