



SPEC® CFP2006 Result

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Fujitsu SPARC Enterprise M8000

SPECfp®2006 = 19.6

SPECfp_base2006 = 18.2

CPU2006 license: 19

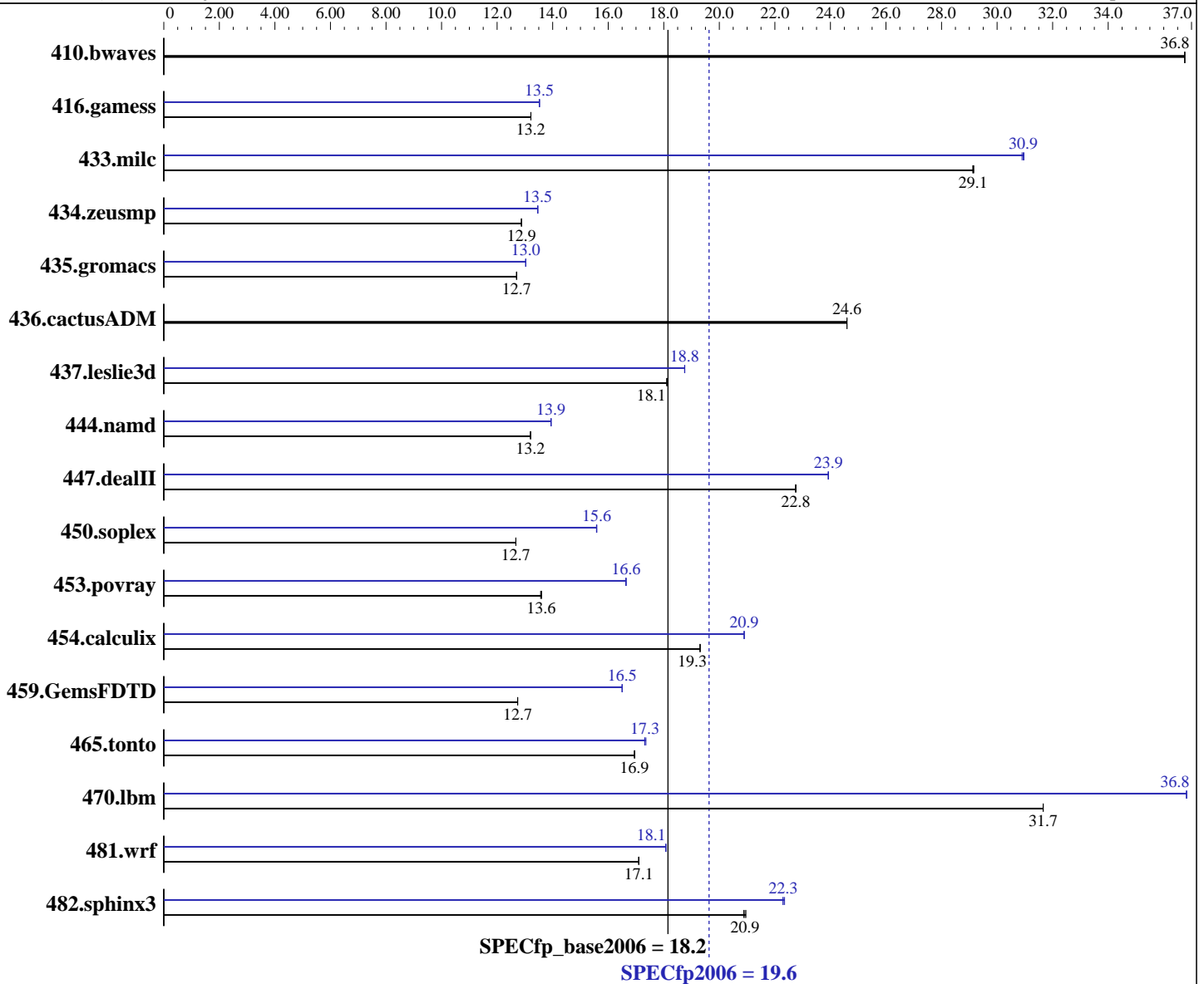
Test sponsor: Fujitsu

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

Benchmark	Base						Peak					
	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



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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_stdctx_4_2_1" src.alt was used.

447.dealII (base): "apache_stdctx_4_2_1" src.alt was used.



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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.dealIII (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.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.xml>

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

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