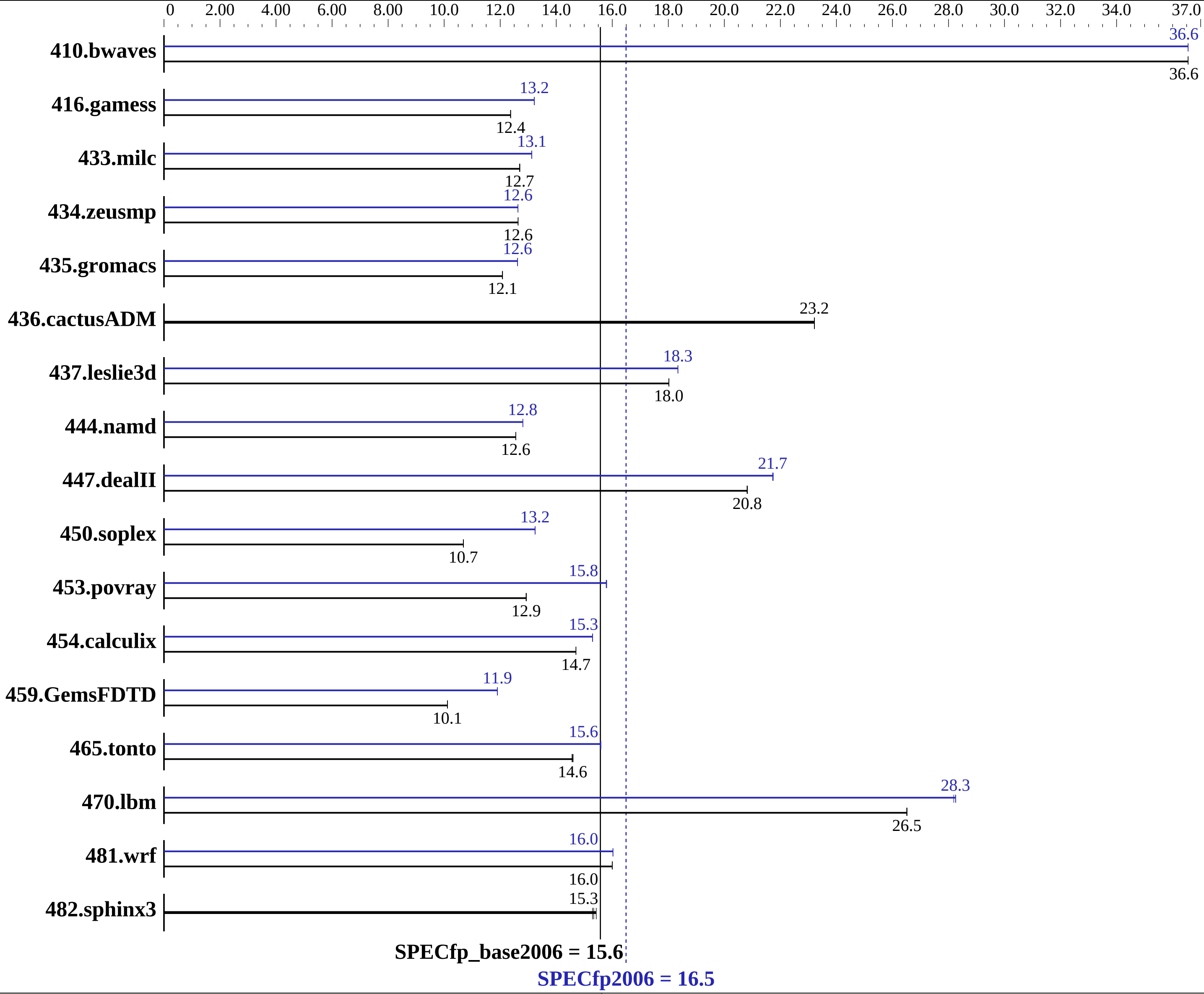
SPEC® CFP2006 Result

Sun Microsystems
Sun SPARC Enterprise M8000

SPECfp®2006 = 16.5

SPECfp_base2006 = 15.6

CPU2006 license:	6	**Test date:**	Jul-2009
Test sponsor:	Sun Microsystems	**Hardware Availability:**	Nov-2009
Tested by:	Fujitsu Limited	**Software Availability:**	Jun-2009



Hardware

CPU Name:	SPARC64 VII
CPU Characteristics:	
CPU MHz:	2880
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 chips
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	6 MB I+D on chip per chip

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Software

Operating System:	Solaris 10 5/09 with patches 119963-13, 120753-06, 118683-03
Compiler:	Sun Studio 12 Update 1
Auto Parallel:	No
File System:	ufs
System State:	Default
Base Pointers:	32-bit
Peak Pointers:	32-bit

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L3 Cache: None
Other Cache: None
Memory: 384 GB (64 x 2 GB + 64 x 4 GB), 8-way interleaved
Disk Subsystem: 1 x Seagate Savvio 10K.2 (146 GB 10,000 RPM SAS)
Other Hardware: None

Other Software: Apache C++ Standard Library V4.2.1

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	372	36.6	372	36.6	**372**	**36.6**	**372**	**36.6**	372	36.6	372	36.6
416.gamess	1582	12.4	1583	12.4	**1582**	**12.4**	**1481**	**13.2**	1481	13.2	1482	13.2
433.milc	723	12.7	**723**	**12.7**	723	12.7	699	13.1	699	13.1	**699**	**13.1**
434.zeusmp	720	12.6	720	12.6	**720**	**12.6**	**720**	**12.6**	720	12.6	720	12.6
435.gromacs	591	12.1	591	12.1	**591**	**12.1**	566	12.6	**566**	**12.6**	566	12.6
436.cactusADM	515	23.2	515	23.2	**515**	**23.2**	515	23.2	515	23.2	**515**	**23.2**
437.leslie3d	522	18.0	**522**	**18.0**	522	18.0	**512**	**18.3**	512	18.3	513	18.3
444.namd	639	12.6	639	12.6	**639**	**12.6**	626	12.8	626	12.8	**626**	**12.8**
447.dealII	550	20.8	549	20.8	**550**	**20.8**	**527**	**21.7**	526	21.7	527	21.7
450.soplex	781	10.7	780	10.7	**780**	**10.7**	**630**	**13.2**	630	13.2	629	13.2
453.povray	411	12.9	412	12.9	**411**	**12.9**	337	15.8	**337**	**15.8**	337	15.8
454.calculix	561	14.7	561	14.7	**561**	**14.7**	539	15.3	**539**	**15.3**	539	15.3
459.GemsFDTD	**1049**	**10.1**	1049	10.1	1049	10.1	**892**	**11.9**	892	11.9	892	11.9
465.tonto	676	14.6	674	14.6	**675**	**14.6**	**631**	**15.6**	631	15.6	632	15.6
470.lbm	518	26.5	518	26.5	**518**	**26.5**	486	28.3	487	28.2	**486**	**28.3**
481.wrf	**698**	**16.0**	698	16.0	698	16.0	**697**	**16.0**	697	16.0	697	16.0
482.sphinx3	1275	15.3	**1271**	**15.3**	1263	15.4	1275	15.3	**1271**	**15.3**	1263	15.4

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

Compiler Invocation Notes

```
Sun Studio compiler patches are available at
   http://developers.sun.com/sunstudio/downloads/patches/ss12u1_patches.jsp

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.)
```

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Operating System Notes

```
Shell Environments:

    ulimit -s 131072 was used to limit the space consumed
    by the stack.(making more space available for 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=300
       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=3
       Set maximum percent memory for file system cache.
    lpg_alloc_prefer=1
       Set lgroup page allocation to strongly prefer local pages.

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 Fujitsu SPARC Enterprise M8000 Server.
Note that the Fujitsu SPARC Enterprise M8000 and Sun SPARC Enterprise
M8000 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

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Base Compiler Invocation (Continued)

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
    -xalias_level=std -xprefetch_auto_type=indirect_array_access

C++ benchmarks:
    -xdepend -fast -fma=fused -xipo=2 -xpagesize=4M -xprefetch_level=2
    -xalias_level=compatible -library=no%Cstd
    -I/export/cpu2006/stdcxx-4.2.1/include
    -I/export/cpu2006/stdcxx-4.2.1/build/include
    -L/export/cpu2006/stdcxx-4.2.1/build/lib
    -R/export/cpu2006/stdcxx-4.2.1/build/lib -lstd8d

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

Benchmarks using both Fortran and C:
    -fast(cc) -fast(f90) -fma=fused -xipo=2 -xpagesize=4M
    -xprefetch_level=2 -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

Benchmarks using both Fortran and C:
    -xjobs=16 -V -# -v

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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: -fast -xpagesize=4M -xipo=2 -xprefetch_level=2

482.sphinx3: basepeak = yes

C++ benchmarks:

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

447.dealII: -xdepend -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -xalias_level=compatible -library=no%Cstd -I/export/cpu2006/stdcxx-4.2.1/include -I/export/cpu2006/stdcxx-4.2.1/build/include -fma=fused -xipo=2 -xprefetch_level=2 -xrestrict -L/export/cpu2006/stdcxx-4.2.1/build/lib -R/export/cpu2006/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

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Peak Optimization Flags (Continued)

453.povray (continued):
`-xipo=2 -xrestrict`

Fortran benchmarks:

410.bwaves: `-fast -xpagesize=4M -fma=fused -xipo=2 -xprefetch_level=2`

416.gamess: `-xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=4M -fma=fused -xipo=2 -xprefetch_level=3`

434.zeusmp: `-fast -xpagesize=4M -fma=fused -xipo=2 -lmopt`

437.leslie3d: `-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`

465.tonto: `-xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=4M -xipo=2 -xprefetch=no -xarch=generic -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`

436.cactusADM: `basepeak = yes`

454.calculix: `-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`

Peak Other Flags

C benchmarks:
`-xjobs=16 -V -#`

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

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Peak Other Flags (Continued)

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/Sun-Solaris-Studio12-12u1-and-gccfss4.2.r4.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12-12u1-and-gccfss4.2.r4.xml

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

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