SPEC® CFP2006 Result

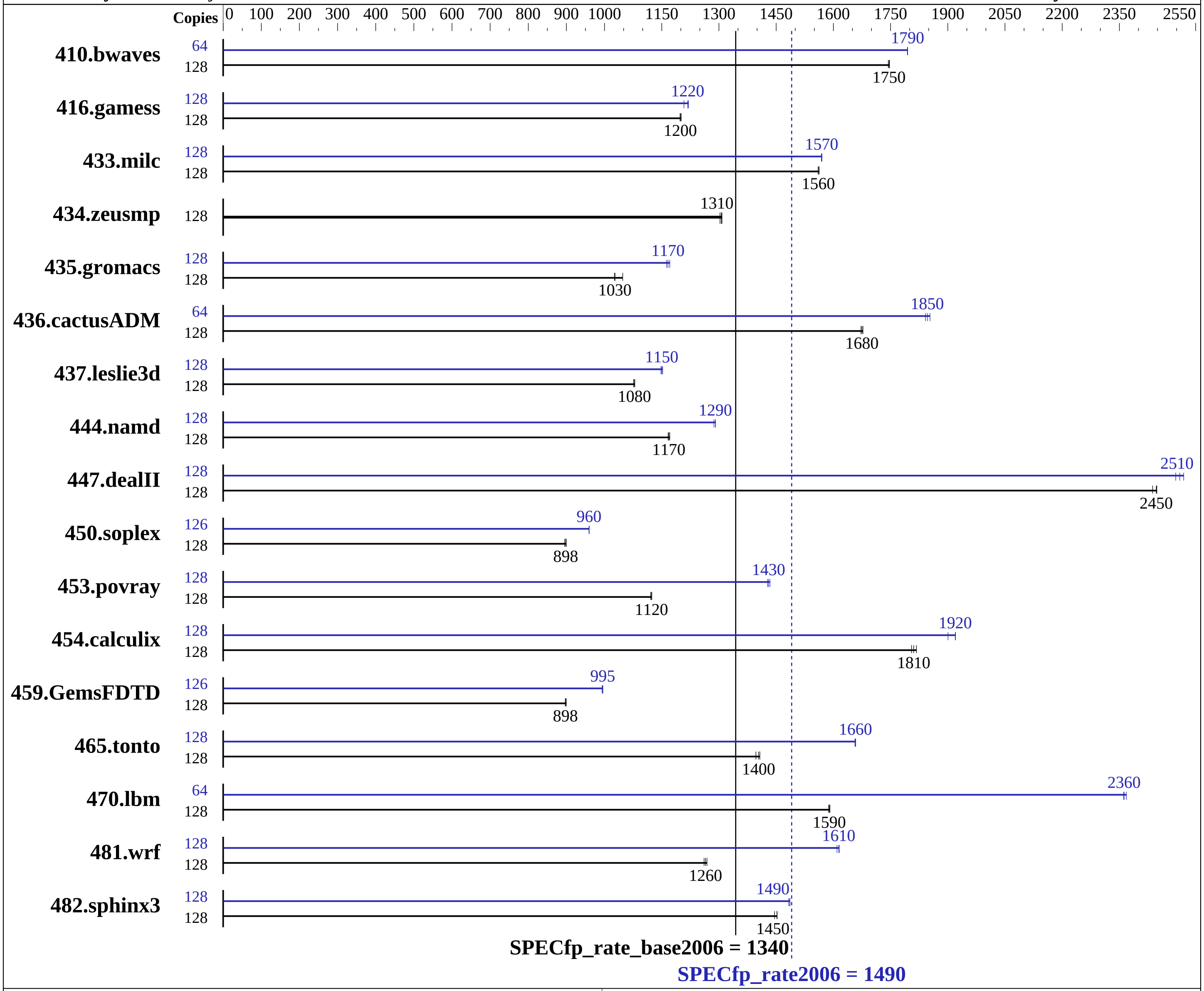
Fujitsu
Fujitsu SPARC M10-4

SPECfp®_rate2006 = 1490

SPECfp_rate_base2006 = 1340

CPU2006 license: 19
Test sponsor: Fujitsu
Tested by: Fujitsu

Test date: Apr-2013
Hardware Availability: Mar-2013
Software Availability: Mar-2013



Hardware

CPU Name:	SPARC64 X
CPU Characteristics:	
CPU MHz:	2800
FPU:	Integrated
CPU(s) enabled:	64 cores, 4 chips, 16 cores/chip, 2 threads/core
CPU(s) orderable:	2 or 4 CPU chips
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	24 MB I+D on chip per chip

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Software

Operating System:	Solaris 11.1.6.4.0
Compiler:	C/C++/Fortran: Version 12.3 of Oracle Solaris Studio, 1/13 Platform Specific Enhancement
Auto Parallel:	No
File System:	zfs and tmpfs
System State:	Default
Base Pointers:	32-bit
Peak Pointers:	32-bit
Other Software:	None

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L3 Cache:	None
Other Cache:	None
Memory:	512 GB (32 x 16 GB 2Rx4 PC3L-12800R-11, ECC, running at 1600 MHz)
Disk Subsystem:	1 x 600 GB SAS, 10025 RPM Toshiba MBF2600RC
Other Hardware:	None

Results Table

	Base							Peak						
Benchmark	**Copies**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Copies**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
410.bwaves	128	997	1740	996	1750	**996**	**1750**	64	485	1790	485	1790	**485**	**1790**
416.gamess	128	2092	1200	2087	1200	**2090**	**1200**	128	2054	1220	2074	1210	**2057**	**1220**
433.milc	128	753	1560	**753**	**1560**	752	1560	128	748	1570	**749**	**1570**	749	1570
434.zeusmp	128	891	1310	894	1300	**892**	**1310**	128	891	1310	894	1300	**892**	**1310**
435.gromacs	128	891	1030	872	1050	**889**	**1030**	128	780	1170	**784**	**1170**	786	1160
436.cactusADM	128	915	1670	912	1680	**913**	**1680**	64	**414**	**1850**	413	1850	415	1840
437.leslie3d	128	1115	1080	1118	1080	**1116**	**1080**	128	**1046**	**1150**	1044	1150	1048	1150
444.namd	128	877	1170	880	1170	**878**	**1170**	128	**795**	**1290**	795	1290	798	1290
447.dealII	128	**599**	**2450**	601	2440	598	2450	128	**584**	**2510**	581	2520	586	2500
450.soplex	128	1187	900	**1188**	**898**	1192	895	126	1096	959	**1095**	**960**	1095	960
453.povray	128	606	1120	608	1120	**606**	**1120**	128	**476**	**1430**	475	1430	477	1430
454.calculix	128	581	1820	**583**	**1810**	585	1810	128	550	1920	**550**	**1920**	556	1900
459.GemsFDTD	128	1509	900	1514	897	**1513**	**898**	126	1345	994	1343	995	**1343**	**995**
465.tonto	128	895	1410	902	1400	**897**	**1400**	128	760	1660	760	1660	**760**	**1660**
470.lbm	128	**1106**	**1590**	1105	1590	1108	1590	64	372	2360	**372**	**2360**	371	2370
481.wrf	128	**1130**	**1260**	1134	1260	1127	1270	128	888	1610	885	1620	**886**	**1610**
482.sphinx3	128	1725	1450	1718	1450	**1718**	**1450**	128	1679	1490	1682	1480	**1679**	**1490**

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

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

```
Shell Environments:
   ulimit -s 131072 was used to limit the space consumed by the stack
   (and therefore make more space available to the heap).

   The "webconsole" service was turned off using svcadm disable webconsole.
```

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Operating System Notes (Continued)

```
System Tunables:
(/etc/system parameters)
   lpg_alloc_prefer=1
     Indicates that extra effort should be taken to ensure that pages are
     created in the nearby lgroup (NUMA location).
```

Platform Notes

```
Sysinfo program /export/cpu2006-v1.2/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on 4S-LGA05-D0 Sat Apr 27 22:06:39 2013

This section contains SUT (System Under Test) info as seen by
some common utilities.  To remove or add to this section, see:
  http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /usr/sbin/psrinfo
   SPARC64-X (chipid 0, clock 2800 MHz)
   SPARC64-X (chipid 1, clock 2800 MHz)
   SPARC64-X (chipid 2, clock 2800 MHz)
   SPARC64-X (chipid 3, clock 2800 MHz)
   4 chips
   128 threads
   2800 MHz

From kstat:       64 cores

From prtconf: 522496 Megabytes

/etc/release:
     Oracle Solaris 11.1 SPARC
uname -a:
   SunOS 4S-LGA05-D0 5.11 11.1 sun4v sparc sun4v

disk: df -h  $SPEC
Filesystem             Size   Used  Available Capacity  Mounted on
rpool/export           547G   7.5G       465G      2%    /export

(End of data from sysinfo program)
```

General Notes

output_root was used to put run directories in /tmp/cpu2006 (tmpfs).

Base Compiler Invocation

C benchmarks:
cc

Continued on next page

Base Compiler Invocation (Continued)

C++ benchmarks:
```
CC
```

Fortran benchmarks:
```
f90
```

Benchmarks using both Fortran and C:
```
cc f90
```

Base Optimization Flags

C benchmarks:
```
-fast -xtarget=sparc64x -fma=fused -xpagesize=4M -xipo=2
-xalias_level=std -xprefetch_level=2
-xprefetch_auto_type=indirect_array_access -lbsdmalloc
-M /usr/lib/ld/map.bssalign
```

C++ benchmarks:
```
-fast -xtarget=sparc64x -fma=fused -xpagesize=4M -xipo=2
-xalias_level=compatible -xunroll=7 -xprefetch_level=2
-library=no%Cstd,no%stlport4 -I/export/cpu2006-v1.2/stdcxx-4.2.1/include
-I/export/cpu2006-v1.2/stdcxx-4.2.1/build/include
-L/export/cpu2006-v1.2/stdcxx-4.2.1/build/lib
-R/export/cpu2006-v1.2/stdcxx-4.2.1/build/lib -lstd8d
-M /usr/lib/ld/map.bssalign
```

Fortran benchmarks:
```
-fast -xtarget=sparc64x -fma=fused -xpagesize=4M -xipo=2
-xvector=%none -M /usr/lib/ld/map.bssalign
```

Benchmarks using both Fortran and C:
```
-fast(cc) -fast(f90) -xtarget=sparc64x -fma=fused -xpagesize=4M
-xipo=2 -xalias_level=std -xprefetch_level=2
-xprefetch_auto_type=indirect_array_access -xvector=%none
-M /usr/lib/ld/map.bssalign
```

Base Other Flags

C benchmarks:
```
-xjobs=16
```

C++ benchmarks:
```
-xjobs=16
```

Fortran benchmarks:
```
-xjobs=16
```

Continued on next page

Base Other Flags (Continued)

Benchmarks using both Fortran and C:
`-xjobs=16`

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 -xtarget=sparc64x -fma=fused -xpagesize=4M -xipo=2 -xalias_level=std -fsimple=1 -xprefetch_auto_type=indirect_array_access -xprefetch=latx:0.8 -W2,-Ainline:rs=400 -Qoption cg -Qms_pipe+alldoall -M /usr/lib/ld/map.bssalign

470.lbm: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x -fma=fused -xpagesize=4M -xipo=2 -xalias_level=std -xprefetch_level=2 -xprefetch_auto_type=indirect_array_access -xpagesize=256M -lbsdmalloc

482.sphinx3: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x -fma=fused -xpagesize=4M -xtarget=sparc64vii -xipo=2 -xunroll=4 -xprefetch=no%auto -lbsdmalloc

C++ benchmarks:

444.namd: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x -fma=fused -xpagesize=4M -xalias_level=simple -xprefetch=no%auto -Qoption cg -Qms_pipe+alldoall -xcache=32/128/4/1:768/128/24/1 -library=stlport4

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Peak Optimization Flags (Continued)

447.dealII: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xtarget=sparc64vii -xipo=1
-xalias_level=compatible -xrestrict -xprefetch=no%auto
-library=no%Cstd,no%stlport4
-I/export/cpu2006-v1.2/stdcxx-4.2.1/include
-I/export/cpu2006-v1.2/stdcxx-4.2.1/build/include
-L/export/cpu2006-v1.2/stdcxx-4.2.1/build/lib
-R/export/cpu2006-v1.2/stdcxx-4.2.1/build/lib -lstd8d

450.soplex: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xtarget=sparc64vii
-library=stlport4 -xO3 -xunroll=7 -xrestrict
-xprefetch_auto_type=indirect_array_access
-Qoption cg -Qlp-ol=1 -Qoption cg -Qlp-it=3
-Qoption cg -Qlp-imb=1 -Qoption iropt -Apf:pdl=3
-xprefetch=latx:0.2 -lbsdmalloc

453.povray: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xipo=2 -xalias_level=compatible
-xunroll=4 -xprefetch=no%auto -xlinkopt=2
-Qoption iropt -Ainline:rs=1024
-Qoption iropt -Ainline:cs=1024
-Qoption iropt -Ainline:inc=900
-xcache=32/128/4/1:768/128/24/1 -library=stlport4 -lfast

Fortran benchmarks:

410.bwaves: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xipo=2 -xunroll=4 -xvector=%none
-xprefetch=no%auto

416.gamess: -fast -xtarget=sparc64x -fma=fused -xpagesize=4M
-xtarget=sparc64vii -xprefetch=no%auto -xunroll=6
-xcache=32/128/4/1:768/128/24/1 -M /usr/lib/ld/map.bssalign

434.zeusmp: basepeak = yes

437.leslie3d: -fast -xtarget=sparc64x -fma=fused -xpagesize=4M
-xtarget=sparc64vii -xvector=%none -xprefetch=latx:0.8
-Qoption cg -Qms_pipe+alldoall -W2,-Rloop_dist
-M /usr/lib/ld/map.bssalign

459.GemsFDTD: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xunroll=9 -xprefetch=latx:0.2
-xprefetch_auto_type=indirect_array_access -xprefetch_level=3
-Qoption cg -Qlp-av=128 -Qoption iropt -Rujam

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Peak Optimization Flags (Continued)

465.tonto: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x -fma=fused -xpagesize=4M -xipo=1 -xO4 -xunroll=3 -xprefetch=no%auto -xcache=32/128/4/1:768/128/24/1 -lbsdmalloc

Benchmarks using both Fortran and C:

435.gromacs: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90) -xtarget=sparc64x -fma=fused -xpagesize=4M -xalias_level=strong -xprefetch=latx:0.4 -W2,-Rloop_dist -xtarget=sparc64vii -xprefetch_auto_type=indirect_array_access

436.cactusADM: -fast(cc) -fast(f90) -xtarget=sparc64x -fma=fused -xpagesize=4M -xunroll=10 -xprefetch=latx:2.0 -M /export/cpu2006-v1.2/mapfiles/map.256M.align -lbsdmalloc -M /usr/lib/ld/map.bssalign

454.calculix: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90) -xtarget=sparc64x -fma=fused -xpagesize=4M -xipo=1 -xalias_level=strong -xprefetch=latx:2.0 -stackvar

481.wrf: -fast(cc) -fast(f90) -xtarget=sparc64x -fma=fused -xpagesize=4M -xtarget=sparc64vii -xunroll=9 -xprefetch=latx:1.3 -Qoption iropt -Rujam -xO4 -xcache=32/128/4/1:768/128/24/1 -M /usr/lib/ld/map.bssalign

Peak Other Flags

C benchmarks:
-xjobs=16

C++ benchmarks:
-xjobs=16

Fortran benchmarks:
-xjobs=16

Benchmarks using both Fortran and C:
-xjobs=16

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.3-SPARC64X.20130522.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.3-SPARC64X.20130522.xml

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

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