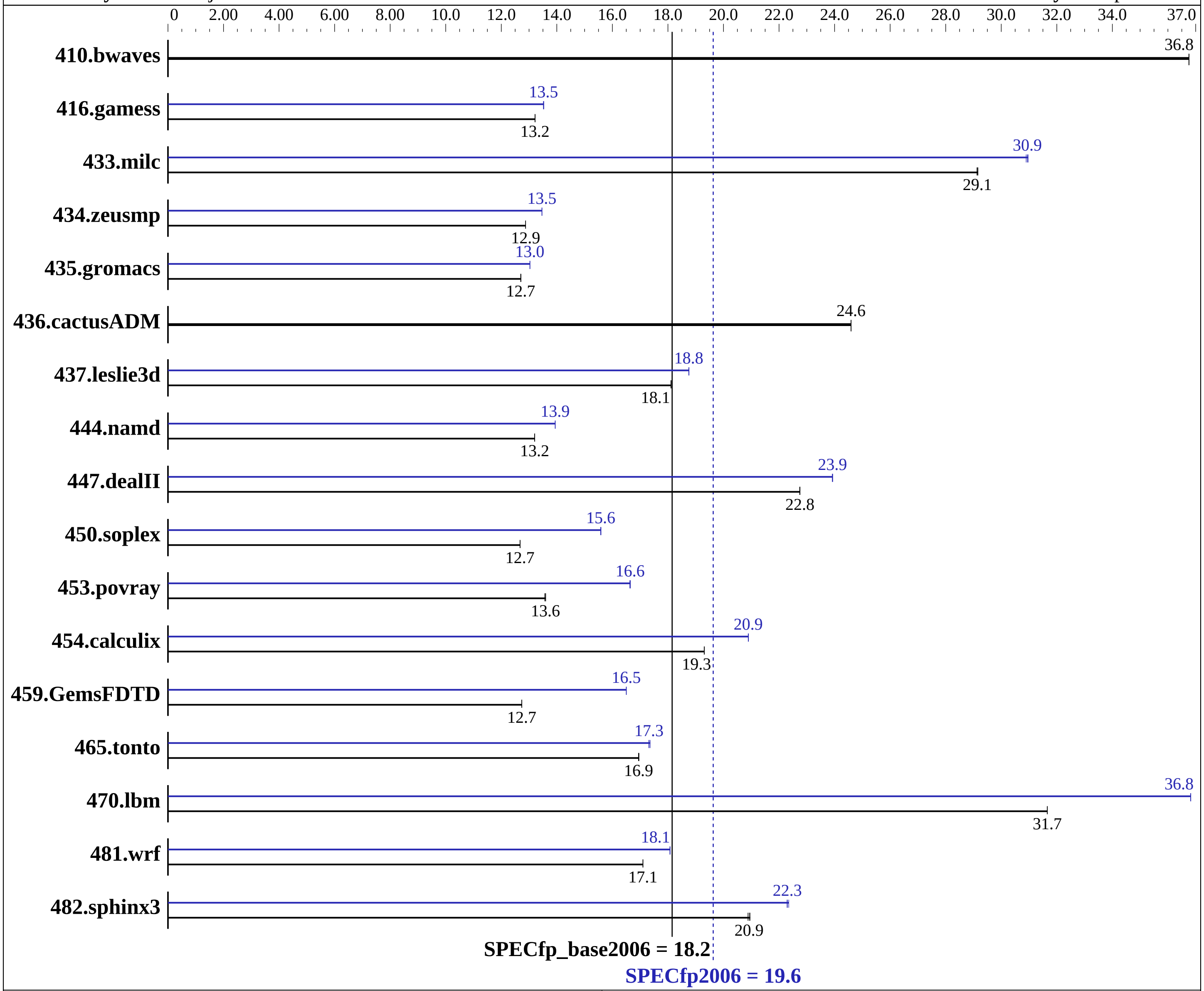
SPEC® CFP2006 Result

Oracle Corporation
SPARC Enterprise M8000

SPECfp®2006 = 19.6

SPECfp_base2006 = 18.2

CPU2006 license: 6
Test sponsor: Oracle Corporation
Tested by: Fujitsu
Test date: Oct-2010
Hardware Availability: Dec-2010
Software Availability: Sep-2010



Hardware

CPU Name:	SPARC64 VII+
CPU Characteristics:	
CPU MHz:	3000
FPU:	Integrated
CPU(s) enabled:	64 cores, 16 chips, 4 cores/chip, 2 threads/core
CPU(s) orderable:	1 to 4 CMUs; each CMU contains 2 or 4 CPU chips
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	12 MB 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:	zfs
System State:	Default
Base Pointers:	32-bit
Peak Pointers:	32-bit
Other Software:	None

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L3 Cache:	None
Other Cache:	None
Memory:	512 GB (128 x 4 GB, 8-way interleaved)
Disk Subsystem:	4 x 300 GB 10,000 RPM SAS
Other Hardware:	None

Results Table

	Base						Peak					
Benchmark	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	370	36.8	370	36.8	**370**	**36.8**	370	36.8	370	36.8	**370**	**36.8**
416.gamess	**1482**	**13.2**	1481	13.2	1482	13.2	1449	13.5	**1448**	**13.5**	1447	13.5
433.milc	315	29.2	**315**	**29.1**	315	29.1	297	30.9	296	31.0	**297**	**30.9**
434.zeusmp	**707**	**12.9**	707	12.9	707	12.9	**676**	**13.5**	676	13.5	676	13.5
435.gromacs	562	12.7	562	12.7	**562**	**12.7**	548	13.0	548	13.0	**548**	**13.0**
436.cactusADM	486	24.6	**486**	**24.6**	486	24.6	486	24.6	**486**	**24.6**	486	24.6
437.leslie3d	519	18.1	**519**	**18.1**	519	18.1	501	18.8	501	18.8	**501**	**18.8**
444.namd	607	13.2	**607**	**13.2**	607	13.2	**575**	**13.9**	575	13.9	575	13.9
447.dealII	**503**	**22.8**	503	22.7	503	22.8	**478**	**23.9**	478	23.9	478	23.9
450.soplex	658	12.7	658	12.7	**658**	**12.7**	535	15.6	**535**	**15.6**	535	15.6
453.povray	392	13.6	391	13.6	**391**	**13.6**	**320**	**16.6**	320	16.6	320	16.6
454.calculix	427	19.3	**427**	**19.3**	427	19.3	395	20.9	395	20.9	**395**	**20.9**
459.GemsFDTD	**833**	**12.7**	833	12.7	833	12.7	643	16.5	**643**	**16.5**	643	16.5
465.tonto	580	17.0	**581**	**16.9**	581	16.9	568	17.3	**568**	**17.3**	567	17.4
470.lbm	**434**	**31.7**	434	31.7	434	31.7	373	36.8	373	36.8	**373**	**36.8**
481.wrf	653	17.1	653	17.1	**653**	**17.1**	618	18.1	**618**	**18.1**	618	18.1
482.sphinx3	933	20.9	930	21.0	**931**	**20.9**	874	22.3	**874**	**22.3**	872	22.3

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

```
The config file option 'submit' was used.  Processes were assigned to
specific processors using 'pbind' commands.  The list of processors to use
was provided 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 allow the stack to grow
up to 131072 KB (aka 128 MB).  Note that saying "131072"
is preferable to "unlimited", because there is a tradeoff
between space for the stack vs. space for the heap.


System Tunables (/etc/system parameters):

autoup=600
    Causes pages older than the listed number of seconds to
    be written by fsflush.
zfs:zfs_arc_max = 0x10000000
    Control the amount of memory used by ZFS for caching
lpg_alloc_prefer=1
    Prefer local pages, even if not easily available

Other System Settings:

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

Platform Notes

```
Memory is 8-way interleaved by filling each CMU's slots with the same
capacity DIMMs.

This result is measured on a SPARC Enterprise M8000 server from
Fujitsu.  The SPARC Enterprise M8000 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 -xprefetch_level=2 -xlinkopt
-xvector -xalias_level=std -xprefetch_auto_type=indirect_array_access

C++ benchmarks:
-xdepend -fast -fma=fused -xipo=2 -xpagesize=4M -xprefetch_level=2
-xlinkopt -xvector -xalias_level=compatible -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 -xprefetch_level=2 -xlinkopt
-xvector

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

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:
`cc`

C++ benchmarks:
`CC`

Fortran benchmarks:
`f90`

Benchmarks using both Fortran and C:
`cc f90`

Peak Optimization Flags

C benchmarks:

433.milc: -fast -xpagesize=4M -fma=fused -xipo=2 -xprefetch_level=2 -fsimple=1 -xprefetch_auto_type=indirect_array_access -W2,-Ainline:rs=400 -xalias_level=std -xprefetch=latx:2.0

470.lbm: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -xipo=2 -xprefetch_level=2 -xprefetch=latx:2.0

482.sphinx3: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -fma=fused -xipo=2 -xO4 -xcache=generic -xprefetch_level=2 -xprefetch=latx:0.5

C++ benchmarks:

444.namd: -xdepend -fast -xpagesize=4M -xalias_level=compatible -library=stlport4 -fma=fused -xalias_level=any -xchip=generic

447.dealII: -xdepend -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -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 -fma=fused -xipo=2 -xprefetch_level=2 -xrestrict -xO4 -xprefetch=latx:0.5 -L/mnt/spec//stdcxx-4.2.1/build/lib

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Peak Optimization Flags (Continued)

447.dealII (continued):
-R/mnt/spec//stdcxx-4.2.1/build/lib -lstd8d

450.soplex: -xdepend -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -xalias_level=compatible -library=stlport4 -xipo=2 -xprefetch_level=2 -xprefetch_auto_type=indirect_array_access -Qoption cg -Qlp-ol=1 -Qoption cg -Qlp-it=3 -Qoption cg -Qlp-imb=1 -Qoption iropt -Apf:pdl=3 -xalias_level=simple -xrestrict

453.povray: -xdepend -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -xalias_level=compatible -library=stlport4 -fma=fused -xipo=2 -xrestrict -xprefetch=no%auto

Fortran benchmarks:

410.bwaves: basepeak = yes

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

434.zeusmp: -fast -xpagesize=4M -fma=fused -xipo=2 -xO4 -xprefetch=latx:2.0 -lmopt

437.leslie3d: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -fma=fused -xipo=2 -xprefetch=latx:4 -xprefetch_level=2

459.GemsFDTD: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -fma=fused -xipo=2 -xprefetch_level=2 -xprefetch=latx:2.0 -xcache=generic

465.tonto: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -xipo=2 -xarch=generic -xprefetch=latx:1.0 -lfast

Benchmarks using both Fortran and C:

435.gromacs: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90) -xpagesize=4M -xipo=2 -xarch=generic -xchip=generic -fsimple=0 -xunroll=5 -xprefetch=latx:0.5 -xprefetch_level=3 -xlinkopt -xvector

436.cactusADM: basepeak = yes

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Peak Optimization Flags (Continued)

454.calculix: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90) -xpagesize=4M -fma=fused -xipo=2 -xprefetch_level=3 -xprefetch=latx:3.0 -xalias_level=std

481.wrf: -fast(cc) -fast(f90) -xpagesize=4M -fma=fused -xipo=2 -xprefetch_level=3 -xunroll=8 -xcache=generic

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 file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.2-SPARC.20101221.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.20101221.xml

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

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