SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

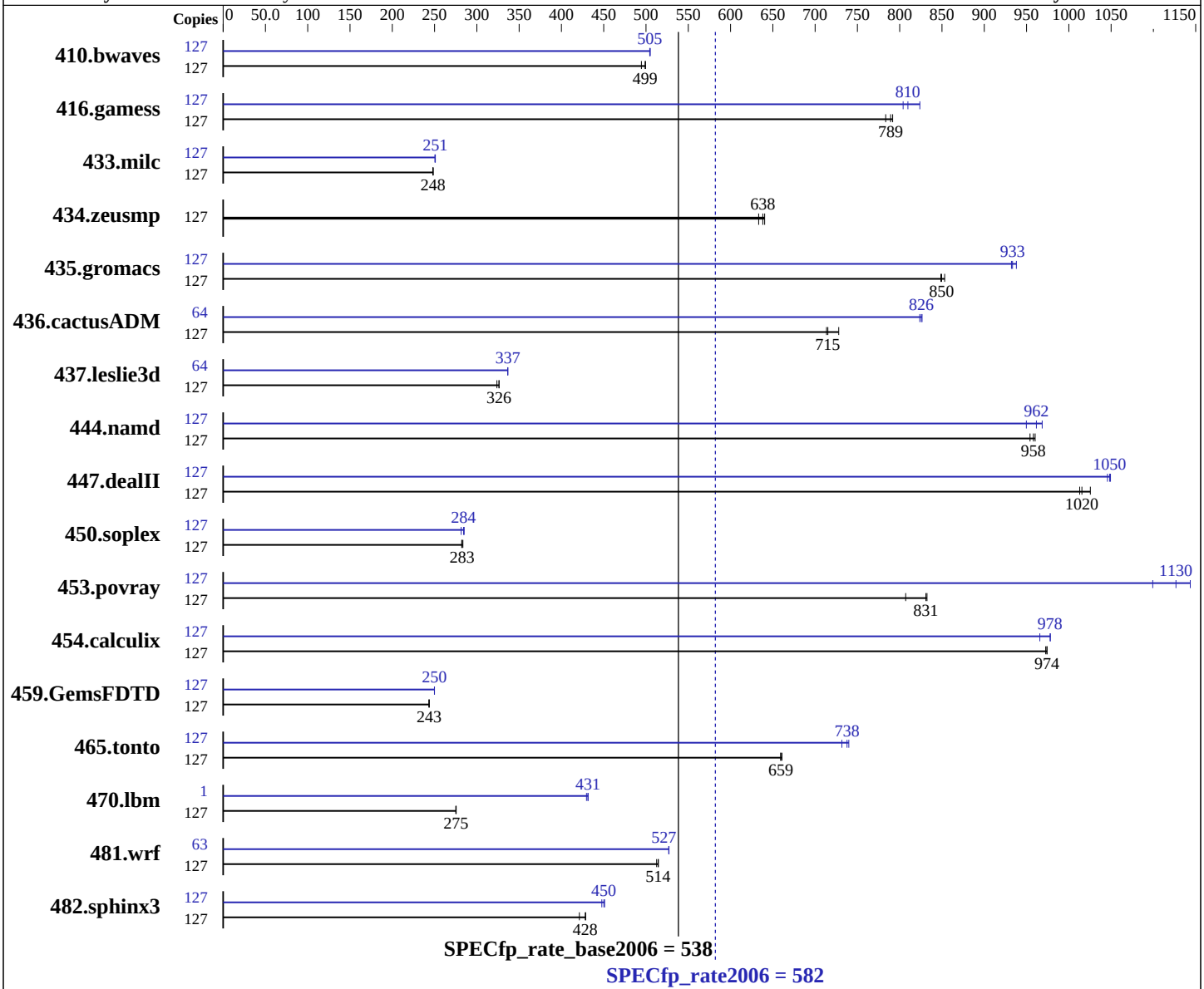
Sun Microsystems
Sun SPARC Enterprise M8000

SPECfp®_rate2006 = 582

SPECfp_rate_base2006 = 538

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

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

Continued on next page

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:	32/64-bit

Continued on next page

SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Sun Microsystems
Sun SPARC Enterprise M8000

SPECfp_rate2006 = 582

SPECfp_rate_base2006 = 538

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

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

L3 Cache: None
Other Cache: None
Memory: 256 GB (128 x 2 GB)
Disk Subsystem: 805 GB RAID 0 Solaris Volume
12 x Fujitsu 73 GB 10000 RPM SAS
Stripe interlace size 512 Kbytes
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	127	3490	495	**3459**	**499**	3455	499	127	3417	505	**3420**	**505**	3422	504
416.gamess	127	3174	783	3141	792	**3150**	**789**	127	**3071**	**810**	3093	804	3018	824
433.milc	127	**4700**	**248**	4703	248	4692	248	127	4655	250	**4651**	**251**	4646	251
434.zeusmp	127	1825	633	**1811**	**638**	1805	640	127	1825	633	**1811**	**638**	1805	640
435.gromacs	127	**1067**	**850**	1063	853	1068	849	127	**971**	**933**	967	938	973	932
436.cactusADM	127	**2122**	**715**	2085	728	2127	713	64	925	826	928	824	**926**	**826**
437.leslie3d	127	**3660**	**326**	3659	326	3688	324	64	1788	336	1787	337	**1788**	**337**
444.namd	127	1068	954	**1063**	**958**	1061	960	127	1072	950	**1059**	**962**	1052	969
447.dealII	127	**1431**	**1020**	1417	1030	1434	1010	127	**1386**	**1050**	1389	1050	1385	1050
450.soplex	127	**3749**	**283**	3755	282	3736	284	127	3763	281	**3725**	**284**	3716	285
453.povray	127	812	832	**813**	**831**	837	807	127	**600**	**1130**	591	1140	615	1100
454.calculix	127	**1076**	**974**	1076	974	1077	973	127	1071	978	1085	966	**1071**	**978**
459.GemsFDTD	127	5530	244	5536	243	**5534**	**243**	127	**5393**	**250**	5394	250	5392	250
465.tonto	127	1891	661	**1895**	**659**	1895	659	127	**1694**	**738**	1708	732	1689	740
470.lbm	127	6334	276	6344	275	**6334**	**275**	1	32.0	430	**31.9**	**431**	31.8	432
481.wrf	127	2768	513	**2758**	**514**	2757	515	63	1335	527	1335	527	**1335**	**527**
482.sphinx3	127	5774	429	5876	421	**5781**	**428**	127	5528	448	**5498**	**450**	5487	451

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=127

Program threads were bound to processors with:
    SUNW_MP_PROCBIND="1-127"

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

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

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 -xipo=2 -xprefetch=latx:0.1 -m64 -xvector
-xalias_level=strong -xprefetch_level=3
-xprefetch_auto_type=indirect_array_access -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

C++ benchmarks:

444.namd: -xdepend -library=stlport4 -fast -xpagesize=4M
-xalias_level=compatible -fma=fused -xprefetch=latx:7

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

Continued on next page

Peak Optimization Flags (Continued)

Fortran benchmarks:

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 -fma=fused -xipo=2 -xprefetch=latx:4
-xprefetch_level=2

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

465.tonto: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-xipo=2 -xprefetch=no -xarch=generic -lfast

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 -xarch=generic -xchip=generic
-fsimple=0 -xunroll=5 -xprefetch=latx:0.5

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

454.calculix: -fast(cc) -fast(f90) -xpagesize=4M -xipo=2
-xprefetch_level=3 -fma=fused -xprefetch=latx:3.0
-xalias_level=std

481.wrf: -fast(cc) -fast(f90) -xpagesize=4M -xipo=2
-xprefetch_level=3 -fma=fused -xunroll=8

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

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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 18:54:06 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 5 August 2008.