



SPEC[®] CFP2006 Result

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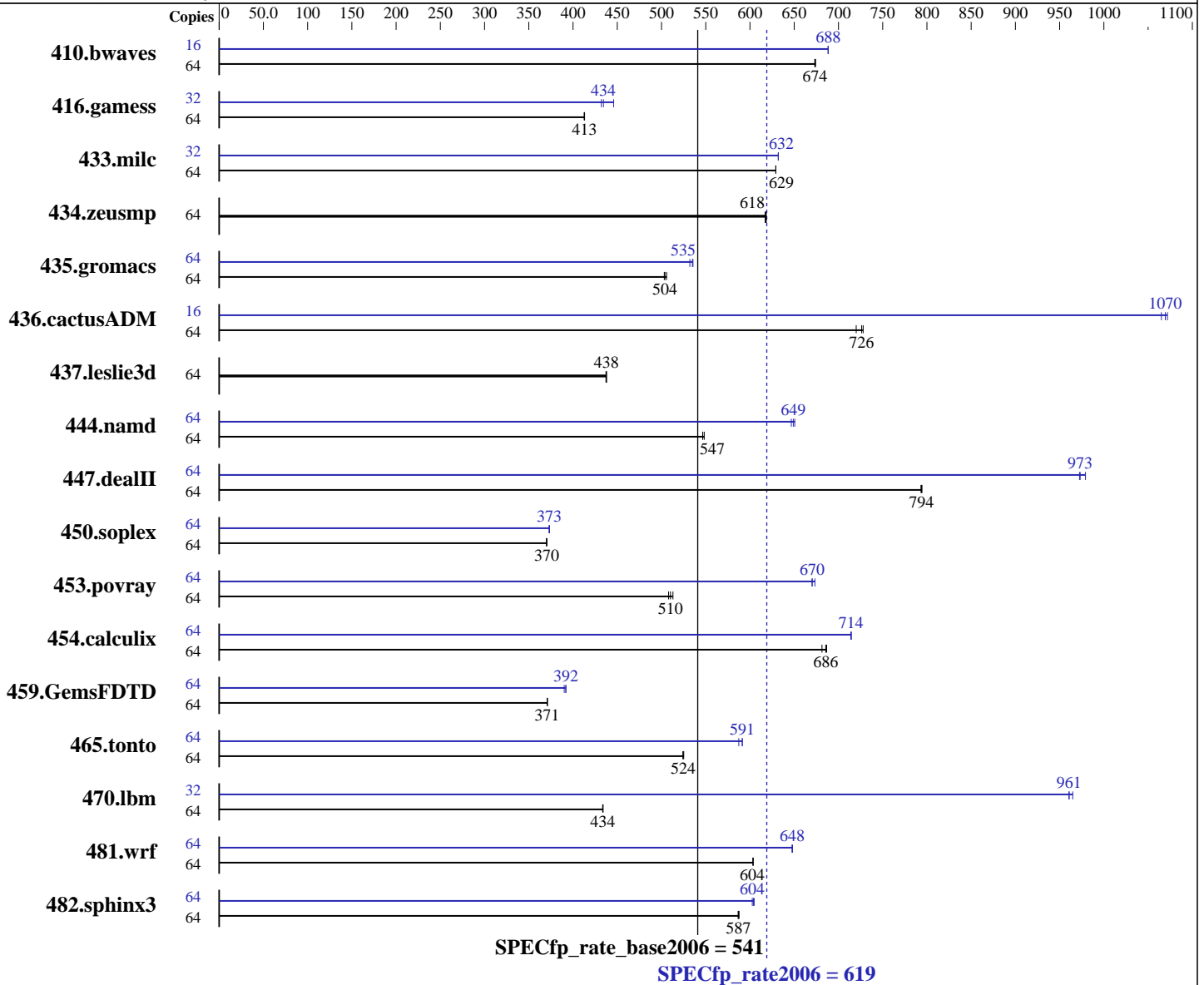
Fujitsu
Fujitsu SPARC M12-2S

SPECfp[®]_rate2006 = 619

SPECfp_rate_base2006 = 541

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: 8 cores, 1 chip, 8 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

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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



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Secondary Cache: 512 KB I+D on chip per core
L3 Cache: 32 MB I+D on chip per chip
Other Cache: None
Memory: 512 GB (16 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	64	1290	674	<u>1291</u>	<u>674</u>	1292	673	16	316	688	<u>316</u>	<u>688</u>	316	688		
416.gamess	64	<u>3035</u>	<u>413</u>	3037	413	3034	413	32	1405	446	1451	432	<u>1443</u>	<u>434</u>		
433.milc	64	934	629	934	629	<u>934</u>	<u>629</u>	32	<u>465</u>	<u>632</u>	465	632	465	632		
434.zeusmp	64	<u>942</u>	<u>618</u>	942	618	944	617	64	<u>942</u>	<u>618</u>	942	618	944	617		
435.gromacs	64	904	506	<u>907</u>	<u>504</u>	908	503	64	859	532	853	536	<u>854</u>	<u>535</u>		
436.cactusADM	64	1062	720	<u>1053</u>	<u>726</u>	1051	728	16	<u>179</u>	<u>1070</u>	178	1070	180	1060		
437.leslie3d	64	1374	438	1376	437	<u>1375</u>	<u>438</u>	64	1374	438	1376	437	<u>1375</u>	<u>438</u>		
444.namd	64	<u>939</u>	<u>547</u>	936	548	939	547	64	794	647	<u>791</u>	<u>649</u>	789	651		
447.dealII	64	923	793	922	794	<u>922</u>	<u>794</u>	64	<u>752</u>	<u>973</u>	748	979	753	972		
450.soplex	64	1443	370	1441	370	<u>1441</u>	<u>370</u>	64	1431	373	1429	373	<u>1430</u>	<u>373</u>		
453.povray	64	664	513	670	508	<u>667</u>	<u>510</u>	64	506	673	508	670	<u>508</u>	<u>670</u>		
454.calculix	64	775	681	<u>770</u>	<u>686</u>	769	687	64	<u>739</u>	<u>714</u>	739	714	739	714		
459.GemsFDTD	64	1830	371	1832	371	<u>1831</u>	<u>371</u>	64	<u>1733</u>	<u>392</u>	1741	390	1732	392		
465.tonto	64	1201	524	1199	525	<u>1201</u>	<u>524</u>	64	<u>1065</u>	<u>591</u>	1065	591	1072	587		
470.lbm	64	2028	434	2026	434	<u>2028</u>	<u>434</u>	32	456	965	<u>458</u>	<u>961</u>	458	961		
481.wrf	64	1185	603	1184	604	<u>1185</u>	<u>604</u>	64	1104	648	1103	648	<u>1103</u>	<u>648</u>		
482.sphinx3	64	<u>2126</u>	<u>587</u>	2123	588	2126	587	64	2063	605	<u>2066</u>	<u>604</u>	2070	603		

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".

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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 (5bc7c140478f0d042f37127effc8c1a9)

running on H2S-258-D0 Thu Mar 2 18:15:24 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)

1 chips

64 threads

4250 MHz

From kstat: 8 cores

From prtconf: 521728 Megabytes

/etc/release:

Oracle Solaris 11.3 SPARC

uname -a:

SunOS H2S-258-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	6.2G	265G	3%	/export

(End of data from sysinfo program)



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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.deallI: -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



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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

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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

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Peak Optimization Flags (Continued)

437.leslie3d: basepeak = yes

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-rsqrrta=2 -Wc,-Qiselect-rsqrrtalx=2
-qoption cg -Qicache-chbab=1 -qoption cg -Qiselect-rsqrrta=2
-qoption cg -Qiselect-rsqrrtalx=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

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Peak Other Flags (Continued)

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>

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

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