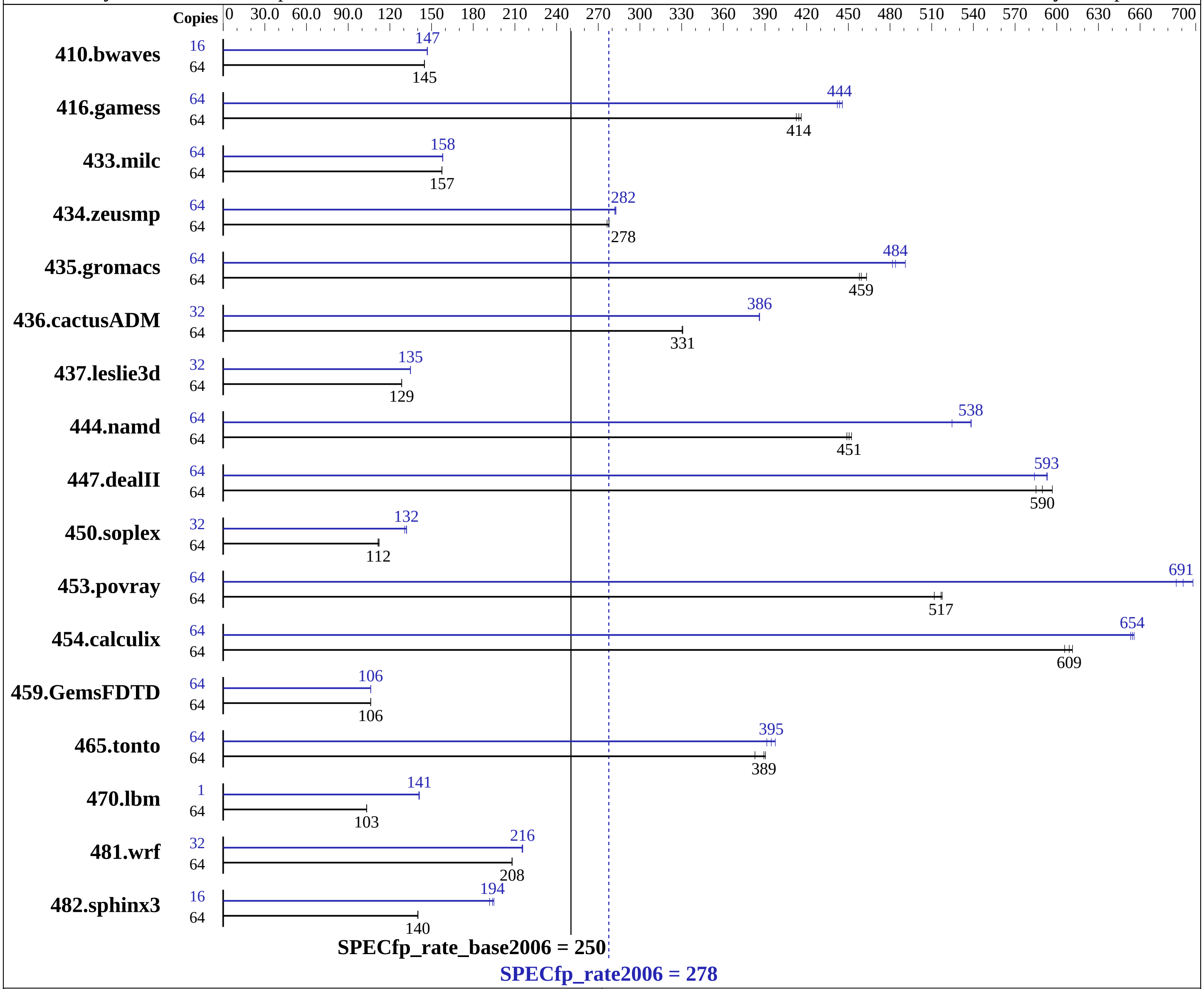
SPEC® CFP2006 Result

Fujitsu
SPARC Enterprise M5000

SPECfp®_rate2006 = 278

SPECfp_rate_base2006 = 250

CPU2006 license:	19	**Test date:**	Nov-2010
Test sponsor:	Fujitsu	**Hardware Availability:**	Dec-2010
Tested by:	Oracle Corporation	**Software Availability:**	Sep-2010



Hardware

CPU Name:	SPARC64 VII+
CPU Characteristics:	
CPU MHz:	2660
FPU:	Integrated
CPU(s) enabled:	32 cores, 8 chips, 4 cores/chip, 2 threads/core
CPU(s) orderable:	1 to 4 CPUMs; each CPUM contains 2 CPU chips
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	11 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:	Yes
File System:	zfs with gzip compression
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: 128 GB (64 x 2 GB, 8-way interleaved)
Disk Subsystem: 134 GB on 2 x 72 GB 10K RPM SAS disks
Other Hardware: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	64	6008	145	**6002**	**145**	6001	145	16	1478	147	**1478**	**147**	1481	147
416.gamess	64	3037	413	**3024**	**414**	3012	416	64	2835	442	**2824**	**444**	2811	446
433.milc	64	3731	157	**3731**	**157**	3728	158	64	3720	158	**3716**	**158**	3715	158
434.zeusmp	64	**2097**	**278**	2097	278	2108	276	64	2066	282	**2064**	**282**	2060	283
435.gromacs	64	987	463	**995**	**459**	998	458	64	931	491	**944**	**484**	949	482
436.cactusADM	64	2311	331	2315	330	**2312**	**331**	32	990	386	**990**	**386**	991	386
437.leslie3d	64	4678	129	4681	129	**4681**	**129**	32	2230	135	**2230**	**135**	2232	135
444.namd	64	**1139**	**451**	1143	449	1135	452	64	953	538	**954**	**538**	978	525
447.dealII	64	1251	585	**1242**	**590**	1227	597	64	1254	584	**1235**	**593**	1234	593
450.soplex	64	4789	111	**4779**	**112**	4753	112	32	2042	131	2021	132	**2024**	**132**
453.povray	64	665	512	**659**	**517**	658	518	64	**493**	**691**	488	698	496	686
454.calculix	64	872	606	864	611	**867**	**609**	64	808	653	805	656	**807**	**654**
459.GemsFDTD	64	6397	106	**6395**	**106**	6394	106	64	6393	106	**6394**	**106**	6396	106
465.tonto	64	**1618**	**389**	1645	383	1613	390	64	1609	391	**1596**	**395**	1585	397
470.lbm	64	**8512**	**103**	8512	103	8513	103	1	**97.4**	**141**	97.6	141	97.3	141
481.wrf	64	3436	208	3440	208	**3437**	**208**	32	1657	216	**1659**	**216**	1661	215
482.sphinx3	64	8890	140	**8903**	**140**	8906	140	16	**1608**	**194**	1600	195	1626	192

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).

 /etc/system parameters
    autoup=600
       Causes pages older than the listed number of seconds to
       be written by fsflush.
    tune_t_fsflushr=10
       Controls how many seconds elapse between runs of the
       page flush daemon, fsflush.
    zfs:zfs_arc_min=0x10000000
    zfs:zfs_arc_max=0x380000000
       Limits the consumption of memory by the zfs file system
       cache to 256 MB to 14 GB .  (The arc_max sets the maximum
       cache size; arc_min sets the minimum.)
    kernel_cage_enable=0
       Allows the kernel to use memory in any locality group.
       In particular, allows ZFS file caches to be located on
       any memory board.
    lpg_alloc_prefer=1
        Indicates that extra effort should be taken to ensure
        that pages are created in the nearby lgroup (NUMA location).
 The "webconsole" service was turned off using
     svcadm disable webconsole
 The system had 52 GB of swap space.
```

Platform Notes

```
Memory is 8-way interleaved by filling all slots with
the same capacity DIMMs.

This result is measured on a SPARC Enterprise M5000 server from
Oracle.  The SPARC Enterprise M5000 server from Oracle and from
Fujitsu are electrically equivalent.
```

General Notes

```
Environment variables set by runspec before the start of the run:
OMP_NUM_THREADS = "64"
SUNW_MP_PROCBIND = "63 62 61 60 59 58 57 56 55 54 53 52 51 50 49
48 47 46 45 44 43 42 41 40 39 38 37 36 35 34 33 32 31 30 29 28
27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5
4 3 2 1 0"
SUNW_MP_THR_IDLE = "SPIN"

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 -xalias_level=std
    -xprefetch_auto_type=indirect_array_access -xprefetch_level=3
    -fsimple=1

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

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

Benchmarks using both Fortran and C:
    -fast(cc) -fast(f90) -fma=fused -xipo=2 -xpagesize=4M
    -xalias_level=std -xprefetch_auto_type=indirect_array_access
    -xprefetch_level=3 -fsimple=1

Base Other Flags

C benchmarks:
`-xjobs=32 -V -#`

C++ benchmarks:
`-xjobs=32 -verbose=diags,version`

Fortran benchmarks:
`-xjobs=32 -V -v`

Benchmarks using both Fortran and C:
`-xjobs=32 -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 -xprefetch_auto_type=indirect_array_access -xalias_level=std -fsimple=1 -W2,-Ainline:rs=400

470.lbm: -fast -xpagesize=4M -fma=fused -xipo=2 -xprefetch_level=3 -xvector -xarch=generic -xautopar -xreduction

482.sphinx3: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -fma=fused -xipo=2 -xinline= -xalias_level=strong -xprefetch_level=2 -lfast -ll2amm

C++ benchmarks:

444.namd: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -xalias_level=any -xdepend -library=stlport4 -fma=fused

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Peak Optimization Flags (Continued)

444.namd (continued):
-xipo=2 -xchip=generic -xunroll=2

447.dealII: -fast -xpagesize=4M -xalias_level=compatible -xdepend -library=no%Cstd -I/export/home/apache/stdcxx-4.2.1/include -I/export/home/apache/stdcxx-4.2.1/build/include -fma=fused -xipo=2 -xprefetch=latx:0.5 -L/export/home/apache/stdcxx-4.2.1/build/lib -R/export/home/apache/stdcxx-4.2.1/build/lib -lstd8d

450.soplex: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -xalias_level=compatible -xdepend -library=stlport4 -fma=fused -xipo=2 -xrestrict -xprefetch=no -ll2amm

453.povray: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -xalias_level=compatible -xdepend -fma=fused -xipo=2 -xlinkopt=2 -xprefetch=no -xunroll=4 -xO4 -lfast

Fortran benchmarks:

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

416.gamess: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -fma=fused -xipo=2 -xprefetch=no%auto -xO3

434.zeusmp: -fast -xpagesize=4M -fma=fused -xipo=2 -xprefetch_level=1 -ll2amm -xunroll=5

437.leslie3d: -fast -xpagesize=4M -M /usr/lib/ld/map.bssalign -xprefetch=no

459.GemsFDTD: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -fma=fused

465.tonto: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xpagesize=4M -xipo=2 -xprefetch=no -lfast -ll2amm

Benchmarks using both Fortran and C:

435.gromacs: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90) -xpagesize=4M -fma=fused -xtarget=generic -xinline= -fsimple=0 -xlinkopt -xvector -xdepend

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Peak Optimization Flags (Continued)

436.cactusADM: -fast(cc) -fast(f90) -xpagesize=4M -fma=fused -xipo=2

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

481.wrf: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90) -xpagesize=4M -fma=fused -xipo=2 -xprefetch_level=3 -xprefetch_auto_type=indirect_array_access -ll2amm

Peak Other Flags

C benchmarks:
-xjobs=32 -V -#

C++ benchmarks:
-xjobs=32 -verbose=diags,version

Fortran benchmarks:
-xjobs=32 -V -v

Benchmarks using both Fortran and C:
-xjobs=32 -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

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

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