SPEC® CFP2006 Result

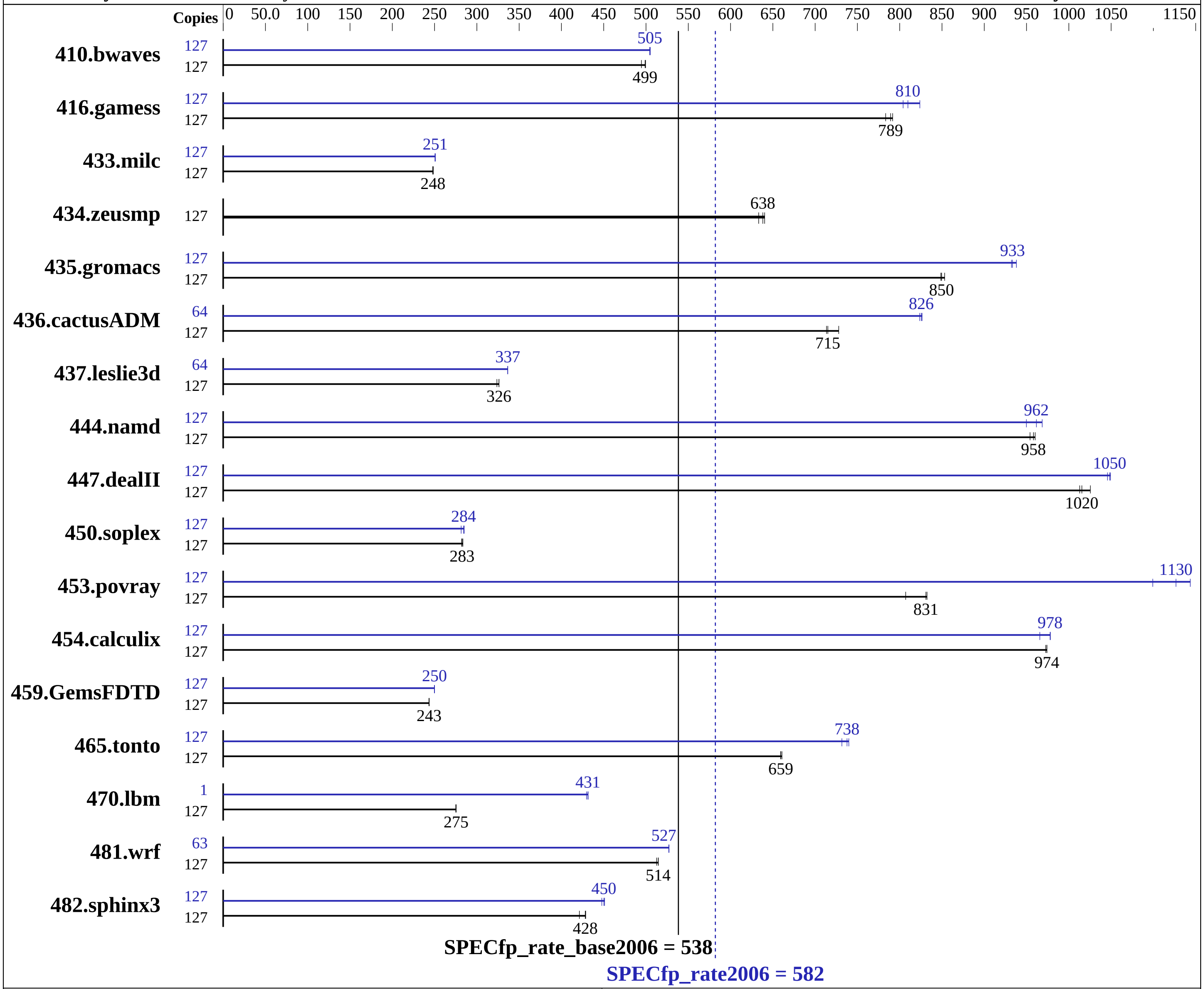
Fujitsu Limited

Fujitsu SPARC Enterprise M8000

SPECfp®_rate2006 = 582

SPECfp_rate_base2006 = 538

CPU2006 license:	19	**Test date:**	Jun-2008
Test sponsor:	Fujitsu Limited	**Hardware Availability:**	Jul-2008
Tested by:	Sun Microsystems	**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

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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:	32/64-bit

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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

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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

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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

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

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