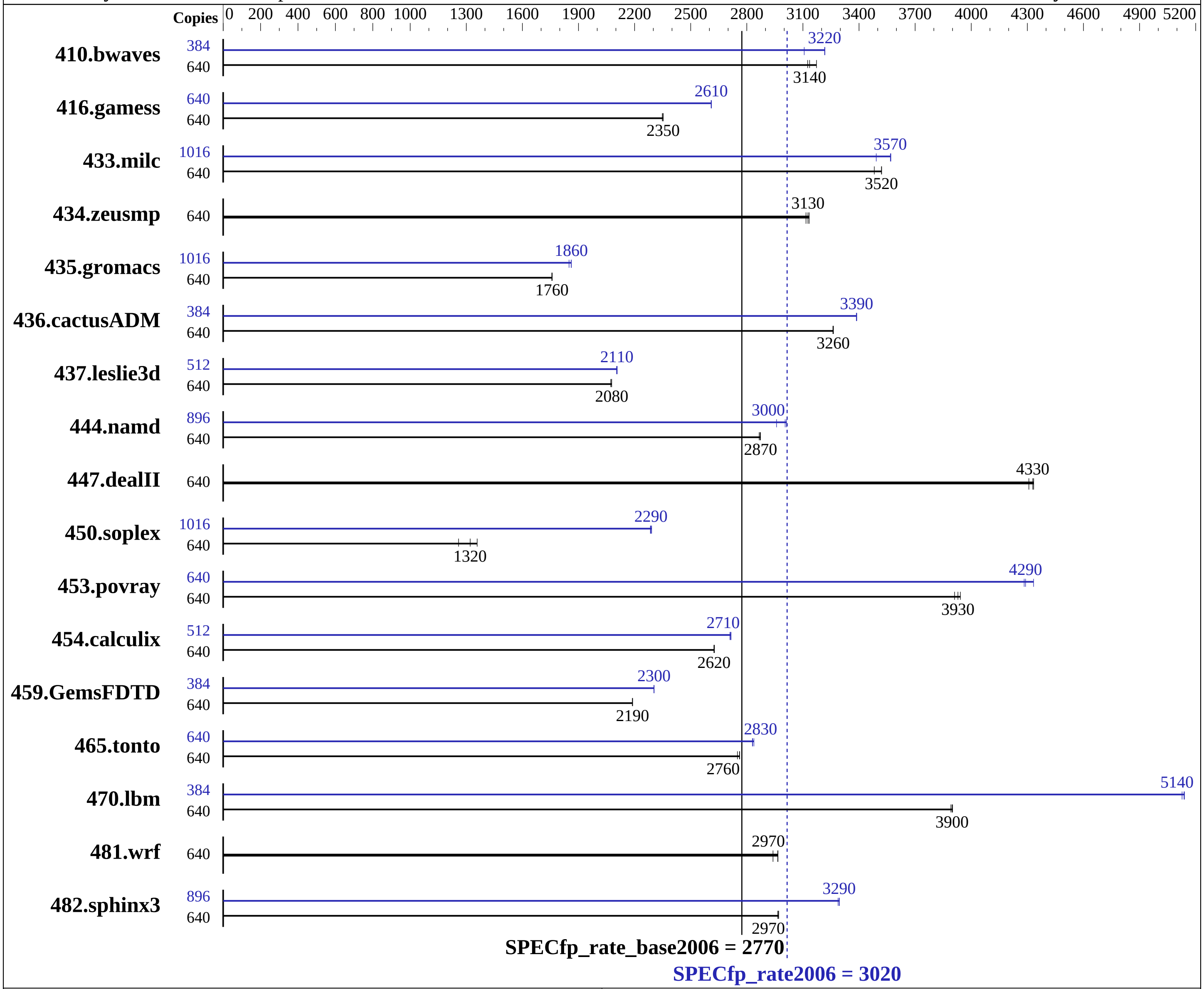
SPEC® CFP2006 Result

Oracle Corporation
SPARC T5-8

SPECfp®_rate2006 = 3020

SPECfp_rate_base2006 = 2770

CPU2006 license: 6		**Test date:**	Mar-2013
Test sponsor:	Oracle Corporation	**Hardware Availability:**	Mar-2013
Tested by:	Oracle Corporation	**Software Availability:**	Feb-2013



Hardware	
CPU Name:	SPARC T5
CPU Characteristics:	
CPU MHz:	3600
FPU:	Integrated
CPU(s) enabled:	128 cores, 8 chips, 16 cores/chip, 8 threads/core
CPU(s) orderable:	8 chips
Primary Cache:	16 KB I + 16 KB D on chip per core
Secondary Cache:	128 KB I+D on chip per core

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Software	
Operating System:	Oracle Solaris 11.1, SRU 4.6
Compiler:	C/C++/Fortran: Version 12.3 of Oracle Solaris, 1/13 Platform Specific Enhancement
Auto Parallel:	No
File System:	zfs with gzip compression
System State:	Default
Base Pointers:	32-bit
Peak Pointers:	32-bit
Other Software:	None

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L3 Cache:	8 MB I+D on chip per chip
Other Cache:	None
Memory:	4 TB (128 x 32 GB), 4-way interleaved
Disk Subsystem:	2 TB on 8x 600 GB 10K RPM SAS disks, arranged as 4x 2-way mirrors
Other Hardware:	None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	640	2783	3130	**2774**	**3140**	2742	3170	384	**1623**	**3220**	1680	3110	1622	3220
416.gamess	640	5326	2350	5337	2350	**5327**	**2350**	640	4803	2610	**4802**	**2610**	4800	2610
433.milc	640	1669	3520	1688	3480	**1669**	**3520**	1016	2671	3490	2612	3570	**2614**	**3570**
434.zeusmp	640	1859	3130	1869	3120	**1863**	**3130**	640	1859	3130	1869	3120	**1863**	**3130**
435.gromacs	640	2600	1760	**2599**	**1760**	2597	1760	1016	3923	1850	3897	1860	**3898**	**1860**
436.cactusADM	640	2346	3260	2344	3260	**2344**	**3260**	384	1354	3390	1355	3390	**1355**	**3390**
437.leslie3d	640	2896	2080	**2896**	**2080**	2903	2070	512	2284	2110	**2286**	**2110**	2288	2100
444.namd	640	1787	2870	1791	2870	**1788**	**2870**	896	**2391**	**3000**	2429	2960	2386	3010
447.dealII	640	**1691**	**4330**	1700	4310	1689	4330	640	**1691**	**4330**	1700	4310	1689	4330
450.soplex	640	3930	1360	4241	1260	**4041**	**1320**	1016	3698	2290	3709	2280	**3705**	**2290**
453.povray	640	871	3910	**867**	**3930**	864	3940	640	795	4280	**794**	**4290**	786	4330
454.calculix	640	**2012**	**2620**	2012	2620	2010	2630	512	1559	2710	1556	2720	**1557**	**2710**
459.GemsFDTD	640	**3102**	**2190**	3104	2190	3102	2190	384	1768	2300	1769	2300	**1768**	**2300**
465.tonto	640	2280	2760	2290	2750	**2281**	**2760**	640	**2224**	**2830**	2219	2840	2225	2830
470.lbm	640	2255	3900	**2256**	**3900**	2260	3890	384	**1027**	**5140**	1029	5130	1026	5140
481.wrf	640	**2411**	**2970**	2432	2940	2410	2970	640	**2411**	**2970**	2432	2940	2410	2970
482.sphinx3	640	4199	2970	4207	2970	**4201**	**2970**	896	5311	3290	5300	3290	**5302**	**3290**

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

```
Processes were bound to cores using "submit" and "pbind".  The config
file option 'submit' was used in order to accomplish this.
```

Operating System Notes

```
ulimit -s 131072 was used to limit the space
consumed by the stack

/etc/system parameters
   autoup=600
      Causes pages older than the listed number of seconds to
      be written by fsflush.
```

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Operating System Notes (Continued)

```
    tune_t_fsflushr=10
       Controls how many seconds elapse between runs of the
       page flush daemon, fsflush.
    lpg_alloc_prefer=1
        Indicates that extra effort should be taken to ensure
        that pages are created in the nearby lgroup (NUMA location).
    tsb_rss_factor=128
        Suggests that the the size of the TSB (Translation
        Storage Buffer) may be increased if it is more than
        25% (128/512) full.  Doing so may reduce TSB traps,
        at the cost of additional kernel memory.
    zfs:zfs_arc_min =  1073741824
    zfs:zfs_arc_max =  0x10000000000
        Limits the consumption of memory by the zfs file system
        cache to the range 1 GB to 1 TB.
    plat_disable_mempm=1
        Do not attempt to allocate kernel memory in a power-aware fashion

 poweradm set administrative-authority=none
     Disables Solaris power management

 A swapfile of 4 TB was connected via Fibre Channel
 on a Sun Storage 2540-M2 with 12x SAS 600 GB
 disks, Raid-5
```

Platform Notes

```
 Power policy set to 'disabled' at ILOM Power Managment menu
 Sysinfo program /cpu2006/config/sysinfo.rev6818
 $Rev: 6818 $ $Date:: 2012-07-17 #$ 5569a0425e2ad530534e4c79a46e4d28
 running on bur407-139.us.oracle.com Mon Mar 18 12:54:17 2013

 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
    SPARC-T5 (chipid 0, clock 3600 MHz)
    SPARC-T5 (chipid 1, clock 3600 MHz)
    SPARC-T5 (chipid 2, clock 3600 MHz)
    SPARC-T5 (chipid 3, clock 3600 MHz)
    SPARC-T5 (chipid 4, clock 3600 MHz)
    SPARC-T5 (chipid 5, clock 3600 MHz)
    SPARC-T5 (chipid 6, clock 3600 MHz)
    SPARC-T5 (chipid 7, clock 3600 MHz)
    8 chips
    1024 threads
    3600 MHz

 From kstat:      128 cores
```

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Platform Notes (Continued)

```
 From prtconf: 4 Terabytes

 /etc/release:
      Oracle Solaris 11.1 SPARC
 uname -a:
    SunOS bur407-139.us.oracle.com 5.11 11.1 sun4v sparc sun4v

 disk: df -h  $SPEC
 Filesystem                Size   Used  Available Capacity  Mounted on
 rpool/export/cpu2006       98G   973M        86G      2%    /cpu2006

 (End of data from sysinfo program)
```

Base Compiler Invocation

C benchmarks:
`cc`

C++ benchmarks:
`CC`

Fortran benchmarks:
`f90`

Benchmarks using both Fortran and C:
`cc f90`

(*) Indicates a compiler flag that was found in a non-compiler variable.

Base Optimization Flags

C benchmarks:
`-g -fast -fma=fused -xipo=2 -xpagesize=4M -xprefetch_level=2 -xalias_level=std -xprefetch_level=3 -xprefetch_auto_type=indirect_array_access -M map.4M.align`

C++ benchmarks:
`-g -fast -fma=fused -xipo=2 -xpagesize=4M -xprefetch_level=2 -xdepend -xalias_level=compatible -library=stdcxx4 -M map.4M.align`

Fortran benchmarks:
`-g -fast -fma=fused -xipo=2 -xpagesize=4M -xprefetch_level=2 -M map.4M.align`

Benchmarks using both Fortran and C:
`-g -fast(cc) -fast(f90) -fma=fused -xipo=2 -xpagesize=4M -xprefetch_level=2 -xalias_level=std -xprefetch_level=3 -xprefetch_auto_type=indirect_array_access -M map.4M.align`

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Base Other Flags

C benchmarks:
`-xjobs=32 -V -#`

C++ benchmarks:
`-xjobs=32 -verbose=diags,version`

Fortran benchmarks:
`-xjobs=32 -V -v`

Benchmarks using both Fortran and C:
`-xjobs=32 -V -# -v`

Peak Compiler Invocation

C benchmarks:

433.milc: `cc`

470.lbm: `cc`

482.sphinx3: `cc`

C++ benchmarks (except as noted below):
`CC`

450.soplex: `CC`

453.povray: `CC`

Fortran benchmarks (except as noted below):
`f90`

410.bwaves: `f90`

Benchmarks using both Fortran and C:
`cc f90`

(*) Indicates a compiler flag that was found in a non-compiler variable.

Peak Optimization Flags

C benchmarks:

433.milc: `-g -fast -fma=fused -Wc,-Qiselect-funcalign=64 -M map.4M.align -xipo=2 -xprefetch_level=2 -xpagesize=4M -xalias_level=std -xprefetch_auto_type=indirect_array_access -xprefetch=latx:3`

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Peak Optimization Flags (Continued)

470.lbm: -g -fast -fma=fused -Wc,-Qiselect-funcalign=64 -xalias_level=std -xprefetch_auto_type=indirect_array_access -xpagesize=256M -Wc,-xthroughput -W2,-xthroughput=yes -M map.256M.align -xipo=2 -xprefetch_level=2 -xprefetch=latx:3

482.sphinx3: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -fma=fused -Wc,-Qiselect-funcalign=64 -xinline= -xprefetch_level=2 -Wc,-Qlp-ol=1 -xrestrict -xalias_level=strong -fsimple=1 -xlinkopt=2 -lfast

C++ benchmarks:

444.namd: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -fma=fused -Wc,-Qiselect-funcalign=64 -xalias_level=compatible -M map.4M.align -xipo=2 -xprefetch=no%auto -xdepend -library=stdcxx4 -xpagesize=4M -Wc,-xthroughput -W2,-xthroughput=yes -xprefetch_level=1

447.dealII: basepeak = yes

450.soplex: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -fma=fused -Wc,-Qiselect-funcalign=64 -xdepend -xprefetch_level=2 -xprefetch_auto_type=indirect_array_access -xalias_level=simple -xrestrict -library=stlport4 -xipo=2

453.povray: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -fma=fused -Wc,-Qiselect-funcalign=64 -xalias_level=compatible -M map.256M.align -xipo=2 -xdepend -xlinkopt=2 -library=stdcxx4 -xpagesize=256M -Wc,-xthroughput -W2,-xthroughput=yes

Fortran benchmarks:

410.bwaves: -g -fast -fma=fused -Wc,-Qiselect-funcalign=64 -M map.256M.align -xipo=2 -xprefetch_level=2 -xpagesize=256M -lfast

416.gamess: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -fma=fused -Wc,-Qiselect-funcalign=64 -M map.4M.align -xipo=2 -xprefetch=no%auto -xpagesize=4M

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Peak Optimization Flags (Continued)

434.zeusmp: basepeak = yes

437.leslie3d: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -fma=fused -Wc,-Qiselect-funcalign=64 -M map.4M.align -xipo=2 -xpagesize=4M -Wc,-xthroughput -W2,-xthroughput=yes -xprefetch_level=1

459.GemsFDTD: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -fma=fused -Wc,-Qiselect-funcalign=64 -M map.4M.align -xipo=2 -xprefetch_level=3 -xpagesize=4M -Wc,-xthroughput -W2,-xthroughput=yes

465.tonto: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -stackvar -Wc,-xthroughput -W2,-xthroughput=yes -M map.4M.align -xipo=2 -lfast

Benchmarks using both Fortran and C:

435.gromacs: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90) -fma=fused -Wc,-Qiselect-funcalign=64 -M map.4M.align -xipo=2 -xpagesize=4M -Wc,-xthroughput -W2,-xthroughput=yes

436.cactusADM: -g -fast(cc) -fast(f90) -fma=fused -Wc,-Qiselect-funcalign=64 -xalias_level=std -xprefetch_auto_type=indirect_array_access -M map.4M.align -xipo=2 -xprefetch_level=2 -xpagesize=4M -Wc,-xthroughput -W2,-xthroughput=yes

454.calculix: -g -fast(cc) -fast(f90) -fma=fused -Wc,-Qiselect-funcalign=64 -xalias_level=std -xprefetch_auto_type=indirect_array_access -M map.4M.align -xipo=2 -xprefetch_level=2 -xprefetch=latx:3 -xpagesize=4M

481.wrf: basepeak = yes

Peak Other Flags

C benchmarks:
-xjobs=32 -V -#

C++ benchmarks:
-xjobs=32 -verbose=diags,version

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Peak Other Flags (Continued)

Fortran benchmarks:
    -xjobs=32 -V -v

Benchmarks using both Fortran and C:
    -xjobs=32 -V -# -v

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.3-SPARC.html
http://www.spec.org/cpu2006/flags/Oracle-Tseries.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.3-SPARC.xml
http://www.spec.org/cpu2006/flags/Oracle-Tseries.xml

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

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