SPEC® CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

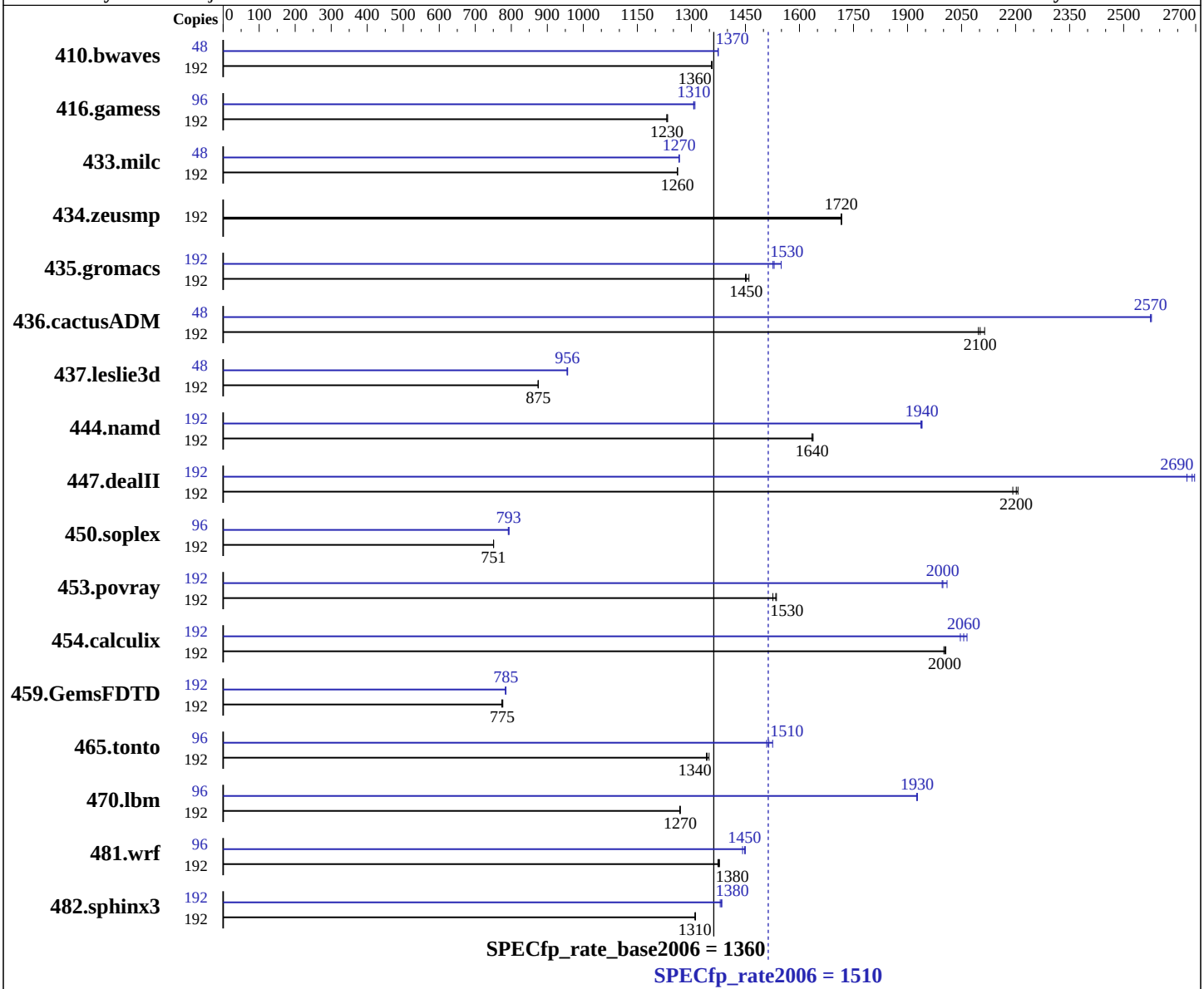
Fujitsu
Fujitsu SPARC M12-2S

SPECfp®_rate2006 = 1510

SPECfp_rate_base2006 = 1360

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

Test date: Mar-2017
Hardware Availability: Apr-2017
Software Availability: Jul-2017



Hardware

CPU Name:	SPARC64 XII
CPU Characteristics:	High Speed Mode up to 4.35 GHz
CPU MHz:	4250
FPU:	Integrated
CPU(s) enabled:	24 cores, 2 chips, 12 cores/chip, 8 threads/core
CPU(s) orderable:	1 to 16 BBs; each BB contains 1 or 2 CPU chips; the number of orderable total cores is 2, 3, 4, .. 384
Primary Cache:	64 KB I + 64 KB D on chip per core

Continued on next page

Software

Operating System:	Oracle Solaris 11.3 (with June 2017 SRU)
Compiler:	C/C++/Fortran: Version 12.6 of Oracle Developer Studio
Auto Parallel:	No
File System:	tmpfs
System State:	Default
Base Pointers:	32-bit
Peak Pointers:	32-bit
Other Software:	None

SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Fujitsu
Fujitsu SPARC M12-2S

SPECfp_rate2006 = 1510

SPECfp_rate_base2006 = 1360

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

Test date: Mar-2017
Hardware Availability: Apr-2017
Software Availability: Jul-2017

Secondary Cache: 512 KB I+D on chip per core
L3 Cache: 32 MB I+D on chip per chip
Other Cache: None
Memory: 1 TB (32 x 32 GB 2Rx4 PC4-2400T-R)
Disk Subsystem: 1 x 600 GB 10K RPM SAS (for system disk)
Other Hardware: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	192	1922	1360	1925	1360	**1924**	**1360**	48	475	1370	475	1370	**475**	**1370**
416.gamess	192	3046	1230	3052	1230	**3051**	**1230**	96	**1438**	**1310**	1435	1310	1439	1310
433.milc	192	1397	1260	1398	1260	**1397**	**1260**	48	348	1270	**348**	**1270**	348	1270
434.zeusmp	192	1018	1720	**1018**	**1720**	1017	1720	192	1018	1720	**1018**	**1720**	1017	1720
435.gromacs	192	939	1460	945	1450	**944**	**1450**	192	885	1550	898	1530	**896**	**1530**
436.cactusADM	192	1094	2100	**1092**	**2100**	1085	2110	48	223	2580	**223**	**2570**	223	2570
437.leslie3d	192	2062	875	2064	874	**2063**	**875**	48	473	955	**472**	**956**	472	956
444.namd	192	942	1630	940	1640	**942**	**1640**	192	**794**	**1940**	794	1940	795	1940
447.dealII	192	**998**	**2200**	1002	2190	995	2210	192	814	2700	821	2680	**817**	**2690**
450.soplex	192	2133	751	2132	751	**2133**	**751**	96	1012	792	**1010**	**793**	1009	794
453.povray	192	669	1530	665	1540	**666**	**1530**	192	512	2000	508	2010	**511**	**2000**
454.calculix	192	789	2010	792	2000	**791**	**2000**	192	774	2050	767	2070	**770**	**2060**
459.GemsFDTD	192	2633	774	**2629**	**775**	2623	777	192	2594	785	2601	783	**2596**	**785**
465.tonto	192	**1406**	**1340**	1408	1340	1401	1350	96	626	1510	619	1530	**624**	**1510**
470.lbm	192	2081	1270	2079	1270	**2079**	**1270**	96	**685**	**1930**	684	1930	685	1930
481.wrf	192	1561	1370	**1558**	**1380**	1556	1380	96	740	1450	**741**	**1450**	744	1440
482.sphinx3	192	**2854**	**1310**	2853	1310	2857	1310	192	**2706**	**1380**	2712	1380	2703	1380

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

Continued on next page

Operating System Notes (Continued)

```
System Tunables:
(/etc/system parameters)
   autoup = 86400
      Causes pages older than the listed number of seconds to be written by fsflush.
   doiflush = 0
     Controls whether file system metadata syncs will be executed during fsflush invocations.
   dopageflush = 0
      Controls whether memory is examined for modified pages during fsflush invocations.
   zfs:zfs_arc_max=1073741824
      Determines the maximum size of the ZFS Adaptive Replacement Cache (ARC).
```

Platform Notes

```
Firmware Settings:
(XSCF operations)
   Set High Speed Mode via XSCF command "sethsmode -s on".

 Sysinfo program /export/cpu2006/config/sysinfo
 Revision 6993 of 2015-11-06 (c9426fd40261140bb4c02f7d35768596)
 running on H2S-257-D0 Thu Mar  2 20:14:13 2017

 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-XII (chipid 0, clock 4250 MHz)
    SPARC64-XII (chipid 1, clock 4250 MHz)
    2 chips
    192 threads
    4250 MHz

 From kstat:       24 cores

 From prtconf: 1046016 Megabytes

 /etc/release:
      Oracle Solaris 11.3 SPARC
 uname -a:
    SunOS H2S-257-D0 5.11 11.3 sun4v sparc sun4v

 SPEC is set to: /export/cpu2006

 disk: df -h  /export/cpu2006
 Filesystem             Size   Used  Available Capacity  Mounted on
 rpool/export           547G    25G       244G    10%    /export

 (End of data from sysinfo program)
```

General Notes

```
The Building Block (BB) is just a Fujitsu SPARC M12-2S that is the basic
unit to be expanded as if stacking up children's blocks.

File System:
 tmpfs: output_root was used to put run directories in /tmp/cpu2006
 zfs: operating system

SPEC CPU2006 benchmark:
 Updated with runspec --update
```

Base Compiler Invocation

C benchmarks:
cc

C++ benchmarks:
CC

Fortran benchmarks:
f90

Benchmarks using both Fortran and C:
cc f90

Base Portability Flags

447.dealII: -DBOOST_NO_COMPILER_CONFIG

Base Optimization Flags

C benchmarks:
-std=c99 -m32 -fast -xtarget=sparc64xii -xipo=2 -xpagesize=4M
-xsegment_align=4M -xthroughput -xalias_level=std -xprefetch_level=2

C++ benchmarks:
-m32 -fast -xtarget=sparc64xii -xipo=2 -xpagesize=4M
-xsegment_align=4M -xthroughput -xalias_level=compatible
-library=stlport4

Fortran benchmarks:
-m32 -fast -xtarget=sparc64xii -xipo=2 -xpagesize=4M
-xsegment_align=4M -xthroughput -xvector=no%lib

Benchmarks using both Fortran and C:
-std=c99 -m32 -fast(cc) -fast(f95) -xtarget=sparc64xii -xipo=2
-xpagesize=4M -xsegment_align=4M -xthroughput -xalias_level=std
-xprefetch_level=2 -xvector=no%lib

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 Portability Flags

447.dealII: `-DBOOST_NO_COMPILER_CONFIG`

Peak Optimization Flags

C benchmarks:

433.milc: `-std=c99 -m32 -fast -xtarget=sparc64xii -xpagesize=4M -xsegment_align=4M -xthroughput -xipo=2 -xalias_level=std -fsimple=1 -W2,-Ainline:rs=400 -Qoption cg -Qms_pipe+alldoall -W2,-Asac -xthroughput=no`

470.lbm: `-std=c99 -m32 -fast -xtarget=sparc64xii -xpagesize=4M -xsegment_align=4M -xthroughput -xipo=2 -xalias_level=std -xprefetch_level=2 -xpagesize=256M -xsegment_align=256M -xthroughput=no -lbsdmalloc`

Continued on next page

Peak Optimization Flags (Continued)

482.sphinx3: -std=c99 -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -m32 -fast
-xtarget=sparc64xii -xpagesize=4M -xsegment_align=4M
-xthroughput -xO4 -xipo=2 -xprefetch=latx:0.6
-xinline_param=level:1 -xprefetch=no%auto -lbsdmalloc

C++ benchmarks:

444.namd: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -m32 -fast
-xtarget=sparc64xii -xpagesize=4M -xsegment_align=4M
-xthroughput -xalias_level=compatible -xprefetch=no%auto
-Wc,-Qms_pipe+alldoall

447.dealII: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -m32 -fast
-xtarget=sparc64xii -xpagesize=4M -xsegment_align=4M
-xthroughput -xtarget=sparc64xplus -xipo=1
-xalias_level=compatible -xrestrict -xprefetch=no%auto
-Qoption cg -Qiselect-funcalign=64 -xthroughput=yes
-library=stdcxx4 -template=extdef

450.soplex: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -m32 -fast
-xtarget=sparc64xii -xpagesize=4M -xsegment_align=4M
-xthroughput -xipo=2 -Wc,-Qlp=0

453.povray: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -m32 -fast
-xtarget=sparc64xii -xpagesize=4M -xsegment_align=4M
-xthroughput -xO4 -xtarget=sparc64xplus -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 -lfast

Fortran benchmarks:

410.bwaves: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -m32 -fast
-xtarget=sparc64xii -xpagesize=4M -xsegment_align=4M
-xthroughput -xipo=2 -xunroll=4 -xvector=%none
-xprefetch=no%auto

416.gamess: -m32 -fast -xtarget=sparc64xii -xpagesize=4M
-xsegment_align=4M -xthroughput -xvector=no%simd
-xprefetch=latx:0.1

434.zeusmp: basepeak = yes

Continued on next page

Peak Optimization Flags (Continued)

437.leslie3d: -m32 -fast -xtarget=sparc64xii -xpagesize=4M
-xsegment_align=4M -xthroughput -xunroll=2 -xvector=%none
-xprefetch=latx:0.8 -Qoption cg -Qms_pipe+alldoall
-xinline_param=level:1 -xthroughput=no

459.GemsFDTD: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -m32 -fast
-xtarget=sparc64xii -xpagesize=4M -xsegment_align=4M
-xthroughput -xunroll=9 -xprefetch=latx:0.2
-xprefetch_level=3 -Qoption cg -Qlp-av=128
-Qoption iropt -Rujam

465.tonto: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -m32 -fast
-xtarget=sparc64xii -xpagesize=4M -xsegment_align=4M
-xthroughput -xipo=1 -xO4 -xunroll=3 -xprefetch=no%auto
-xthroughput=no -lbsdmalloc

Benchmarks using both Fortran and C:

435.gromacs: -std=c99 -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -m32 -fast(cc) -fast(f95)
-xtarget=sparc64xii -xpagesize=4M -xsegment_align=4M
-xthroughput -xalias_level=strong -Wc,-Qicache-chbab=1
-Wc,-Qiselect-rsqrta=2 -Wc,-Qiselect-rsqrta1x=2
-qoption cg -Qicache-chbab=1 -qoption cg -Qiselect-rsqrta=2
-qoption cg -Qiselect-rsqrta1x=2

436.cactusADM: -std=c99 -m32 -fast(cc) -fast(f95) -xtarget=sparc64xii
-xpagesize=4M -xsegment_align=4M -xthroughput
-xtarget=sparc64xplus -xunroll=10 -xprefetch=latx:2.0
-xpagesize=256M -xsegment_align=256M -xthroughput=no
-lbsdmalloc

454.calculix: -std=c99 -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -m32 -fast(cc) -fast(f95)
-xtarget=sparc64xii -xpagesize=4M -xsegment_align=4M
-xthroughput -xtarget=sparc64xplus -xipo=1
-Wc,-Qiselect-funcalign=64 -xinline_param=level:3
-Qoption cg -Qiselect-funcalign=64

481.wrf: -std=c99 -m32 -fast(cc) -fast(f95) -xtarget=sparc64xii
-xpagesize=4M -xsegment_align=4M -xthroughput -xunroll=9
-xprefetch=latx:0.4 -Qoption iropt -Rujam -xO4
-xthroughput=no

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 files that were used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Oracle-Developer-Studio12.6.html`
`http://www.spec.org/cpu2006/flags/Fujitsu-M12-2S.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2006/flags/Oracle-Developer-Studio12.6.xml`
`http://www.spec.org/cpu2006/flags/Fujitsu-M12-2S.xml`

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU2006 v1.2.
Report generated on Thu Apr 20 09:42:26 2017 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 19 April 2017.