SPEC® CFP2006 Result

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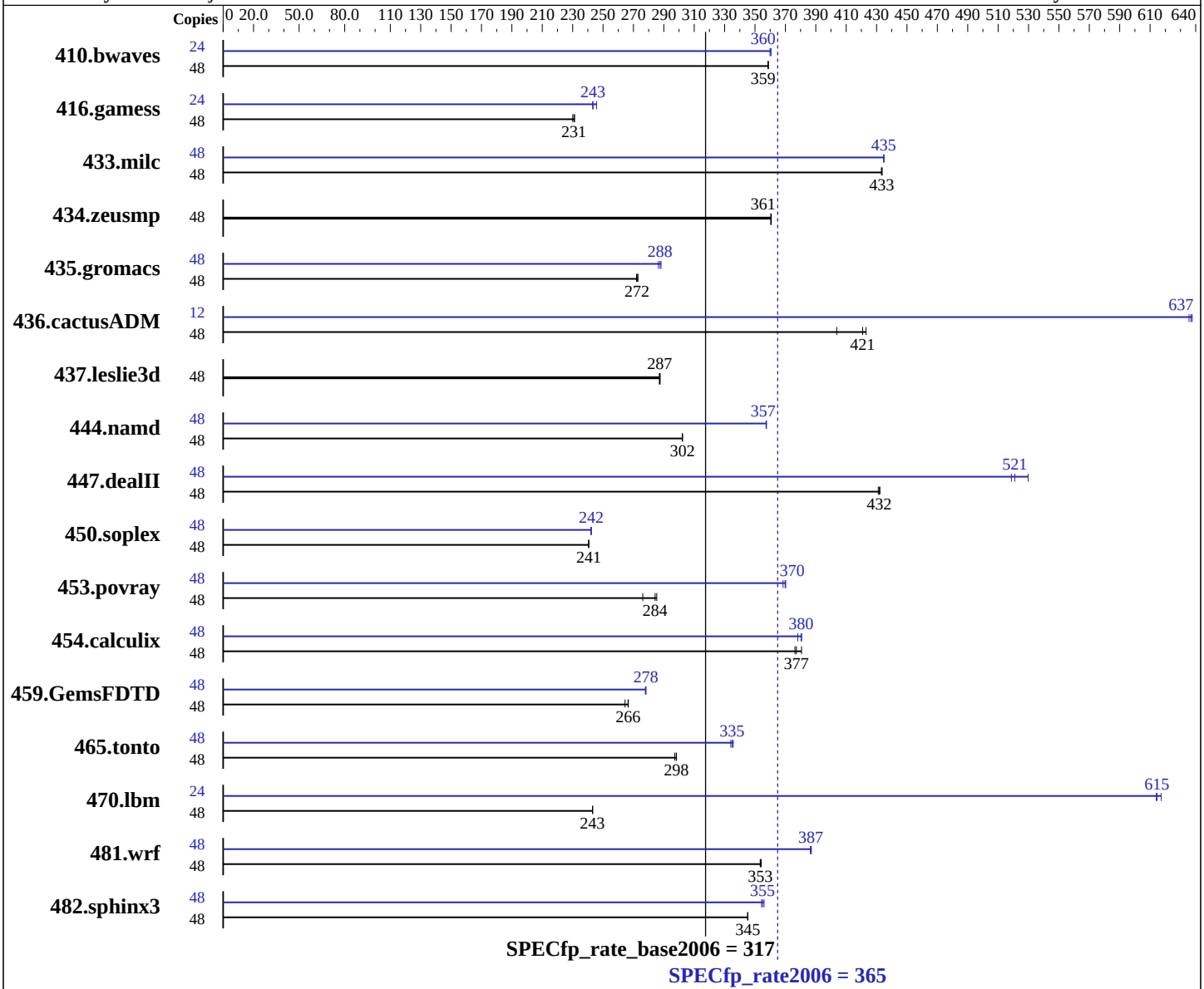
Fujitsu
Fujitsu SPARC M12-1

SPECfp®_rate2006 = 365

SPECfp_rate_base2006 = 317

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

Test date: Jun-2017
Hardware Availability: Jul-2017
Software Availability: Jul-2017



Hardware

CPU Name:	SPARC64 XII
CPU Characteristics:	
CPU MHz:	3200
FPU:	Integrated
CPU(s) enabled:	6 cores, 1 chip, 6 cores/chip, 8 threads/core
CPU(s) orderable:	the number of orderable total cores is 1, 2, 3, .. 6
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	512 KB I+D on chip per core

Continued on next page

Software

Operating System:	Solaris 11.3 SRU 20.6
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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L3 Cache: 16 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	48	**1819**	**359**	1818	359	1819	359	24	906	360	**905**	**360**	905	360
416.gamess	48	**4071**	**231**	4085	230	4063	231	24	**1930**	**243**	1912	246	1933	243
433.milc	48	**1017**	**433**	1016	434	1017	433	48	**1013**	**435**	1014	435	1013	435
434.zeusmp	48	**1211**	**361**	1212	360	1211	361	48	**1211**	**361**	1212	360	1211	361
435.gromacs	48	1260	272	1255	273	**1258**	**272**	48	**1192**	**288**	1197	286	1189	288
436.cactusADM	48	**1363**	**421**	1356	423	1420	404	12	225	638	**225**	**637**	226	636
437.leslie3d	48	1569	288	1572	287	**1571**	**287**	48	1569	288	1572	287	**1571**	**287**
444.namd	48	1273	302	**1274**	**302**	1274	302	48	1077	357	**1077**	**357**	1077	358
447.dealII	48	1274	431	1271	432	**1272**	**432**	48	**1054**	**521**	1059	519	1037	530
450.soplex	48	1663	241	1665	240	**1664**	**241**	48	1654	242	1652	242	**1652**	**242**
453.povray	48	925	276	895	285	**898**	**284**	48	690	370	693	368	**691**	**370**
454.calculix	48	**1050**	**377**	1052	376	1040	381	48	1047	378	1040	381	**1041**	**380**
459.GemsFDTD	48	1926	264	**1911**	**266**	1910	267	48	1833	278	**1831**	**278**	1830	278
465.tonto	48	1583	298	1589	297	**1584**	**298**	48	**1410**	**335**	1414	334	1407	336
470.lbm	48	2713	243	2712	243	**2713**	**243**	24	**537**	**615**	534	617	537	614
481.wrf	48	1514	354	**1517**	**353**	1517	353	48	1387	386	**1386**	**387**	1385	387
482.sphinx3	48	2709	345	**2710**	**345**	2711	345	48	**2635**	**355**	2640	354	2628	356

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".

System Tunables:
```

Continued on next page

Operating System Notes (Continued)

```
(/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

```
Sysinfo program /export/cpu2006/config/sysinfo
Revision 6993 of 2015-11-06 (975e92c7086bc383773e22882bdda8dd)
running on H1S-201-D0 Fri Jun 23 11:18:34 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 3200 MHz)
   1 chips
   48 threads
   3200 MHz

From kstat:        6 cores

From prtconf: 521728 Megabytes

/etc/release:
     Oracle Solaris 11.3 SPARC
uname -a:
   SunOS H1S-201-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   6.8G       465G     2%    /export

(End of data from sysinfo program)
```

General Notes

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

SPEC CPU2006 benchmark:
```

Continued on next page

General Notes (Continued)

```
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
```

Continued on next page

Base Other Flags (Continued)

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`

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`

Continued on next page

Peak Optimization Flags (Continued)

482.sphinx3 (continued):
-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

437.leslie3d: basepeak = yes

Continued on next page

Peak Optimization Flags (Continued)

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

Continued on next page

Peak Other Flags (Continued)

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-Studio12.6.20170725.html`
`http://www.spec.org/cpu2006/flags/Fujitsu-M12-1.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2006/flags/Oracle-Developer-Studio12.6.20170725.xml`
`http://www.spec.org/cpu2006/flags/Fujitsu-M12-1.xml`

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