



SPEC[®] CFP2006 Result

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Fujitsu Limited

SPECfp[®]_rate2006 = 1110

Fujitsu SPARC Enterprise M9000

SPECfp_rate_base2006 = 1060

CPU2006 license: 19

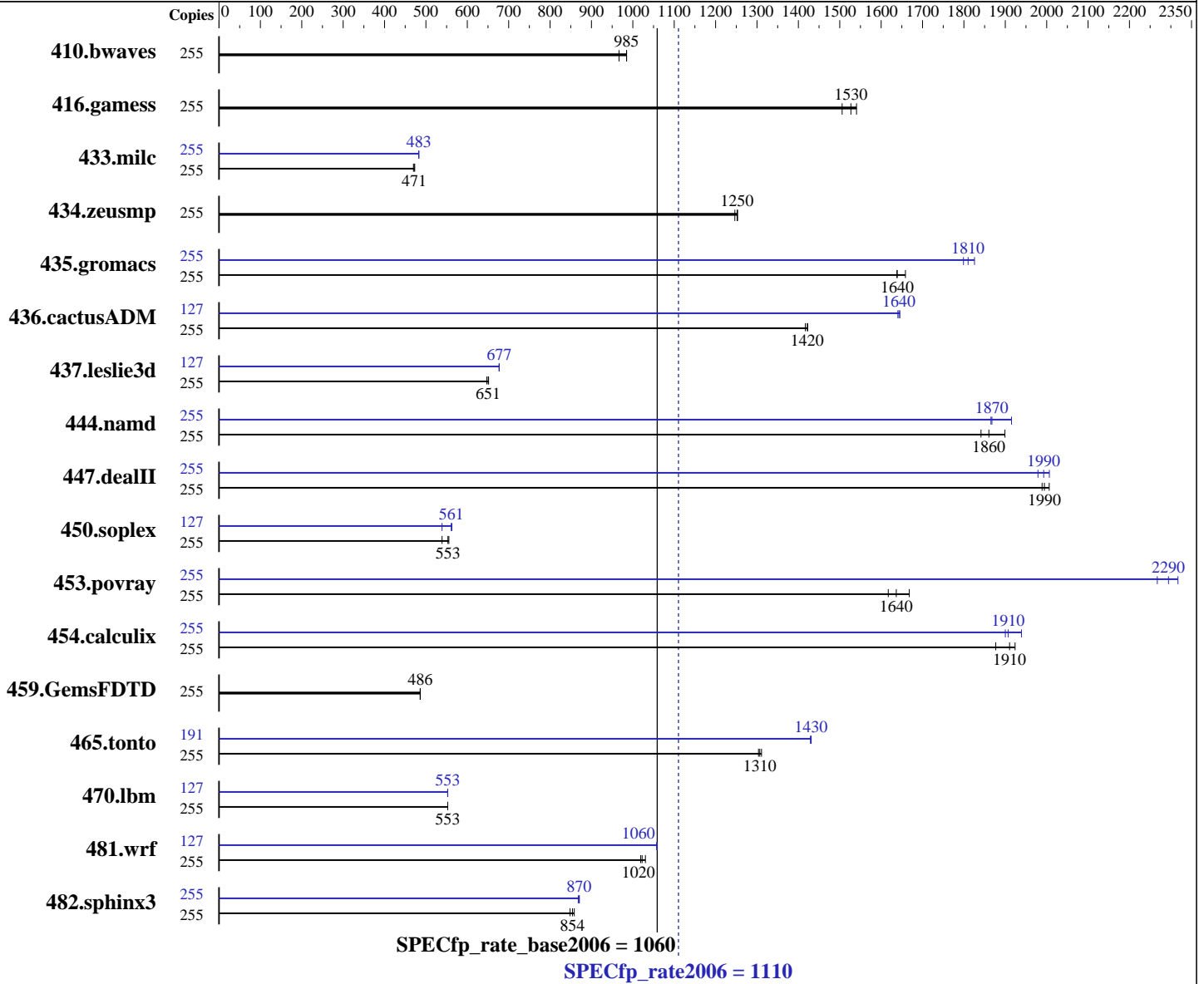
Test date: Jul-2008

Test sponsor: Fujitsu Limited

Hardware Availability: Jul-2008

Tested by: Fujitsu Limited

Software Availability: Jul-2008



Hardware

CPU Name: SPARC64 VII
 CPU Characteristics:
 CPU MHz: 2520
 FPU: Integrated
 CPU(s) enabled: 128 cores, 32 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

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: No
 File System: ufs
 System State: Default
 Base Pointers: 32-bit
 Peak Pointers: 32-bit

Continued on next page



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L3 Cache: None
 Other Cache: None
 Memory: 512 GB (256 x 2 GB)
 Disk Subsystem: OS disk: 1 x 72 GB 10000 RPM disk Seagate Savvio
 EX.disk: 864 GB RAID 0 Solaris Volume
 12 x 72 GB 10000 RPM disk
 Stripe interlace size 786 blocks
 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	255	3585	967	<u>3519</u>	<u>985</u>	3518	985	255	3585	967	<u>3519</u>	<u>985</u>	3518	985
416.gamess	255	3241	1540	<u>3270</u>	<u>1530</u>	3316	1510	255	3241	1540	<u>3270</u>	<u>1530</u>	3316	1510
433.milc	255	<u>4966</u>	<u>471</u>	4982	470	4949	473	255	<u>4849</u>	<u>483</u>	4848	483	4849	483
434.zeusmp	255	1852	1250	<u>1854</u>	<u>1250</u>	1862	1250	255	1852	1250	<u>1854</u>	<u>1250</u>	1862	1250
435.gromacs	255	1098	1660	1111	1640	<u>1111</u>	<u>1640</u>	255	1012	1800	997	1830	<u>1006</u>	<u>1810</u>
436.cactusADM	255	2142	1420	2151	1420	<u>2144</u>	<u>1420</u>	127	925	1640	<u>924</u>	<u>1640</u>	922	1650
437.leslie3d	255	3679	651	3703	647	<u>3684</u>	<u>651</u>	127	1763	677	1763	677	<u>1763</u>	<u>677</u>
444.namd	255	1111	1840	<u>1099</u>	<u>1860</u>	1077	1900	255	1096	1870	<u>1095</u>	<u>1870</u>	1068	1920
447.dealII	255	<u>1463</u>	<u>1990</u>	1467	1990	1454	2010	255	<u>1464</u>	<u>1990</u>	1474	1980	1454	2010
450.soplex	255	3946	539	<u>3844</u>	<u>553</u>	3829	555	127	1965	539	1882	563	<u>1888</u>	<u>561</u>
453.povray	255	839	1620	813	1670	<u>829</u>	<u>1640</u>	255	<u>591</u>	<u>2290</u>	598	2270	585	2320
454.calculix	255	<u>1101</u>	<u>1910</u>	1121	1880	1094	1920	255	1107	1900	<u>1103</u>	<u>1910</u>	1085	1940
459.GemsFDTD	255	5564	486	5563	486	<u>5564</u>	<u>486</u>	255	5564	486	5563	486	<u>5564</u>	<u>486</u>
465.tonto	255	1914	1310	<u>1920</u>	<u>1310</u>	1925	1300	191	<u>1314</u>	<u>1430</u>	1315	1430	1313	1430
470.lbm	255	<u>6339</u>	<u>553</u>	6338	553	6339	553	127	3157	553	3157	553	<u>3157</u>	<u>553</u>
481.wrf	255	2795	1020	<u>2786</u>	<u>1020</u>	2764	1030	127	1341	1060	<u>1341</u>	<u>1060</u>	1340	1060
482.sphinx3	255	<u>5819</u>	<u>854</u>	5789	858	5858	848	255	<u>5711</u>	<u>870</u>	5726	868	5707	871

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:

LD_PRELOAD=mpss.so.1:madv.so.1

MPSSHEAP=4MB

MPSSSTACK=4MB

Requests system to use 4 MB pages when possible.

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)

tune_t_fsflushr=4

Controls how many seconds elapse between runs of the page flush daemon, fsflush.

autoup=1920

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

Platform Notes

Memory is 8-way interleaved by filling all slots with the same capacity DIMMs.

This result is measured on a Fujitsu 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

Fortran benchmarks:

f90

Benchmarks using both Fortran and C:

cc f90



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Base Optimization Flags

C benchmarks:

-fast -xipo=2 -xpagesize=4M -xprefetch_level=1 -xalias_level=std
-fma=fused -l12amm

C++ benchmarks:

-library=stlport4 -fast -xipo=2 -xpagesize=4M -xprefetch_level=1
-xalias_level=compatible -fma=fused -l12amm

Fortran benchmarks:

-fast -xipo=2 -xpagesize=4M -xprefetch_level=1 -fma=fused -l12amm

Benchmarks using both Fortran and C:

-fast(cc) -fast(f90) -xipo=2 -xpagesize=4M -xprefetch_level=1
-xalias_level=std -fma=fused -l12amm

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_auto_type=indirect_array_access -l12amm

470.lbm: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xrestrict -xipo=2
-xprefetch_level=2 -xarch=v8plusb -fma=fused -l12amm

482.sphinx3: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xpagesize=4M -fma=fused -lfast -l12amm

Continued on next page



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Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: -library=stlport4 -fast -xipo=2 -xpagesize=4M -fma=fused
-xdepend -xalias_level=compatible -l12amm

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 -l12amm

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 -l12amm

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:6.0 -l12amm

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: basepeak = yes

434.zeusmp: basepeak = yes

437.leslie3d: -fast -xipo=2 -xpagesize=4M -fma=fused -xprefetch=latx:5.0
-l12amm

459.GemsFDTD: basepeak = yes

465.tonto: -fast -xipo=2 -xpagesize=4M -fma=fused -xprefetch_level=2
-xprefetch=latx:3 -lfast -l12amm

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 -xinline= -fsimple=0
-xprefetch=no -xarch=generic -xchip=generic

436.cactusADM: -fast(cc) -fast(f90) -xipo=2 -xpagesize=4M -fma=fused
-l12amm

454.calculix: -fast(cc) -fast(f90) -xipo=2 -xpagesize=4M -fma=fused
-xvector -xprefetch_level=3 -xprefetch=latx:8.0
-xalias_level=std -l12amm

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Peak Optimization Flags (Continued)

```
481.wrf: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
-xipo=2 -xpagesize=4M -fma=fused -xprefetch_level=2
-xprefetch=latx:2 -l12amm
```

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>

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

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