SPEC® CFP2006 Result

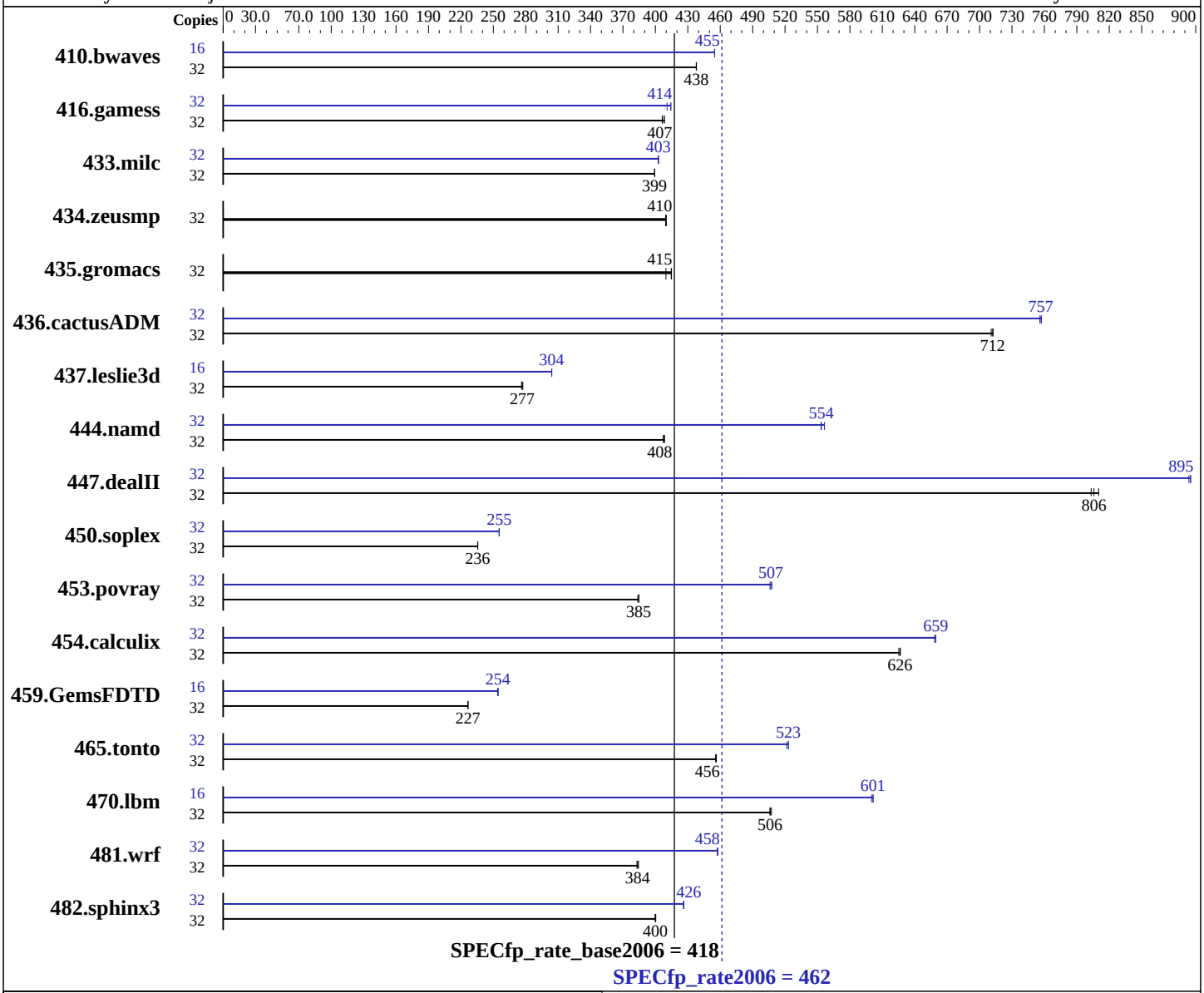
Fujitsu
Fujitsu SPARC M10-4S

SPECfp®_rate2006 = 462

SPECfp_rate_base2006 = 418

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:	3700
FPU:	Integrated
CPU(s) enabled:	16 cores, 1 chip, 16 cores/chip, 2 threads/core
CPU(s) orderable:	1 to 16 BBs; each BB contains 2 or 4 CPU chips; each CPU chip contains 4, 8, 12, 16 cores
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 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	993	438	993	438	**993**	**438**	16	478	455	478	455	**478**	**455**
416.gamess	32	**1540**	**407**	1534	409	1542	406	32	**1513**	**414**	1512	414	1525	411
433.milc	32	736	399	**736**	**399**	735	399	32	**729**	**403**	729	403	729	403
434.zeusmp	32	711	410	**711**	**410**	710	410	32	711	410	**711**	**410**	710	410
435.gromacs	32	558	410	**551**	**415**	551	415	32	558	410	**551**	**415**	551	415
436.cactusADM	32	537	712	538	711	**537**	**712**	32	505	757	506	756	**505**	**757**
437.leslie3d	32	1089	276	**1087**	**277**	1085	277	16	495	304	494	304	**495**	**304**
444.namd	32	**629**	**408**	630	407	628	408	32	**463**	**554**	461	556	464	553
447.dealII	32	**454**	**806**	456	803	452	810	32	410	894	409	895	**409**	**895**
450.soplex	32	1132	236	1133	236	**1133**	**236**	32	**1045**	**255**	1044	256	1045	255
453.povray	32	444	384	442	385	**443**	**385**	32	335	508	**336**	**507**	336	506
454.calculix	32	421	627	422	625	**421**	**626**	32	**400**	**659**	401	658	400	659
459.GemsFDTD	32	1499	226	1498	227	**1499**	**227**	16	**668**	**254**	667	254	668	254
465.tonto	32	**691**	**456**	691	456	690	456	32	**602**	**523**	602	523	604	521
470.lbm	32	**869**	**506**	867	507	869	506	16	**366**	**601**	366	601	366	600
481.wrf	32	933	383	**932**	**384**	930	384	32	782	457	**781**	**458**	781	458
482.sphinx3	32	1560	400	1558	400	**1559**	**400**	32	1463	426	1464	426	**1463**	**426**

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 $ $Date:: 2013-11-20 #$ 5ec117938769af2bf59ae0ed87ea9ccd
running on spec-bb01 Mon Mar  3 08:36:51 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 3700 MHz)
   1 chips
   32 threads
   3700 MHz

From kstat:       16 cores

From prtconf: 129024 Megabytes

/etc/release:
     Oracle Solaris 11.1 SPARC
uname -a:
   SunOS spec-bb01 5.11 11.1 sun4v sparc sun4v

disk: df -h  $SPEC
Filesystem             Size   Used  Available Capacity  Mounted on
rpool/export           547G    18G       453G     4%    /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

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

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