



SPEC[®] CFP2006 Result

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Oracle Corporation SPARC T5-1B

SPECfp[®]_rate2006 = 369

SPECfp_rate_base2006 = 350

CPU2006 license: 6

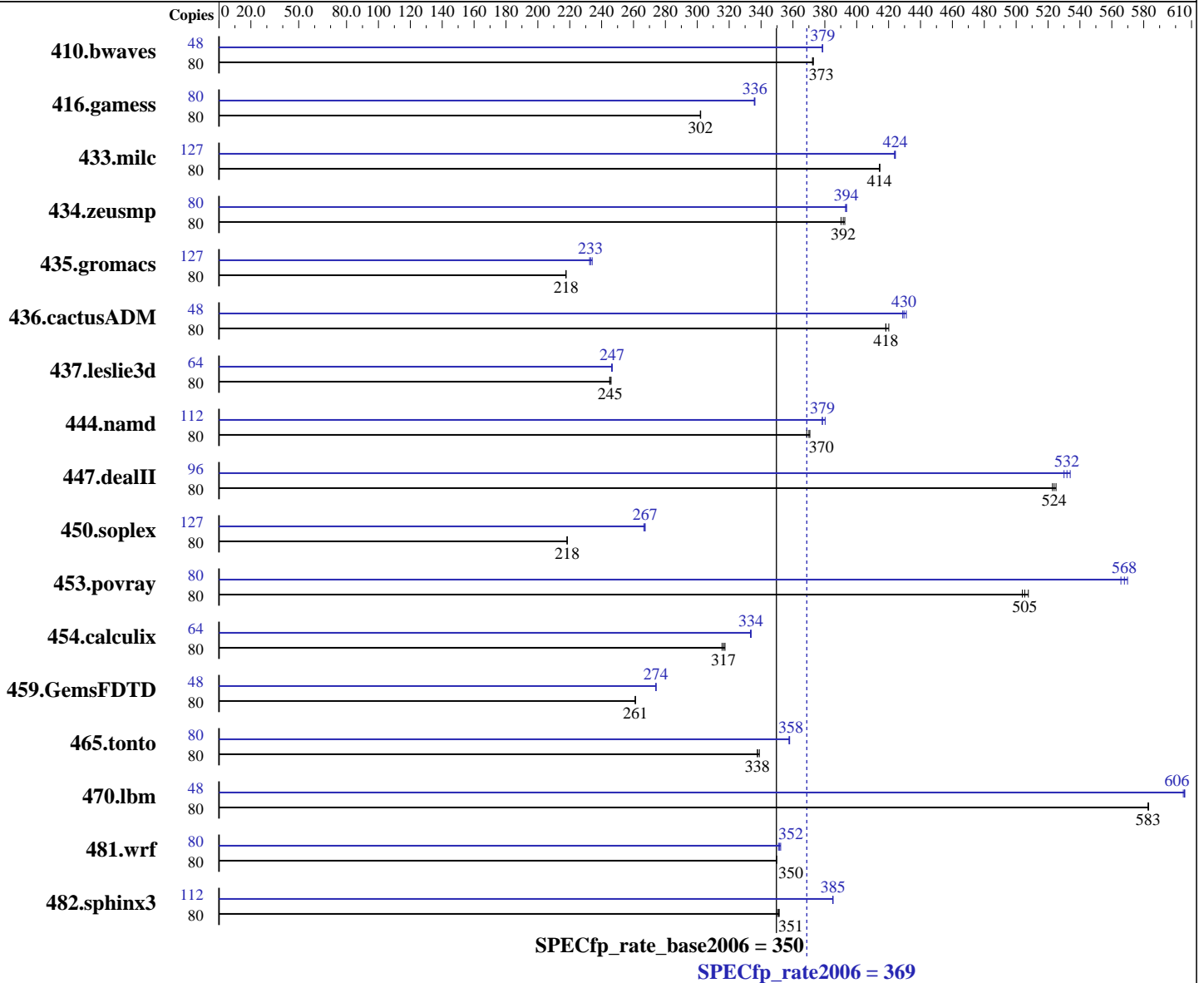
Test sponsor: Oracle Corporation

Tested by: Oracle Corporation

Test date: Mar-2013

Hardware Availability: Mar-2013

Software Availability: Feb-2013



Hardware

CPU Name: SPARC T5
 CPU Characteristics:
 CPU MHz: 3600
 FPU: Integrated
 CPU(s) enabled: 16 cores, 1 chip, 16 cores/chip, 8 threads/core
 CPU(s) orderable: 1 chip
 Primary Cache: 16 KB I + 16 KB D on chip per core
 Secondary Cache: 128 KB I+D on chip per core

Software

Operating System: Oracle Solaris 11.1, SRU 3.4
 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: 256 GB (16 x 16 GB), 4-way interleaved
Disk Subsystem: 157 GB on 2x 300 GB 10K RPM SAS disks (mirrored)
Other Hardware: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	80	<u>2918</u>	<u>373</u>	2921	372	2916	373	48	1724	378	1722	379	<u>1723</u>	<u>379</u>
416.gamess	80	<u>5186</u>	<u>302</u>	5189	302	5184	302	80	4666	336	4661	336	<u>4661</u>	<u>336</u>
433.milc	80	1772	414	<u>1772</u>	<u>414</u>	1773	414	127	2752	424	2748	424	<u>2749</u>	<u>424</u>
434.zeusmp	80	1855	393	1866	390	<u>1859</u>	<u>392</u>	80	<u>1850</u>	<u>394</u>	1853	393	1850	394
435.gromacs	80	<u>2625</u>	<u>218</u>	2625	218	2624	218	127	3901	232	<u>3891</u>	<u>233</u>	3874	234
436.cactusADM	80	2286	418	<u>2286</u>	<u>418</u>	2276	420	48	1330	431	<u>1335</u>	<u>430</u>	1338	429
437.leslie3d	80	3069	245	<u>3065</u>	<u>245</u>	3058	246	64	2443	246	<u>2440</u>	<u>247</u>	2439	247
444.namd	80	1731	371	<u>1734</u>	<u>370</u>	1740	369	112	2363	380	2374	378	<u>2373</u>	<u>379</u>
447.dealII	80	1743	525	1751	523	<u>1747</u>	<u>524</u>	96	2072	530	2057	534	<u>2065</u>	<u>532</u>
450.soplex	80	<u>3055</u>	<u>218</u>	3054	218	3056	218	127	3975	266	3963	267	<u>3964</u>	<u>267</u>
453.povray	80	<u>842</u>	<u>505</u>	845	504	838	508	80	747	570	752	566	<u>749</u>	<u>568</u>
454.calculix	80	<u>2085</u>	<u>317</u>	2079	317	2092	316	64	1582	334	1584	333	<u>1583</u>	<u>334</u>
459.GemsFDTD	80	3250	261	<u>3250</u>	<u>261</u>	3251	261	48	<u>1858</u>	<u>274</u>	1858	274	1858	274
465.tonto	80	2331	338	2323	339	<u>2331</u>	<u>338</u>	80	<u>2201</u>	<u>358</u>	2202	358	2199	358
470.lbm	80	1886	583	<u>1886</u>	<u>583</u>	1885	583	48	1089	606	<u>1089</u>	<u>606</u>	1090	605
481.wrf	80	<u>2556</u>	<u>350</u>	2556	350	2555	350	80	2536	352	2546	351	<u>2541</u>	<u>352</u>
482.sphinx3	80	4451	350	4437	351	<u>4442</u>	<u>351</u>	112	5668	385	5670	385	<u>5668</u>	<u>385</u>

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.
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 = 64424509440
  Limits the consumption of memory by the zfs file system
  cache to the range 1 GB to 60 GB.
```

pkg update disabled with svcadm disable pkg/update

Platform Notes

```
Sysinfo program /cpu2006/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ 5569a0425e2ad530534e4c79a46e4d28
running on bur408-183.us.oracle.com Wed Mar 20 20:46:02 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)
  1 chips
  128 threads
  3600 MHz
```

From kstat: 16 cores

From prtconf: 261120 Megabytes

```
/etc/release:
  Oracle Solaris 11.1 SPARC
uname -a:
  SunOS bur408-183.us.oracle.com 5.11 11.1 sun4v sparcsun4v
```

```
disk: df -h $SPEC
Filesystem      Size  Used  Available Capacity  Mounted on
rpool/cpu2006  166G  2.1G    155G      2%    /cpu2006
```

(End of data from sysinfo program)



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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=256M -xprefetch_level=2
-xalias_level=std -xprefetch_auto_type=indirect_array_access
-M map.64K.align

C++ benchmarks:

-g -fast -fma=fused -xipo=2 -xpagesize=256M -xprefetch_level=2
-xalias_level=compatible -library=stdcxx4 -M map.64K.align

Fortran benchmarks:

-g -fast -fma=fused -xipo=2 -xpagesize=256M -xprefetch_level=2
-M map.64K.align

Benchmarks using both Fortran and C:

-g -fast(cc) -fast(f90) -fma=fused -xipo=2 -xpagesize=256M
-xprefetch_level=2 -xalias_level=std
-xprefetch_auto_type=indirect_array_access -M map.64K.align

Base Other Flags

C benchmarks:

-xjobs=16 -V -#

C++ benchmarks:

-xjobs=16 -verbose=diags,version

Fortran benchmarks:

-xjobs=16 -V -v

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Base Other Flags (Continued)

Benchmarks using both Fortran and C:
-xjobs=16 -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 (except as noted below):

cc f90

481.wrf: 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

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

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Peak Optimization Flags (Continued)

482.sphinx3: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -fma=fused
-Wc,-Qiselect-funcalign=64 -xinline= -xprefetch_level=2
-xrestrict -xalias_level=strong -fsimple=1 -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.deallI: -g -fast -fma=fused -Wc,-Qiselect-funcalign=64
-xalias_level=compatible -M map.4M.align -xipo=2 -xrestrict
-xprefetch_level=2 -library=stdcxx4 -xpagesize=4M
-Wc,-xthroughput -W2,-xthroughput=yes

450.soplex: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -fma=fused
-Wc,-Qiselect-funcalign=64 -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 -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=3
-xpagesize=256M

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

434.zeusmp: -g -fast -fma=fused -Wc,-Qiselect-funcalign=64
-M map.4M.align -xipo=2 -xpagesize=4M -Wc,-xthroughput
-W2,-xthroughput=yes

437.leslie3d: -g -fast -fma=fused -Wc,-Qiselect-funcalign=64
-M map.4M.align -xipo=2 -xpagesize=4M -Wc,-xthroughput
-W2,-xthroughput=yes -xprefetch_level=1

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Peak Optimization Flags (Continued)

459.GemsFDTD: -g -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 -fma=fused
-Wc,-Qiselect-funcalign=64 -M map.4M.align -xipo=2
-xpagesize=4M -stackvar -Wc,-xthroughput
-W2,-xthroughput=yes -lbsdmalloc

Benchmarks using both Fortran and C:

435.gromacs: -g -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 -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: -g -fast(cc) -fast(f90) -fma=fused
-Wc,-Qiselect-funcalign=64 -M map.256M.align -xipo=2
-xpagesize=256M -Wc,-xthroughput -W2,-xthroughput=yes

Peak Other Flags

C benchmarks:
-xjobs=16 -V -#

C++ benchmarks:
-xjobs=16 -verbose=diags,version

Fortran benchmarks:
-xjobs=16 -V -v

Benchmarks using both Fortran and C:
-xjobs=16 -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>



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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>

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