SPEC® CFP2006 Result

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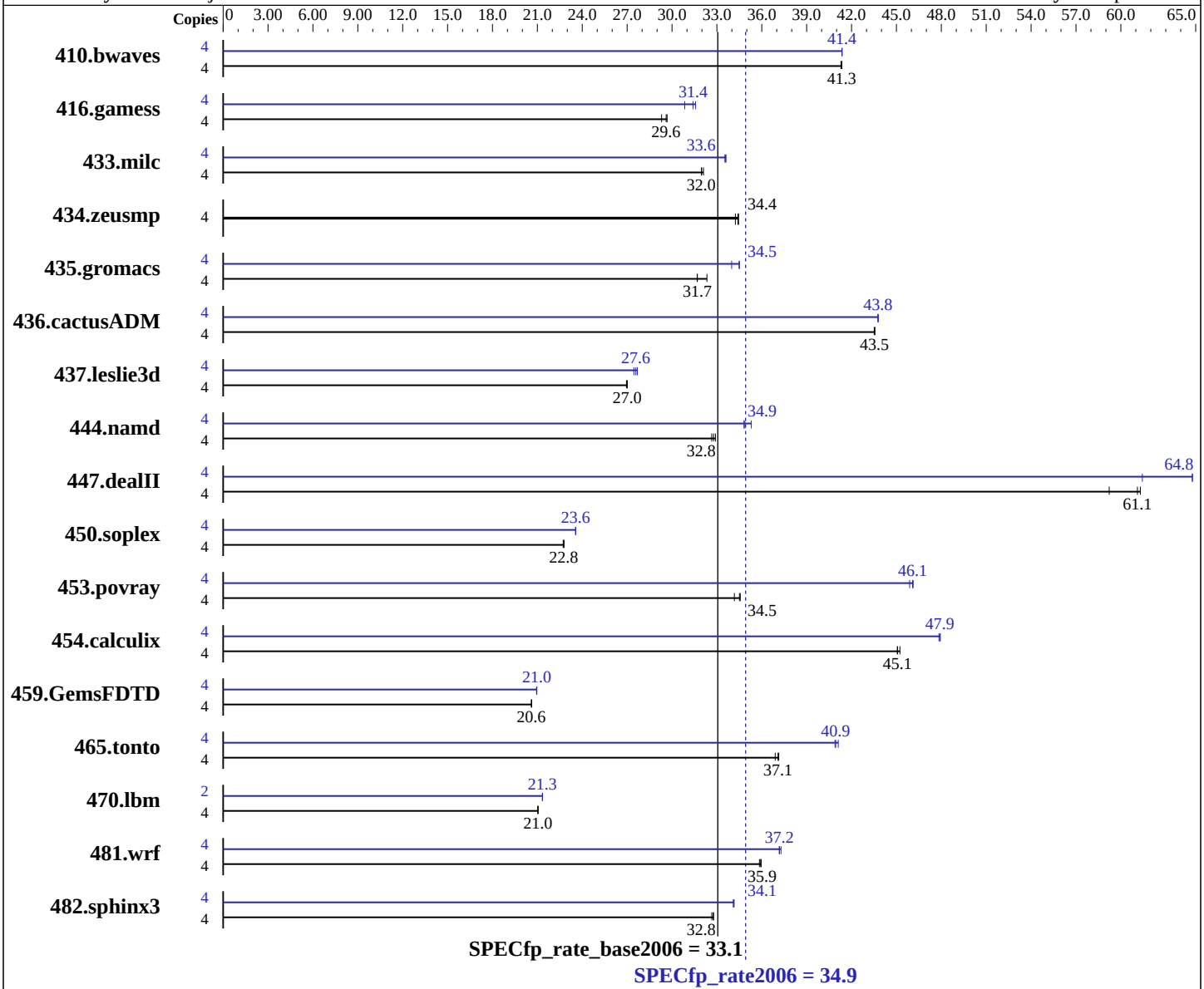
Oracle Corporation
SPARC Enterprise M3000

SPECfp®_rate2006 = 34.9

SPECfp_rate_base2006 = 33.1

CPU2006 license: 6
Test sponsor: Oracle Corporation
Tested by: Fujitsu

Test date: Jan-2011
Hardware Availability: Apr-2011
Software Availability: Sep-2010



Hardware

CPU Name:	SPARC64 VII+
CPU Characteristics:	
CPU MHz:	2860
FPU:	Integrated
CPU(s) enabled:	2 cores, 1 chip, 2 cores/chip, 2 threads/core
CPU(s) orderable:	1 chip
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	5632 KB I+D on chip per chip

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Software

Operating System:	Oracle Solaris 10 9/10
Compiler:	Oracle Solaris Studio 12.2
Auto Parallel:	No
File System:	ufs
System State:	Default
Base Pointers:	32-bit
Peak Pointers:	32-bit
Other Software:	Apache C++ Standard Library V4.2.1

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L3 Cache: None
Other Cache: None
Memory: 32 GB (8 x 4 GB, 2-way interleaved)
Disk Subsystem: 1 x 300 GB 10,000 RPM SAS
Other Hardware: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	1316	41.3	1315	41.3	**1315**	**41.3**	4	1314	41.4	**1314**	**41.4**	1314	41.4
416.gamess	4	2640	29.7	**2645**	**29.6**	2673	29.3	4	**2493**	**31.4**	2480	31.6	2539	30.8
433.milc	4	**1148**	**32.0**	1149	32.0	1144	32.1	4	1095	33.5	**1093**	**33.6**	1093	33.6
434.zeusmp	4	1063	34.2	**1058**	**34.4**	1057	34.4	4	1063	34.2	**1058**	**34.4**	1057	34.4
435.gromacs	4	883	32.3	902	31.7	**901**	**31.7**	4	828	34.5	840	34.0	**828**	**34.5**
436.cactusADM	4	1098	43.5	**1098**	**43.5**	1097	43.6	4	1092	43.8	**1092**	**43.8**	1092	43.8
437.leslie3d	4	1395	27.0	**1392**	**27.0**	1392	27.0	4	**1363**	**27.6**	1370	27.5	1358	27.7
444.namd	4	975	32.9	982	32.7	**979**	**32.8**	4	922	34.8	909	35.3	**920**	**34.9**
447.dealII	4	**749**	**61.1**	773	59.2	746	61.3	4	**706**	**64.8**	706	64.8	745	61.4
450.soplex	4	**1465**	**22.8**	1468	22.7	1464	22.8	4	1415	23.6	1416	23.6	**1416**	**23.6**
453.povray	4	616	34.6	**617**	**34.5**	623	34.2	4	461	46.1	464	45.9	**462**	**46.1**
454.calculix	4	**732**	**45.1**	730	45.2	732	45.1	4	689	47.9	690	47.8	**689**	**47.9**
459.GemsFDTD	4	2058	20.6	2060	20.6	**2060**	**20.6**	4	**2025**	**21.0**	2026	20.9	2024	21.0
465.tonto	4	**1061**	**37.1**	1060	37.1	1067	36.9	4	957	41.1	**961**	**40.9**	962	40.9
470.lbm	4	2613	21.0	2612	21.0	**2612**	**21.0**	2	1288	21.3	1287	21.3	**1288**	**21.3**
481.wrf	4	1243	36.0	**1244**	**35.9**	1247	35.8	4	1198	37.3	**1202**	**37.2**	1202	37.2
482.sphinx3	4	2387	32.7	**2380**	**32.8**	2378	32.8	4	2283	34.2	2286	34.1	**2285**	**34.1**

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

Compiler Invocation Notes

```
  Oracle Solaris Studio 12.2 is distributed with mandatory OS patches
   118683-05  119963-20  120753-08
  Oracle Solaris Studio 12.2 and patches are available at
   http://oracle.com/goto/solarisstudio

The Apache C++ Standard Library V4.2.1 was installed from
   http://stdcxx.apache.org/download.html using:
     alias gmake=specmake
     gmake BUILDTYPE=8d CONFIG=sunpro.config
```

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

```
ulimit -s 131072 was used to limit the space
consumed by the stack (and therefore make more
space available to the heap).

System Tunables:
(/etc/system parameters)

    tune_t_fsflushr=10
       Controls how many seconds elapse between runs of the
       page flush daemon, fsflush.
    autoup=600
       Causes pages older than the listed number of seconds to
       be written by fsflush.
    bufhwm=3000
       Memory byte limit for caching I/O buffers.
    segmap_percent=1
       Set maximum percent memory for file system cache.

Other System Settings:

    The "webconsole" service was turned off using
        svcadm disable webconsole
```

Platform Notes

```
Memory is 2-way interleaved by filling all slots with
the same capacity DIMMs.

This result is measured on a SPARC Enterprise M3000 server from
Fujitsu.  The SPARC Enterprise M3000 server from Oracle and from
Fujitsu are electrically equivalent.
```

General Notes

```
447.dealII (peak): "apache_stdcxx_4_2_1" src.alt was used.

447.dealII (base): "apache_stdcxx_4_2_1" src.alt was used.
```

Base Compiler Invocation

C benchmarks:
cc

C++ benchmarks:
CC

Fortran benchmarks:
f90

Benchmarks using both Fortran and C:
cc f90

Base Optimization Flags

C benchmarks:
-fast -fma=fused -xipo=2 -xpagesize=4M -xlinkopt -xvector
-xalias_level=std -xprefetch_auto_type=indirect_array_access
-xprefetch_level=3 -xunroll=8 -ll2amm

C++ benchmarks:
-xdepend -fast -fma=fused -xipo=2 -xpagesize=4M -xlinkopt -xvector
-xO4 -xalias_level=compatible -xprefetch=latx:0.5 -library=no%Cstd
-I/mnt/spec//stdcxx-4.2.1/include
-I/mnt/spec//stdcxx-4.2.1/build/include
-L/mnt/spec//stdcxx-4.2.1/build/lib -R/mnt/spec//stdcxx-4.2.1/build/lib
-lstd8d

Fortran benchmarks:
-fast -fma=fused -xipo=2 -xpagesize=4M -xlinkopt -xvector
-xprefetch_level=2 -ll2amm

Benchmarks using both Fortran and C:
-fast(cc) -fast(f90) -fma=fused -xipo=2 -xpagesize=4M -xlinkopt
-xvector -xalias_level=std -xprefetch_auto_type=indirect_array_access
-xprefetch_level=3 -xunroll=8 -xprefetch_level=2 -ll2amm

Base Other Flags

C benchmarks:
-xjobs=4 -V -#

C++ benchmarks:
-xjobs=4 -verbose=diags,version

Fortran benchmarks:
-xjobs=4 -V -v

Continued on next page

Base Other Flags (Continued)

Benchmarks using both Fortran and C:
`-xjobs=4 -V -# -v`

Peak Compiler Invocation

C benchmarks:
`cc`

C++ benchmarks:
`CC`

Fortran benchmarks:
`f90`

Benchmarks using both Fortran and C:
`cc f90`

Peak Optimization Flags

C benchmarks:

433.milc: `-xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast -fma=fused`
`-xpagesize=4M -xipo=2 -xarch=generic -xcache=generic`
`-xlinkopt -fsimple=1 -W2,-Ainline:rs=400 -xalias_level=std`
`-xprefetch_auto_type=indirect_array_access -xprefetch_level=3`
`-xunroll=2`

470.lbm: `-xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast -fma=fused`
`-xpagesize=4M -xipo=2 -xO4 -xprefetch_level=2`

482.sphinx3: `-xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast -fma=fused`
`-xpagesize=4M -xipo=1 -xalias_level=strong`
`-xprefetch=latx:1.5 -xunroll=4 -lbsdmalloc`

C++ benchmarks:

444.namd: `-xdepend -xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast -fma=fused`
`-xpagesize=4M -xalias_level=compatible -library=stlport4`
`-xipo=1 -xO3 -xchip=generic -xinline= -xlinkopt`
`-xprefetch_level=2 -xprefetch=latx:2.5 -ll2amm -lfast`

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Peak Optimization Flags (Continued)

447.dealII: -xdepend -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -fma=fused
-xpagesize=4M -xalias_level=compatible -library=no%Cstd
-I/mnt/spec//stdcxx-4.2.1/include
-I/mnt/spec//stdcxx-4.2.1/build/include -xipo=2
-xchip=generic -xprefetch_auto_type=indirect_array_access
-xrestrict -xprefetch_level=2
-L/mnt/spec//stdcxx-4.2.1/build/lib
-R/mnt/spec//stdcxx-4.2.1/build/lib -lstd8d

450.soplex: -xdepend -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -fma=fused
-xpagesize=4M -xalias_level=compatible -library=stlport4
-xarch=generic -xprefetch=no%auto

453.povray: -xdepend -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -fma=fused
-xpagesize=4M -xalias_level=compatible -library=stlport4
-M /usr/lib/ld/map.bssalign -xipo=2 -xO4 -xprefetch=no%auto
-xunroll=4 -lfast -ll2amm -lbsdmalloc

Fortran benchmarks:

410.bwaves: -fast -fma=fused -xpagesize=4M -xipo=2 -xlinkopt
-xprefetch_level=2 -xprefetch=latx:2

416.gamess: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -fma=fused
-xpagesize=4M -M /usr/lib/ld/map.bssalign -xipo=1 -xO3
-xinline= -xprefetch=no%auto -xunroll=3 -lfast -ll2amm
-lbsdmalloc

434.zeusmp: basepeak = yes

437.leslie3d: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -fma=fused
-xpagesize=4M -M /usr/lib/ld/map.bssalign -xipo=1 -xO3
-xcache=generic -xprefetch=latx:2 -xunroll=10 -ll2amm

459.GemsFDTD: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -fma=fused
-xpagesize=4M -xipo=1 -xarch=sparcvis2
-xprefetch_auto_type=indirect_array_access -xprefetch_level=2
-xprefetch=latx:0.1 -xunroll=7

465.tonto: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -fma=fused
-xpagesize=4M -xipo=2 -xprefetch=no%auto -xunroll=4
-lbsdmalloc

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Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

435.gromacs: `-xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast`(cc) `-fast`(f90)
`-fma=fused -xpagesize=4M -xO4 -xchip=generic`
`-xcache=generic -fsimple=0 -xprefetch=no%auto -xunroll=3`

436.cactusADM: `-fast`(cc) `-fast`(f90) `-fma=fused -xpagesize=4M`
`-xalias_level=std -xunroll=12 -lfast`

454.calculix: `-xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast`(cc) `-fast`(f90)
`-fma=fused -xpagesize=4M -xipo=2 -xcache=generic`
`-xprefetch=latx:3 -xunroll=8 -xalias_level=std -lmopt`

481.wrf: `-xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast`(cc) `-fast`(f90)
`-fma=fused -xpagesize=4M -xalias_level=std -xipo=2 -xO4`
`-xcache=generic -xprefetch_auto_type=indirect_array_access`
`-xprefetch=latx:1`

Peak Other Flags

C benchmarks:
`-xjobs=4 -V -#`

C++ benchmarks:
`-xjobs=4 -verbose=diags,version`

Fortran benchmarks:
`-xjobs=4 -V -v`

Benchmarks using both Fortran and C:
`-xjobs=4 -V -# -v`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.2-SPARC.20110413.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.2-SPARC.20110413.xml`

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For other inquiries, please contact webmaster@spec.org.

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