SPEC® CFP2006 Result

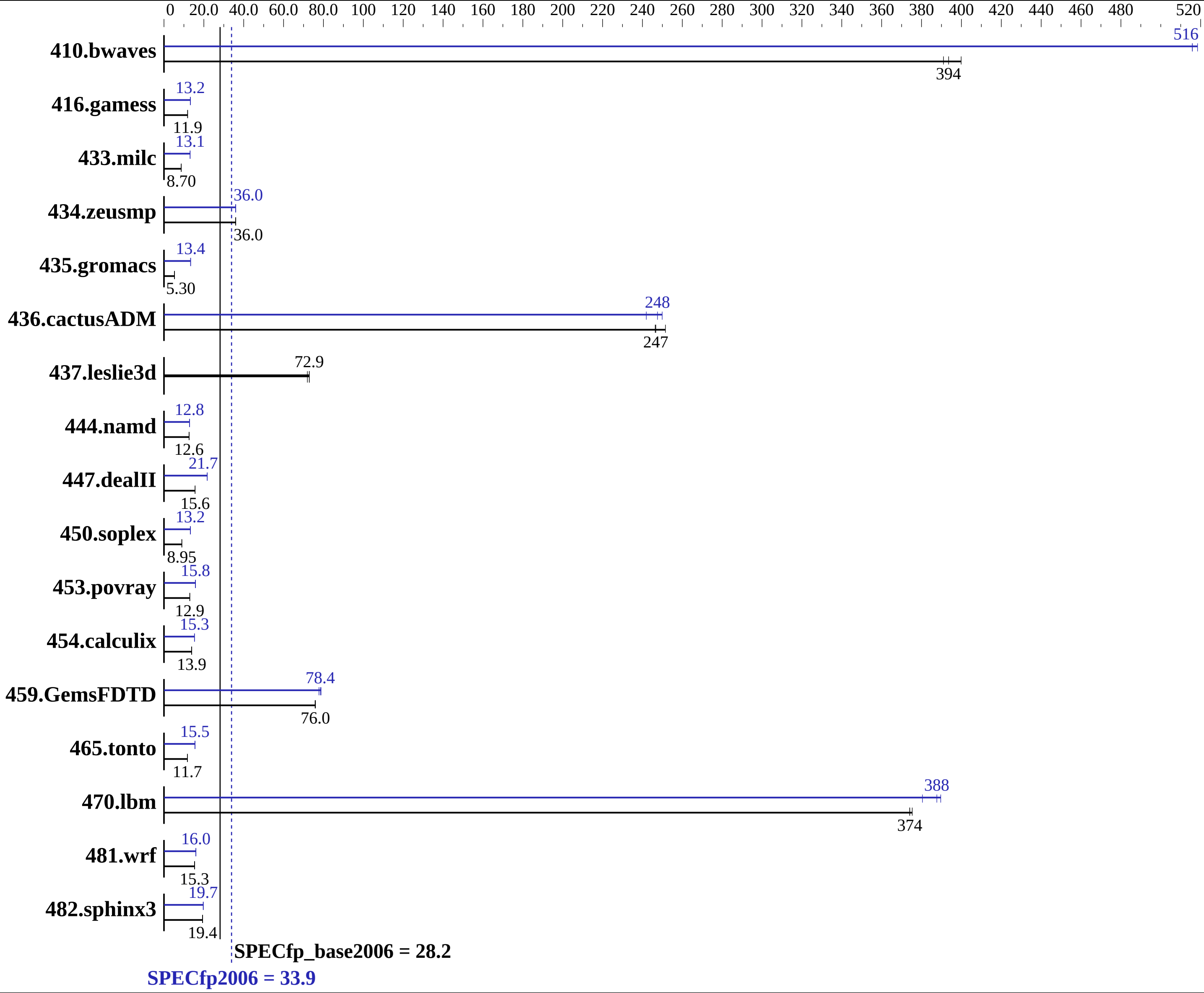
Fujitsu

Fujitsu SPARC Enterprise M8000

SPECfp®2006 = 33.9

SPECfp_base2006 = 28.2

CPU2006 license:	19	**Test date:**	Jul-2009
Test sponsor:	Fujitsu	**Hardware Availability:**	Nov-2009
Tested by:	Fujitsu	**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 CPU 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:	Yes
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 Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
410.bwaves	34.0	400	**34.5**	**394**	34.8	391	**26.3**	**516**	26.2	518	26.3	516
416.gamess	1649	11.9	1649	11.9	**1649**	**11.9**	**1481**	**13.2**	1481	13.2	1480	13.2
433.milc	1059	8.67	**1056**	**8.70**	1055	8.70	700	13.1	699	13.1	**699**	**13.1**
434.zeusmp	253	35.9	**253**	**36.0**	253	36.0	**253**	**36.0**	253	36.0	253	35.9
435.gromacs	1350	5.29	1348	5.30	**1348**	**5.30**	534	13.4	534	13.4	**534**	**13.4**
436.cactusADM	48.5	246	**48.4**	**247**	47.5	252	**48.3**	**248**	49.4	242	47.8	250
437.leslie3d	131	71.9	129	72.9	**129**	**72.9**	131	71.9	129	72.9	**129**	**72.9**
444.namd	638	12.6	**638**	**12.6**	638	12.6	**627**	**12.8**	627	12.8	627	12.8
447.dealII	732	15.6	731	15.6	**732**	**15.6**	527	21.7	**526**	**21.7**	526	21.7
450.soplex	**932**	**8.95**	931	8.96	932	8.95	630	13.2	630	13.2	**630**	**13.2**
453.povray	411	12.9	411	13.0	**411**	**12.9**	337	15.8	**337**	**15.8**	337	15.8
454.calculix	594	13.9	**594**	**13.9**	594	13.9	**540**	**15.3**	540	15.3	540	15.3
459.GemsFDTD	140	75.8	**140**	**76.0**	140	76.0	**135**	**78.4**	136	77.7	135	78.8
465.tonto	838	11.7	840	11.7	**838**	**11.7**	**633**	**15.5**	633	15.5	633	15.5
470.lbm	**36.7**	**374**	36.7	374	36.6	375	36.1	380	35.3	390	**35.4**	**388**
481.wrf	728	15.3	**728**	**15.3**	728	15.3	**697**	**16.0**	697	16.0	698	16.0
482.sphinx3	1003	19.4	1009	19.3	**1004**	**19.4**	**990**	**19.7**	991	19.7	987	19.7

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.)
```

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)

    The maximum number of threads a program can create was set with:
       OMP_NUM_THREADS=64

    Program threads were bound to processors with:
       SUNW_MP_PROCBIND=" 1  2  4  6  8 10 12 14 16 18 20 22 24 26 28 30 32 34
                         36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70
                         72 74 76 78 80 82 84 86 88 90 92 94 96 98 100 102 104
                         106 108 110 112 114 116 118 120 122 124 126"

    Behavior of parallel threads was set with:
       SUNW_MP_THR_IDLE=SPIN
    SPIN specifies that an idle thread should spin while waiting at barrier
    or waiting for new parallel regions to work on.

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.

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 -xpagesize=4M -xipo=2 -xprefetch=latx:2 -xautopar
-xreduction -xprefetch_level=3
-xprefetch_auto_type=indirect_array_access

C++ benchmarks:
-fast -fma=fused -xpagesize=4M -xipo=2 -xprefetch=latx:2 -xautopar
-xreduction -xprefetch_level=2 -xalias_level=compatible
-library=stlport4

Fortran benchmarks:
-fast -fma=fused -xpagesize=4M -xipo=2 -xprefetch=latx:2 -xautopar
-xreduction -xprefetch_level=2

Benchmarks using both Fortran and C:
-fast(cc) -fast(f90) -fma=fused -xpagesize=4M -xipo=2
-xprefetch=latx:2 -xautopar -xreduction -xprefetch_level=3
-xprefetch_auto_type=indirect_array_access -xprefetch_level=2

Base Other Flags

C benchmarks:
-xjobs=16 -V -#

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

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Base Other Flags (Continued)

Fortran benchmarks:
`-xjobs=16 -V -v`

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 -fma=fused -xpagesize=4M -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 -fma=fused -xpagesize=4M -xipo=2 -xprefetch=latx:2 -xalias_level=std -xprefetch_level=3 -xprefetch_auto_type=indirect_array_access -xarch=v8plusb -xprefetch_level=2 -xautopar -xreduction`

482.sphinx3: `-xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xipo=2 -fma=fused -xalias_level=std -xautopar -xreduction`

C++ benchmarks:

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

447.dealII: `-xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -fma=fused -xpagesize=4M -xipo=2 -xprefetch_level=2 -xrestrict -xalias_level=compatible -library=no%Cstd`

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Peak Optimization Flags (Continued)

447.dealII (continued):
`-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`

450.soplex: `-xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=4M`
`-xipo=2 -xdepend -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 -library=stlport4`

453.povray: `-xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast -fma=fused`
`-xpagesize=4M -xipo=2 -xrestrict -xalias_level=compatible`
`-library=stlport4`

Fortran benchmarks:

410.bwaves: `-fast -fma=fused -xpagesize=512K -xipo=2 -xprefetch=latx:2`
`-xprefetch_level=2 -xautopar -xreduction`

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

434.zeusmp: `-fast -fma=fused -xpagesize=4M -xipo=2 -xprefetch=latx:2`
`-xautopar -xreduction`

437.leslie3d: `basepeak = yes`

459.GemsFDTD: `-fast -fma=fused -xpagesize=4M -xipo=2 -xprefetch=latx:2`
`-fsimple=1 -xprefetch_level=2 -xautopar -xreduction`

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)
`-fma=fused -xipo=2 -xalias_level=std`

436.cactusADM: `-fast`(cc) `-fast`(f90) `-fma=fused -xpagesize=4M -xipo=2`
`-xprefetch=latx:2 -xalias_level=std -xprefetch_level=3`
`-xprefetch_auto_type=indirect_array_access -xautopar`
`-xreduction`

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Peak Optimization Flags (Continued)

454.calculix: -fast(cc) -fast(f90) -fma=fused -xpagesize=4M -xipo=2 -xprefetch_level=3 -xprefetch=latx:3.0 -xalias_level=std

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

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/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.

Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 04:15:22 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 28 October 2009.