SPEC® CFP2006 Result

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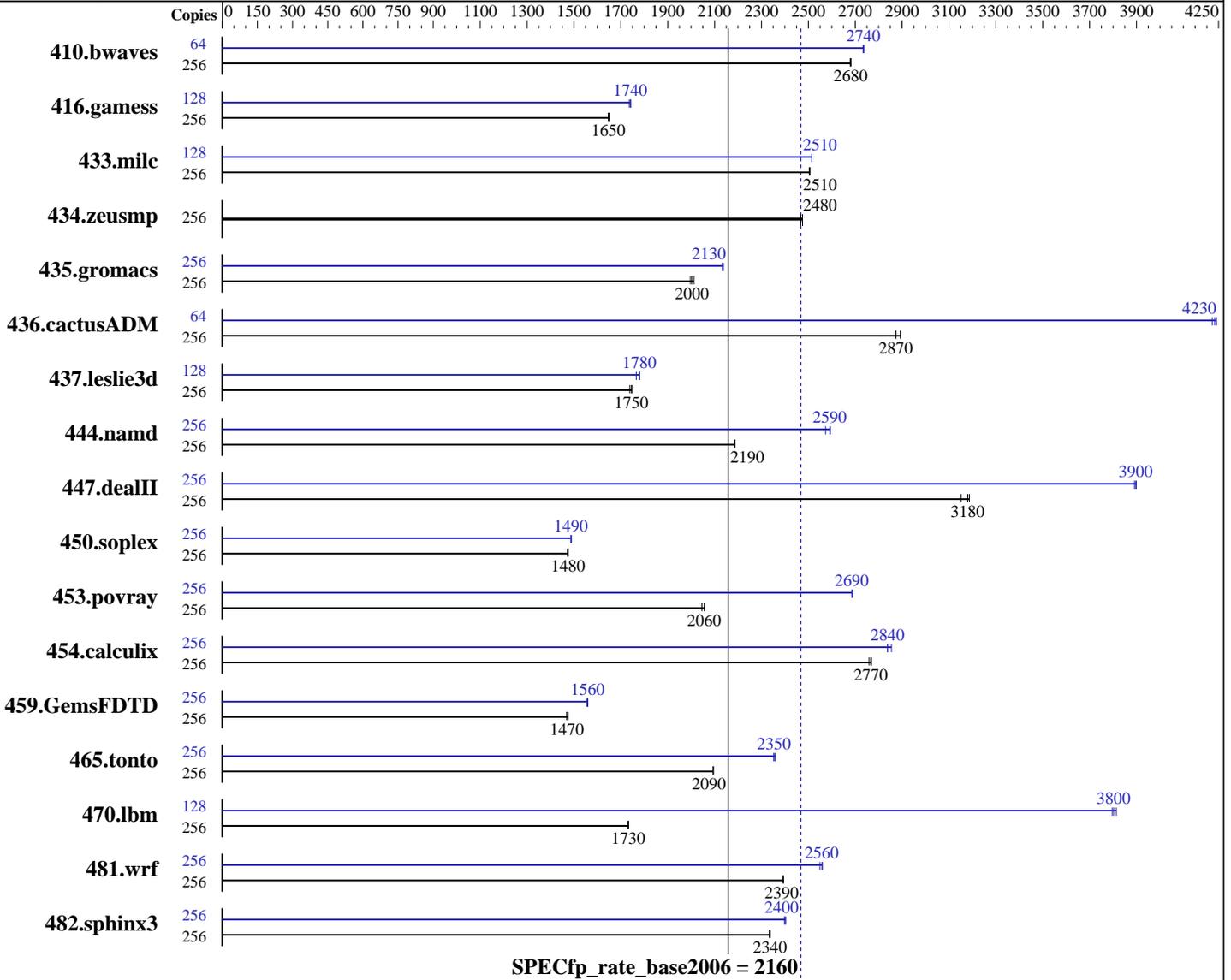
Fujitsu
Fujitsu SPARC M12-2S

$SPECfp®\_rate2006 =$ 2470

$SPECfp\_rate\_base2006 =$ 2160

CPU2006 license: 19	**Test date:** Mar-2017
Test sponsor: Fujitsu	**Hardware Availability:** Apr-2017
Tested by: Fujitsu	**Software Availability:** Jul-2017

SPECfp_rate_base2006 = 2160

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Hardware

CPU Name:	SPARC64 XII
CPU Characteristics:	High Speed Mode up to 4.35 GHz
CPU MHz:	4250
FPU:	Integrated
CPU(s) enabled:	32 cores, 4 chips, 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

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:	2 TB (64 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 Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	256	1297	2680	**1298**	**2680**	1298	2680	64	**318**	**2740**	318	2740	318	2730
416.gamess	256	**3041**	**1650**	3039	1650	3042	1650	128	1438	1740	**1439**	**1740**	1444	1740
433.milc	256	939	2500	938	2510	**938**	**2510**	128	467	2510	**467**	**2510**	467	2510
434.zeusmp	256	941	2480	**941**	**2480**	944	2470	256	941	2480	**941**	**2480**	944	2470
435.gromacs	256	**912**	**2000**	909	2010	915	2000	256	**857**	**2130**	855	2140	857	2130
436.cactusADM	256	**1065**	**2870**	1065	2870	1058	2890	64	180	4240	**181**	**4230**	181	4220
437.leslie3d	256	1384	1740	**1378**	**1750**	1378	1750	128	681	1770	**676**	**1780**	676	1780
444.namd	256	939	2190	**940**	**2190**	940	2180	256	798	2570	**792**	**2590**	792	2590
447.dealII	256	919	3190	**921**	**3180**	929	3150	256	753	3890	**752**	**3900**	751	3900
450.soplex	256	1450	1470	1446	1480	**1447**	**1480**	256	**1435**	**1490**	1435	1490	1435	1490
453.povray	256	666	2050	662	2060	**662**	**2060**	256	507	2690	**507**	**2690**	507	2690
454.calculix	256	763	2770	765	2760	**763**	**2770**	256	740	2850	744	2840	**744**	**2840**
459.GemsFDTD	256	1848	1470	**1847**	**1470**	1841	1480	256	1742	1560	**1742**	**1560**	1746	1560
465.tonto	256	**1203**	**2090**	1202	2090	1203	2090	256	**1070**	**2350**	1071	2350	1068	2360
470.lbm	256	2030	1730	**2031**	**1730**	2032	1730	128	461	3810	463	3800	**462**	**3800**
481.wrf	256	1194	2390	1198	2390	**1196**	**2390**	256	1117	2560	**1118**	**2560**	1122	2550
482.sphinx3	256	**2136**	**2340**	2138	2330	2134	2340	256	**2078**	**2400**	2081	2400	2076	2400

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-254-D0 Thu Mar 16 21:25:08 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)
   SPARC64-XII (chipid 2, clock 4250 MHz)
   SPARC64-XII (chipid 3, clock 4250 MHz)
   4 chips
   256 threads
   4250 MHz

 From kstat:       32 cores

 From prtconf: 2093056 Megabytes

 /etc/release:
     Oracle Solaris 11.3 SPARC
 uname -a:
   SunOS H2S-254-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    44G       218G    17%    /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.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

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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: `-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`

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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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