SPEC® CFP2006 Result

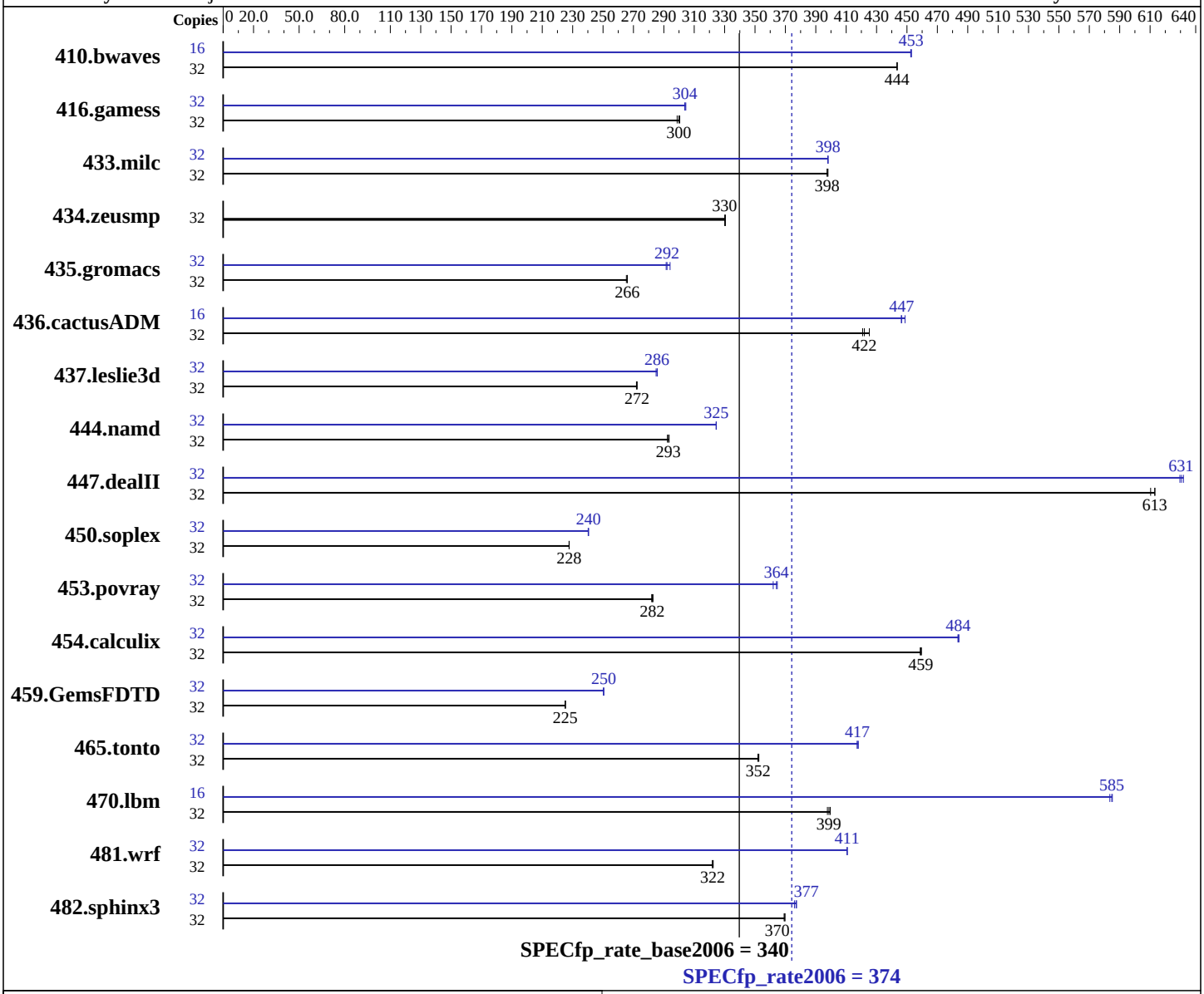
Fujitsu
Fujitsu SPARC M10-1

SPECfp®_rate2006 = 374

SPECfp_rate_base2006 = 340

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:	16 cores, 1 chip, 16 cores/chip, 2 threads/core
CPU(s) orderable:	1 chip
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	22 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: 128 GB (8 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

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	32	**981**	**444**	981	443	980	444	16	480	453	481	452	**480**	**453**
416.gamess	32	2085	300	**2089**	**300**	2097	299	32	**2061**	**304**	2058	304	2063	304
433.milc	32	738	398	739	398	**739**	**398**	32	738	398	738	398	**738**	**398**
434.zeusmp	32	**882**	**330**	881	330	882	330	32	**882**	**330**	881	330	882	330
435.gromacs	32	**859**	**266**	861	265	859	266	32	**782**	**292**	777	294	784	292
436.cactusADM	32	**906**	**422**	909	421	899	425	16	426	449	**428**	**447**	428	446
437.leslie3d	32	1106	272	**1105**	**272**	1104	272	32	1053	286	**1053**	**286**	1056	285
444.namd	32	874	293	**876**	**293**	878	292	32	**791**	**325**	791	324	791	325
447.dealII	32	600	610	597	613	**597**	**613**	32	579	632	581	630	**580**	**631**
450.soplex	32	1172	228	**1172**	**228**	1173	228	32	1110	240	1111	240	**1110**	**240**
453.povray	32	602	283	604	282	**603**	**282**	32	**468**	**364**	470	362	467	365
454.calculix	32	576	459	574	460	**575**	**459**	32	545	484	**546**	**484**	546	484
459.GemsFDTD	32	1508	225	1508	225	**1508**	**225**	32	**1356**	**250**	1355	250	1357	250
465.tonto	32	**894**	**352**	893	353	895	352	32	755	417	**755**	**417**	753	418
470.lbm	32	**1103**	**399**	1101	400	1106	398	16	**376**	**585**	377	584	376	585
481.wrf	32	1110	322	1108	323	**1110**	**322**	32	**870**	**411**	870	411	871	411
482.sphinx3	32	1690	369	**1687**	**370**	1687	370	32	1653	377	**1654**	**377**	1659	376

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.
```

Platform Notes

```
Sysinfo program /export/cpu2006-v1.2/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on 1S-027-D0 Tue Apr 23 20:25:13 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)
   1 chips
   32 threads
   2800 MHz

From kstat:       16 cores

From prtconf: 129280 Megabytes

/etc/release:
     Oracle Solaris 11.1 SPARC
uname -a:
   SunOS 1S-027-D0 5.11 11.1 sun4v sparc sun4v

disk: df -h  $SPEC
Filesystem             Size   Used  Available Capacity  Mounted on
rpool/export           547G   6.4G       467G     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

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
```

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

Peak Compiler Invocation

C benchmarks:
```
cc
```

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

Continued on next page

Peak Compiler Invocation (Continued)

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=32/128/4/1:704/128/22/1 -library=stlport4

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

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Peak Optimization Flags (Continued)

450.soplex (continued):
-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=32/128/4/1:704/128/22/1 -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=32/128/4/1:704/128/22/1 -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

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 -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

Continued on next page

Peak Optimization Flags (Continued)

435.gromacs (continued):
-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
-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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