



SPEC[®] CFP2006 Result

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Sun Microsystems

SPECfp[®]_rate2006 = 223

Sun SPARC Enterprise M5000

SPECfp_rate_base2006 = 208

CPU2006 license: 6

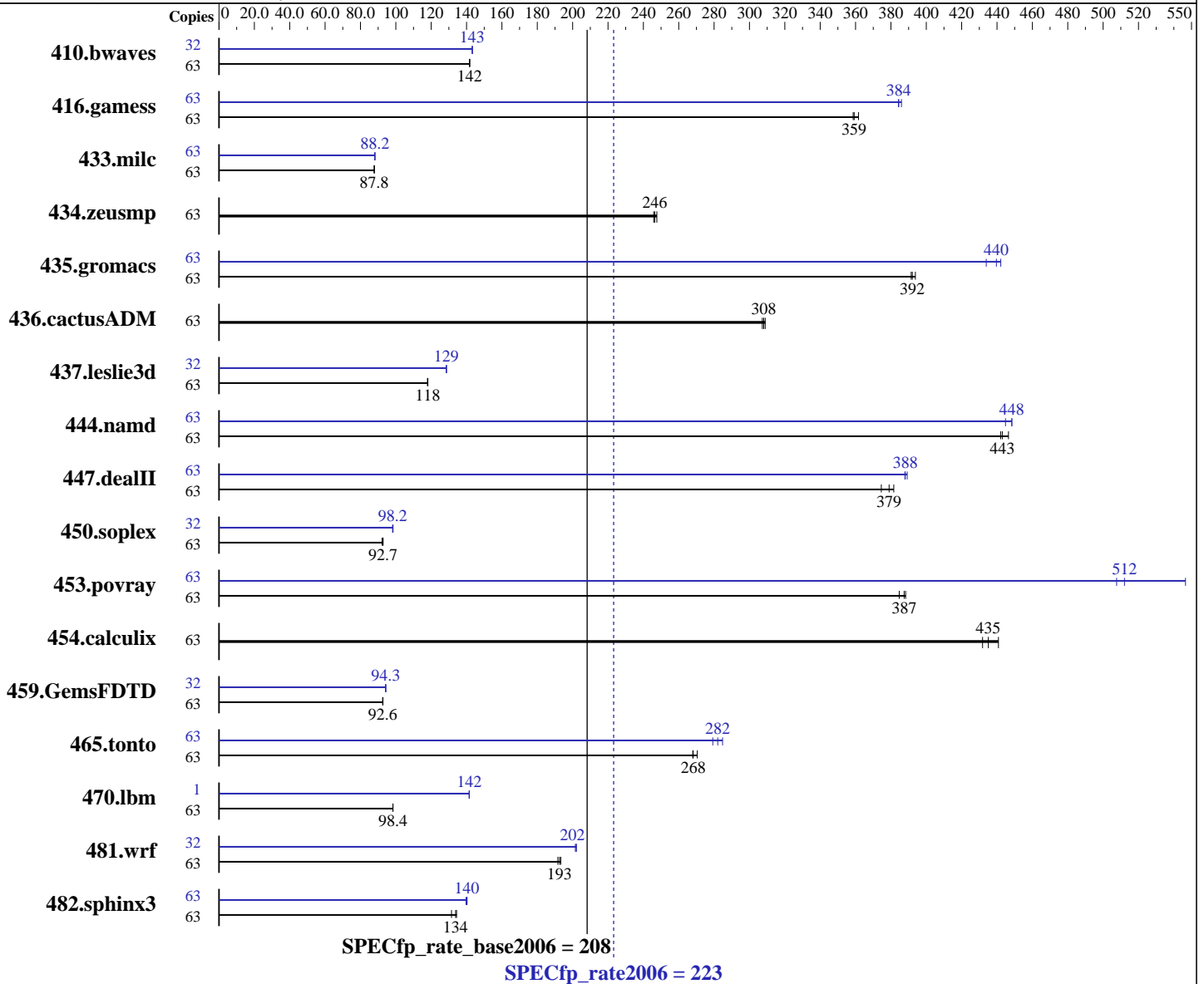
Test date: Jun-2008

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

Benchmark	Base							Peak						
	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.)



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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.



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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 -l12amm

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>



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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>

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For other inquiries, please contact webmaster@spec.org.

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