SPEC® CFP2006 Result

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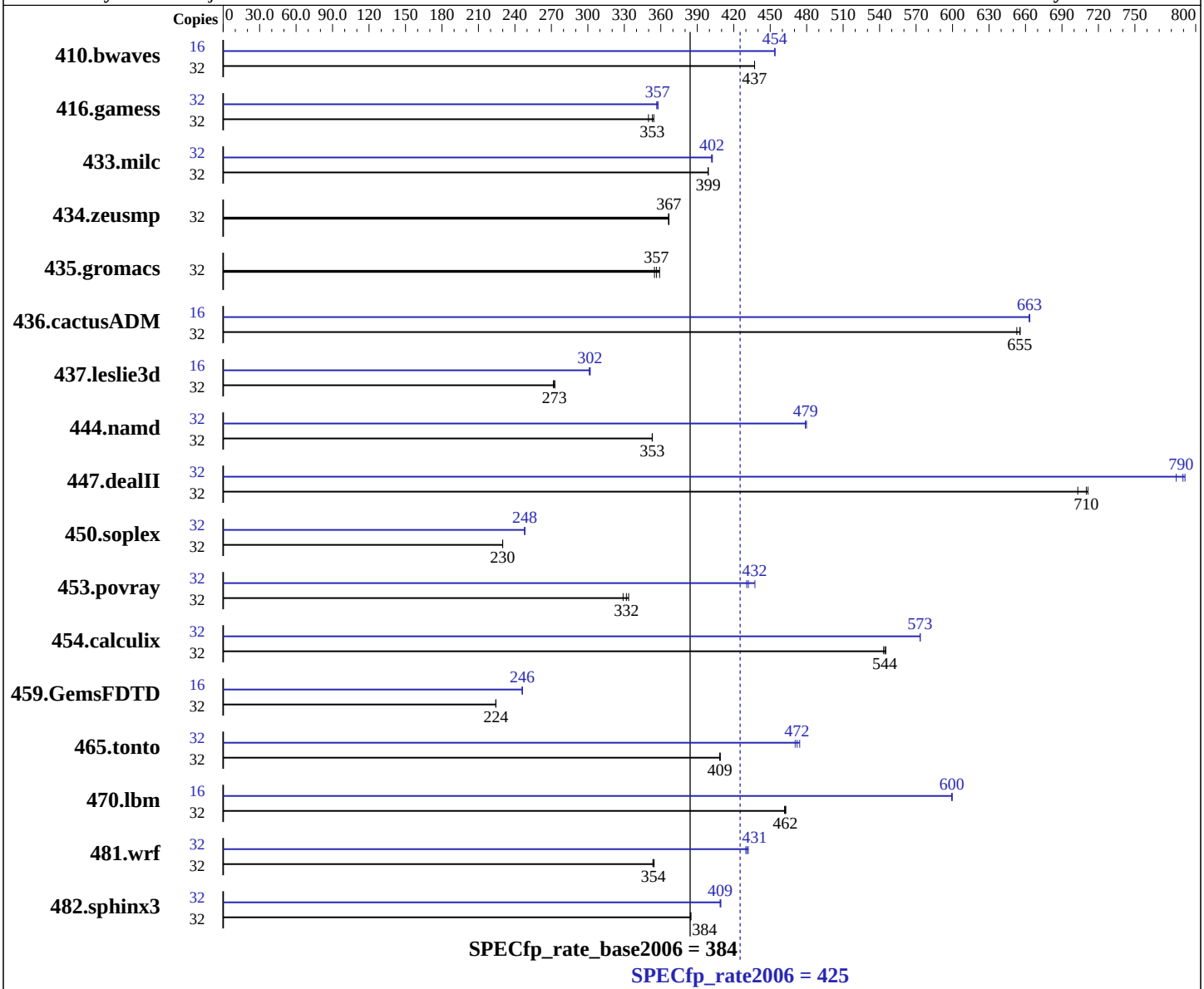
Fujitsu
Fujitsu SPARC M10-1

SPECfp®_rate2006 = 425

SPECfp_rate_base2006 = 384

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

Test date: Mar-2014
Hardware Availability: Apr-2014
Software Availability: Feb-2014



Hardware

CPU Name:	SPARC64 X+
CPU Characteristics:	
CPU MHz:	3200
FPU:	Integrated
CPU(s) enabled:	16 cores, 1 chip, 16 cores/chip, 2 threads/core
CPU(s) orderable:	1 CPU chip; CPU chip contains 2, 4, 6, 8, 10, 12, 14, 16 cores
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 SRU 15.4
Compiler:	C/C++/Fortran: Version 12.3 of Oracle Solaris Studio 10/13 Patch Set
Auto Parallel:	No
File System:	tmpfs (output_root was used to put run directories in /tmp/cpu2006) zfs
System State:	Default
Base Pointers:	32-bit

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L3 Cache: None
Other Cache: None
Memory: 128 GB (8 x 16 GB 2Rx4 PC3L-12800R-11, ECC)
Disk Subsystem: tmpfs
600 GB 10,025 RPM Toshiba MBF2600RC SAS (for system disk)
Other Hardware: None

Peak Pointers: 32-bit
Other Software: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	32	995	437	995	437	**995**	**437**	16	479	454	479	454	**479**	**454**
416.gamess	32	**1775**	**353**	1768	354	1791	350	32	1751	358	1757	357	**1753**	**357**
433.milc	32	**736**	**399**	736	399	736	399	32	731	402	**731**	**402**	730	402
434.zeusmp	32	795	366	794	367	**794**	**367**	32	795	366	794	367	**794**	**367**
435.gromacs	32	644	355	636	359	**641**	**357**	32	644	355	636	359	**641**	**357**
436.cactusADM	32	**583**	**655**	583	656	586	653	16	288	663	**288**	**663**	288	664
437.leslie3d	32	1102	273	**1104**	**273**	1107	272	16	498	302	499	301	**499**	**302**
444.namd	32	727	353	**727**	**353**	727	353	32	536	479	**536**	**479**	535	480
447.dealII	32	**516**	**710**	515	711	521	703	32	**464**	**790**	467	784	463	791
450.soplex	32	**1161**	**230**	1160	230	1161	230	32	1075	248	**1076**	**248**	1077	248
453.povray	32	510	334	**513**	**332**	517	329	32	395	431	**394**	**432**	389	437
454.calculix	32	484	545	**485**	**544**	486	543	32	**460**	**573**	461	573	460	573
459.GemsFDTD	32	1513	224	**1513**	**224**	1514	224	16	690	246	**690**	**246**	690	246
465.tonto	32	770	409	**771**	**409**	771	409	32	**667**	**472**	669	471	664	474
470.lbm	32	**951**	**462**	952	462	950	463	16	367	600	**367**	**600**	367	599
481.wrf	32	**1010**	**354**	1011	354	1008	355	32	831	430	**830**	**431**	827	432
482.sphinx3	32	1622	384	1621	385	**1622**	**384**	32	1525	409	**1525**	**409**	1523	409

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

Compiler Invocation Notes

```
The Apache C++ Standard Library V4.2.1 was installed from
   http://stdcxx.apache.org/download.html using:
     alias gmake=specmake
     gmake BUILDTYPE=8d CONFIG=sunpro.config
```

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 "Logical Domains Manager" service was turned off using the command "svcadm disable ldmd".

System Tunables:
(/etc/system parameters)
   autoup = 1555200
      Causes pages older than the listed number of seconds to be written by fsflush.
   tune_t_fsflushr = 259200
      Controls how many seconds elapse between runs of the page flush daemon, fsflush.
```

Platform Notes

```
Sysinfo program /export/cpu2006-v1.2/config/sysinfo
$Rev: 6874 $ $Date:: 2013-11-20 #$ 748963af01bf08f8f30d41159527dd6d
running on 1S-1002-D0 Sat Mar  1 09:23:29 2014

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 3200 MHz)
   1 chips
   32 threads
   3200 MHz

From kstat:       16 cores

From prtconf: 129280 Megabytes

/etc/release:
     Oracle Solaris 11.1 SPARC
uname -a:
   SunOS 1S-1002-D0 5.11 11.1 sun4v sparc sun4v

disk: df -h  $SPEC
Filesystem             Size   Used  Available Capacity  Mounted on
rpool/export           547G    34G       437G     8%    /export

(End of data from sysinfo program)
```

Base Compiler Invocation

C benchmarks:
cc

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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 -M map.bssalign -lbsdmalloc

C++ benchmarks:
-fast -xtarget=sparc64x -fma=fused -xpagesize=4M -xipo=2
-xalias_level=compatible -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 -M map.bssalign
-L/export/cpu2006-v1.2/stdcxx-4.2.1/build/lib
-R/export/cpu2006-v1.2/stdcxx-4.2.1/build/lib -lstd8d

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

Base Other Flags

C benchmarks:
-xjobs=8

C++ benchmarks:
-xjobs=8

Fortran benchmarks:
-xjobs=8

Benchmarks using both Fortran and C:
-xjobs=8

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 -W2,-Ainline:rs=400
-Qoption cg -Qms_pipe+alldoall
-Wc,-Qpeep-Ex:minmax_use_cmov=2 -Wc,-Qms_pipe+ulmscc=1
-W2,-Asac -M 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 -xpagesize=256M -M map.256M.align
-lbsdmalloc

482.sphinx3: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xipo=2 -xunroll=8
-xprefetch=latx:0.6 -M map.bssalign -lbsdmalloc

C++ benchmarks:

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

447.dealII: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -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
-M map.bssalign -L/export/cpu2006-v1.2/stdcxx-4.2.1/build/lib
-R/export/cpu2006-v1.2/stdcxx-4.2.1/build/lib -lstd8d

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Peak Optimization Flags (Continued)

450.soplex: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -library=stlport4 -xO3 -xunroll=8
-xrestrict -Qoption cg -Qlp-ol=1 -Qoption cg -Qlp-it=3
-Qoption cg -Qlp-imb=1 -Qoption iropt -Apf:pdl=3
-xprefetch=latx:0.2 -M map.bssalign -lbsdmalloc

453.povray: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xO4 -xipo=2
-xalias_level=compatible -xlinkopt=2 -xprefetch=no%auto
-xunroll=7 -Qoption iropt -Ainline:rs=1024
-Qoption iropt -Ainline:cs=1024
-Qoption iropt -Ainline:inc=900
-Wc,-Qpeep-Ex:minmax_use_cmov=2 -Wc,-Qms_pipe+ulmscc=1
-library=stlport4 -M map.bssalign -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 -M map.bssalign

416.gamess: -fast -xtarget=sparc64x -fma=fused -xpagesize=4M -xipo=1
-xprefetch=no%auto -xunroll=6 -M map.bssalign

434.zeusmp: basepeak = yes

437.leslie3d: -fast -xtarget=sparc64x -fma=fused -xpagesize=4M
-xunroll=2 -xvector=%none -xprefetch=latx:0.8
-Qoption cg -Qms_pipe+alldoall -M 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_level=3 -Qoption cg -Qlp-av=128
-Qoption iropt -Rujam -M map.bssalign

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 -M map.bssalign -lbsdmalloc

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

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Peak Optimization Flags (Continued)

436.cactusADM: `-fast`(cc) `-fast`(f90) `-xtarget=sparc64x -fma=fused -xpagesize=4M -xO4 -xunroll=16 -xprefetch=latx:1.4 -Wc,-Qpeep-Ex:minmax_use_cmov=2 -Wc,-Qms_pipe+ulmscc=1 -W2,-Asac -M map.256M.align -lbsdmalloc`

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 -M map.bssalign`

481.wrf: `-fast`(cc) `-fast`(f90) `-xtarget=sparc64x -fma=fused -xpagesize=4M -xunroll=9 -xprefetch=latx:0.4 -Qoption iropt -Rujam -xO4 -M map.bssalign`

Peak Other Flags

C benchmarks:
`-xjobs=8`

C++ benchmarks:
`-xjobs=8`

Fortran benchmarks:
`-xjobs=8`

Benchmarks using both Fortran and C:
`-xjobs=8`

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.20140423.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.20140423.xml`

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