



SPEC[®] CFP2006 Result

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Fujitsu
Fujitsu SPARC M12-2S

SPECfp[®]_rate2006 = 757

SPECfp_rate_base2006 = 682

CPU2006 license: 19

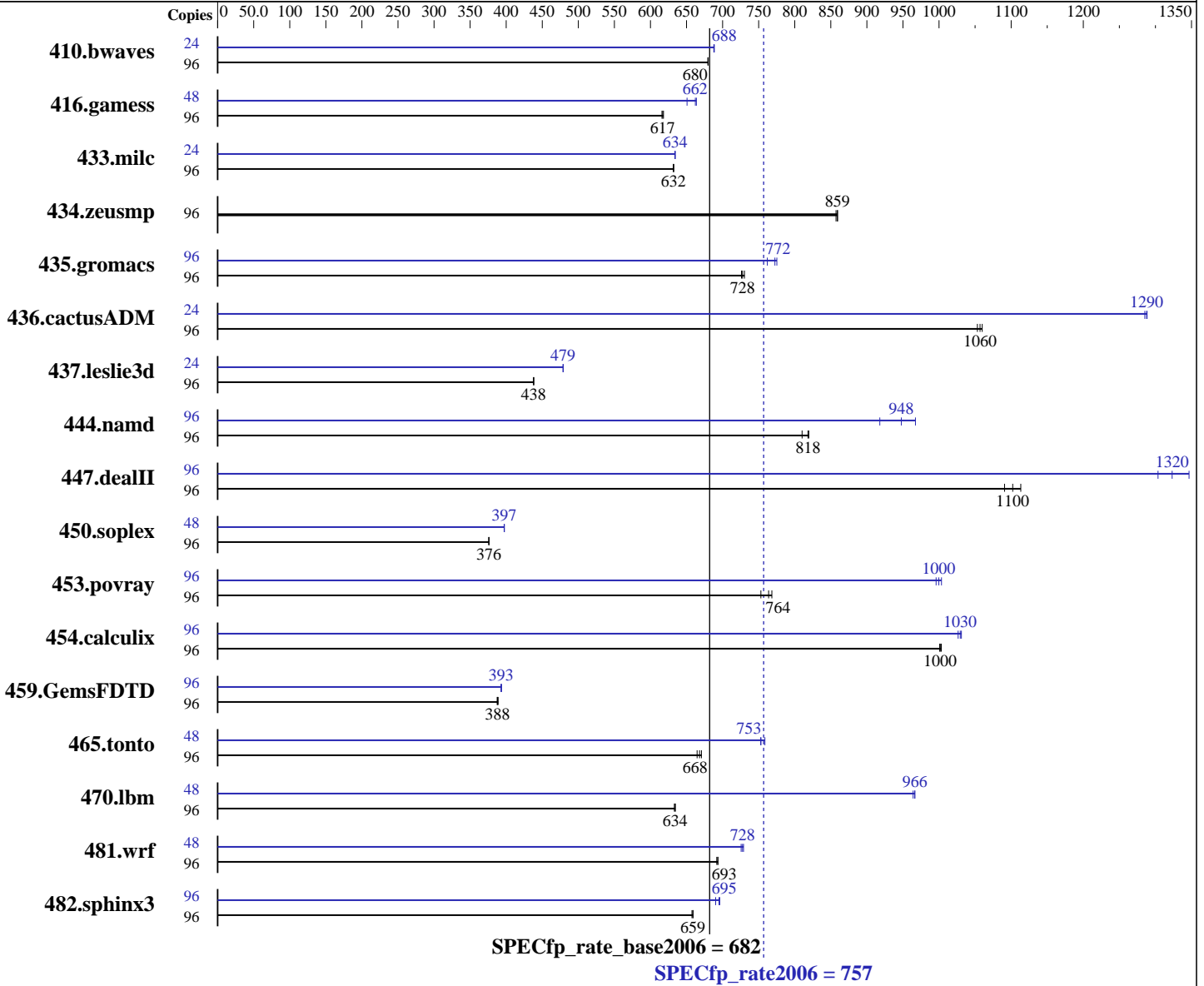
Test sponsor: Fujitsu

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: 12 cores, 1 chip, 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

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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	96	1919	680	1919	680	1919	680	24	474	688	474	688	474	688
416.gamess	96	3041	618	3052	616	3046	617	48	1444	651	1419	662	1416	664
433.milc	96	1395	632	1394	632	1395	632	24	347	634	348	634	347	634
434.zeusmp	96	1017	859	1019	857	1017	859	96	1017	859	1019	857	1017	859
435.gromacs	96	944	726	942	728	939	730	96	884	775	900	762	887	772
436.cactusADM	96	1085	1060	1082	1060	1089	1050	24	223	1290	223	1290	223	1290
437.leslie3d	96	2060	438	2060	438	2060	438	24	471	479	471	479	471	479
444.namd	96	950	810	940	819	941	818	96	812	948	839	918	796	967
447.dealII	96	1007	1090	996	1100	986	1110	96	816	1350	830	1320	842	1300
450.soplex	96	2129	376	2129	376	2130	376	48	1008	397	1008	397	1007	397
453.povray	96	665	768	678	753	669	764	96	511	1000	513	996	509	1000
454.calculix	96	791	1000	791	1000	789	1000	96	769	1030	772	1030	768	1030
459.GemsFDTD	96	2626	388	2629	387	2619	389	96	2591	393	2588	394	2593	393
465.tonto	96	1414	668	1421	665	1408	671	48	623	759	627	753	627	753
470.lbm	96	2083	633	2079	634	2080	634	48	684	964	682	966	682	966
481.wrf	96	1550	692	1546	693	1546	693	48	735	729	739	726	737	728
482.sphinx3	96	2840	659	2839	659	2846	658	96	2710	690	2692	695	2688	696

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 (c9426fd40261140bb4c02f7d35768596)

running on H2S-253-D0 Wed Mar 1 13:22:00 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

96 threads

4250 MHz

From kstat: 12 cores

From prtconf: 521728 Megabytes

/etc/release:

Oracle Solaris 11.3 SPARC

uname -a:

SunOS H2S-253-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	9.1G	265G	4%	/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.deallI: -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: -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-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



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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>

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