SPEC® CFP2006 Result

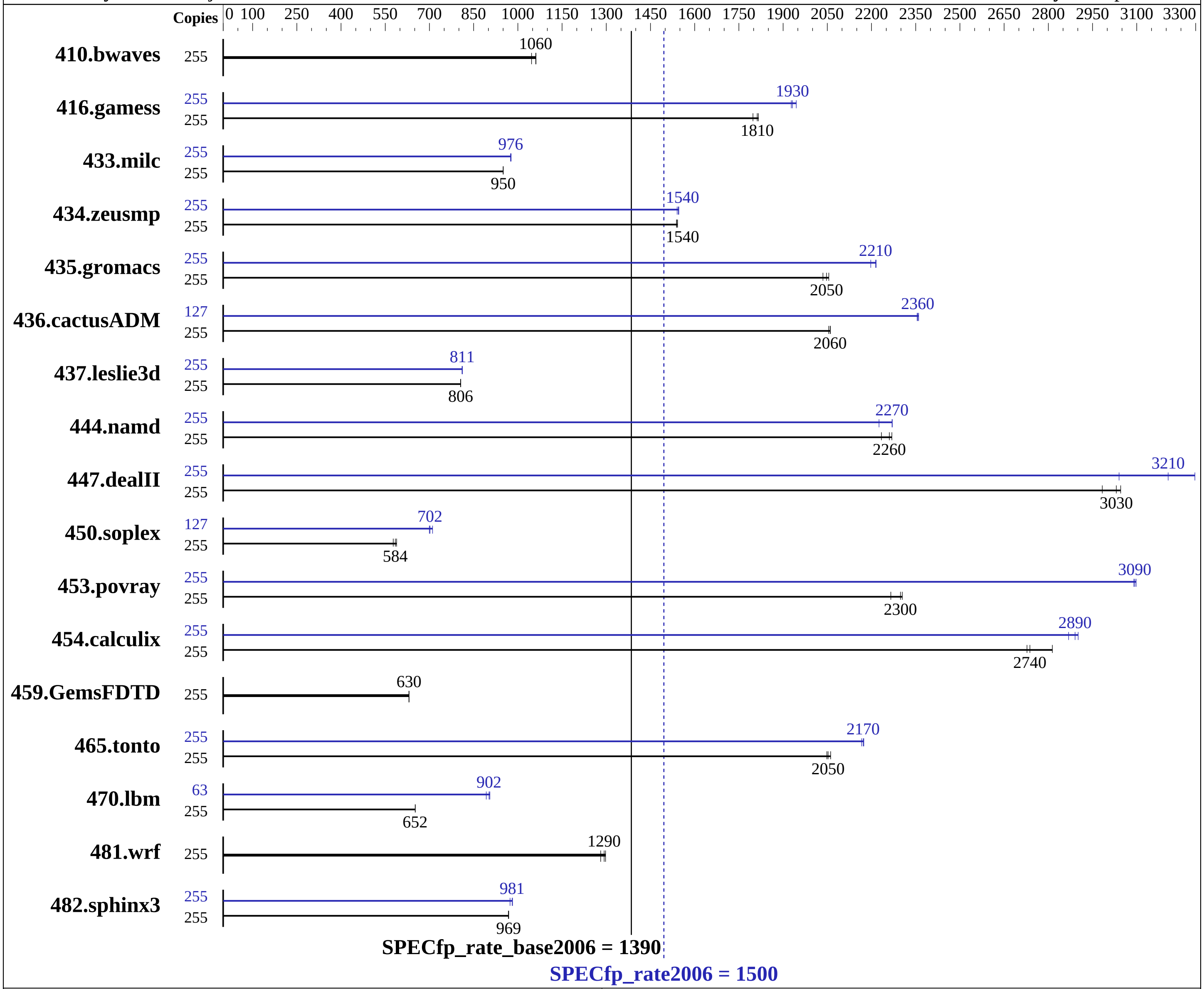
Fujitsu
SPARC Enterprise M9000

SPECfp®_rate2006 = 1500

SPECfp_rate_base2006 = 1390

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:	128 cores, 32 chips, 4 cores/chip, 2 threads/core
CPU(s) orderable:	1 to 8 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

L3 Cache: None
Other Cache: None
Memory: 976 GB (32 x 2 GB + 228 x 4 GB, 8-way interleaved)
Disk Subsystem: 6 x 300 GB 10,000 RPM SAS
Other Hardware: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	255	**3267**	**1060**	3312	1050	3265	1060	255	**3267**	**1060**	3312	1050	3265	1060
416.gamess	255	2749	1820	**2755**	**1810**	2777	1800	255	2567	1940	2590	1930	**2585**	**1930**
433.milc	255	2463	951	**2463**	**950**	2464	950	255	**2399**	**976**	2400	975	2396	977
434.zeusmp	255	1505	1540	**1508**	**1540**	1509	1540	255	1506	1540	1501	1550	**1502**	**1540**
435.gromacs	255	895	2040	**889**	**2050**	886	2060	255	**822**	**2210**	829	2200	822	2220
436.cactusADM	255	1479	2060	1483	2050	**1480**	**2060**	127	643	2360	644	2350	**644**	**2360**
437.leslie3d	255	2973	806	**2974**	**806**	2974	806	255	2953	812	2957	810	**2954**	**811**
444.namd	255	**905**	**2260**	901	2270	916	2230	255	**901**	**2270**	919	2230	901	2270
447.dealII	255	958	3050	978	2980	**963**	**3030**	255	885	3300	960	3040	**910**	**3210**
450.soplex	255	3685	577	**3640**	**584**	3613	589	127	1514	700	1491	711	**1509**	**702**
453.povray	255	589	2300	**590**	**2300**	599	2270	255	**439**	**3090**	438	3100	439	3090
454.calculix	255	**768**	**2740**	771	2730	748	2810	255	**728**	**2890**	725	2900	733	2870
459.GemsFDTD	255	4290	631	4293	630	**4291**	**630**	255	4290	631	4293	630	**4291**	**630**
465.tonto	255	1225	2050	**1222**	**2050**	1217	2060	255	1158	2170	1154	2170	**1155**	**2170**
470.lbm	255	5376	652	5378	651	**5377**	**652**	63	**959**	**902**	956	905	970	893
481.wrf	255	2223	1280	**2203**	**1290**	2195	1300	255	2223	1280	**2203**	**1290**	2195	1300
482.sphinx3	255	5135	968	**5130**	**969**	5130	969	255	5061	982	**5068**	**981**	5105	973

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

```
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):

 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
 bufhwm=40000000
     Memory byte limit for caching I/O buffers.

 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 M9000 server from
 Fujitsu.  The SPARC Enterprise M9000 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 -xipo=2 -xpagesize=4M -fma=fused -xlinkopt -xvector
-xalias_level=std -xprefetch_auto_type=indirect_array_access
-xprefetch_level=1 -ll2amm

C++ benchmarks:
-xdepend -fast -xipo=2 -xpagesize=4M -fma=fused -xlinkopt -xvector
-xalias_level=compatible -xprefetch_level=1 -library=no%Cstd
-I/mnt/spec//stdcxx-4.2.1/include
-I/mnt/spec//stdcxx-4.2.1/build/include -ll2amm
-L/mnt/spec//stdcxx-4.2.1/build/lib -R/mnt/spec//stdcxx-4.2.1/build/lib
-lstd8d

Fortran benchmarks:
-fast -xipo=2 -xpagesize=4M -fma=fused -xlinkopt -xvector
-xprefetch_level=2 -ll2amm

Benchmarks using both Fortran and C:
-fast(cc) -fast(f90) -xipo=2 -xpagesize=4M -fma=fused -xlinkopt
-xvector -xalias_level=std -xprefetch_auto_type=indirect_array_access
-xprefetch_level=1 -xprefetch_level=2 -ll2amm

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: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xipo=2 -xpagesize=4M -fma=fused -xarch=generic -fsimple=1 -W2,-Ainline:rs=400 -xalias_level=std -xprefetch_auto_type=indirect_array_access -xprefetch_level=2

470.lbm: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xrestrict -xipo=2 -xprefetch_level=2 -xarch=v8plusb -xcache=generic -ll2amm

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

C++ benchmarks:

444.namd: -xdepend -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xipo=2 -xpagesize=4M -fma=fused -xalias_level=compatible -library=stlport4 -xipo=1 -xlinkopt=2 -xprefetch=no%auto -xunroll=2 -ll2amm -lfast

447.dealII: -xdepend -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xipo=2 -xpagesize=4M -fma=fused -xalias_level=compatible -library=no%Cstd -I/mnt/spec//stdcxx-4.2.1/include

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Peak Optimization Flags (Continued)

447.dealII (continued):
-I/mnt/spec//stdcxx-4.2.1/build/include
-xprefetch_auto_type=indirect_array_access -xrestrict
-xchip=generic -xunroll=4
-L/mnt/spec//stdcxx-4.2.1/build/lib
-R/mnt/spec//stdcxx-4.2.1/build/lib -lstd8d

450.soplex: -xdepend -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xpagesize=4M -fma=fused -xalias_level=compatible
-library=stlport4 -xvector -xlinkopt=2 -xprefetch=no%auto
-xarch=generic

453.povray: -xdepend -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xpagesize=4M -fma=fused -xalias_level=compatible
-library=stlport4 -xO4 -xunroll=4 -xprefetch=no%auto
-lfast

Fortran benchmarks:

410.bwaves: basepeak = yes

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

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

437.leslie3d: -fast -xipo=2 -xpagesize=4M -fma=fused -xprefetch=latx:5.0
-ll2amm

459.GemsFDTD: basepeak = yes

465.tonto: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xpagesize=4M -fma=fused -xprefetch=no%auto -xO4
-xunroll=3 -lfast

Benchmarks using both Fortran and C:

435.gromacs: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
-xipo=2 -xpagesize=4M -fma=fused -xvector -xinline=
-xchip=generic -fsimple=0 -xunroll=7 -xprefetch=no%auto

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

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Peak Optimization Flags (Continued)

454.calculix: `-fast`(cc) `-fast`(f90) `-xipo=2 -xpagesize=4M -fma=fused -xvector -xunroll=8 -xprefetch=latx:3 -xalias_level=std`

481.wrf: `basepeak = yes`

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

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

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